

**Is self-compassion relevant to the pathology and treatment of eating and body image concerns?**

By

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## Abstract of the thesis

This PhD thesis examines the role of self-compassion in eating pathology and body image concerns across a variety of methodologies. The introductory chapter (Chapter 1) provides background context and addresses the relevant existing literature, leading to the conclusion that self-compassion might be relevant to the pathology and the treatment of eating and body image issues. Therefore, a meta-analysis and systematic review was conducted (in Chapter 2) to empirically evaluate the association of self-compassion with levels of eating and body image concerns, and whether increasing self-compassion can reduce such concerns.

Acting on the meta-analytic findings, the first empirical study (Chapter 3) aimed to explore the mechanism of action of self-compassion in relation to eating pathology and body dissatisfaction. A cross-sectional study of men and women was conducted to understand whether perfectionism, self-criticism, rumination, and external shame could reveal the links between self-compassion with eating pathology and body dissatisfaction. This study was then extended into a longitudinal methodology (over 6-months) for the female participants only (Chapter 4) to explore mediation more thoroughly.

The final step was to test the effectiveness of compassion as an intervention for eating pathology and body image concerns in two interconnected studies. The next study (Chapter 5) therefore tested the feasibility and preliminary effectiveness of delivering online self-compassion versus exposure interventions for reducing eating pathology and body image disturbance. The feasibility study findings were then used to design and conduct a randomised controlled trial in the final study (Chapter 6). This final study focussed on evaluating the effectiveness of differing self-compassion interventions on state body shame. The final chapter (Chapter 7) is a general discussion, drawing together the outcomes and considering these from various theoretical perspectives. Implications are discussed, indicating further research directions, as well as potential interventions and prevention strategies.

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Turk, F., & Waller, G. (2020). Is self-compassion relevant to the pathology and treatment of eating and body image concerns? A systematic review and meta-analysis*. Clinical Psychology Review*, doi: 10.1016/j.cpr.2020.101856.

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# Chapter 1

## General Introduction

### Overview of the introduction chapter

This introductory chapter will provide the context for the interconnected research studies conducted in this thesis. It will start by outlining the characteristics of eating disorders, detailing their definitions, prevalence, aetiology, and maintenance, and exploring why body image is an important factor when considering eating disorders. It will then explain the existing treatment options and highlight how self-compassion could enhance the existing models. Then, the chapter focuses on self-compassion as a possible factor that influences eating pathology and body image. It will therefore provide current literature on the theoretical models of self-compassion and interventions for such issues and identify apparent gaps in the current literature. At the end of this chapter, it will provide a brief plan for the studies comprising this thesis, based on this initial evidence review.

Eating disorders and body image

Eating disorders can be defined as “a persistent disturbance of eating or eating-related behaviours that results in the altered consumption or absorption of food and that significantly impairs physical health or psychosocial functioning” (American Psychiatric Association [APA], 2013, p.329). The main clinical diagnoses of eating disorders include anorexia nervosa (AN), bulimia nervosa (BN), binge eating disorder (BED), and avoidant/restrictive food intake disorder (ARFID; APA, 2013), as well as atypical cases. Eating pathology in this dissertation refers to disordered eating attitudes (e.g., drive for thinness, body dissatisfaction) and disordered eating behaviours (e.g., dieting for weight loss, or use of laxatives; Jones et al., 2001).

Community-based epidemiological studies have identified a wide range of prevalence of eating disorders. For example, the prevalence of eating disorders has been identified as 0.2% in Korean adults, 4.4 % in the UK (Solmi et al., 2014; 2016), and 13.1% of young women in the US (Stice et al., 2013). Eating disorders are reported by less than 3-10% of women in Europe and 0.3–0.7% of men (Keski-Rahkonen & Mustelin, 2016). Despite the wide prevalence estimates, one area of relative consistency is that eating pathology often emerges in adolescence and young adulthood. Although men are also at risk of developing eating disorders (Limbers et al., 2018), younger women are predominantly considered the higher-risk group for such issues. (Striegel-Moore & Bulik, 2007). However, it should be noted that binge eating disorder is more common among men and older individuals (Smink et al., 2012).

The aetiology of eating disorders is complex, involving various interacting factors. Polivy and Herman (2002) categorised the causes of eating disorders as sociocultural factors (e.g., thin idealization, media/peer pressure), familial factors (e.g., low parental caring, physical abuse), and individual risk factors. Such individual factors are classified into several groups - affective influences (e.g., stress, negative mood), low self-esteem, body dissatisfaction, cognitive factors (e.g., obsessive thoughts, perfectionism, dissociation, cognitive bias), and biological influences (including genetics and neuroendocrine factors) (Polivy & Herman, 2002). A review suggests that psychological and environmental factors interact with and affect the expression of genetic risk for eating pathology (Culbert et al., 2015). One of the most prominent risks and maintenance factors is body dissatisfaction (e.g., Stice & Shaw, 2002).

Body image is conceptualized as one’s perceptions, thoughts, and feelings about their body (Grogan, 2007). Body dissatisfaction occurs when perceptions of the body are negative and involves a perceived discrepancy between one’s actual and ideal body shape (Cash & Szymanski, 1995). It is suggested that approximately 50% of adolescent girls are not happy with their bodies (Bearman et al., 2006). Body dissatisfaction is also found to be prevalent among women with normal weight (Slevec & Tiggemann, 2011). Such dissatisfaction can result in negative consequences for both physical and mental health, including depression, anxiety, and eating disorders (Grabe et al., 2008; Groesz et al., 2002). Even without clinically diagnosable eating disorders, concerns with body shape can still affect individuals’ quality of life (Cohen & Petrie, 2005). Further, if the body image problem is not improved among individuals with eating disorders, such people are at risk of relapse (Bell & Rushforth, 2008). Therefore, it is important to address body image issues for understanding and treating eating pathology/disorders.

Eating disorders are often comorbid with other psychiatric disorders. The most common comorbidities are anxiety disorders (53%) and mood disorders (43%) (Keski-Rahkonen & Mustelin, 2016). Ten percent of patients also present with substance use disorders. Several studies have shown that individuals with eating disorders have poorer health-related quality of life compared with women in the general population (Abraham et al., 2006; Ackard et al., 2014; Padierna et al., 2000). A review reaches the same conclusion regarding impairment in important life domains, including social, psychological, and physical (Engel et al., 2009). Further, the severity of eating disorders is a predictor of low quality of life (Bamford & Sly, 2009). Given such negative consequences of eating disorders, improving treatments for those issues is important.

There are effective treatments for eating disorders. The National Institute for Health and Care Excellence (NICE, 2017) recommends individual eating-disorder-focused cognitive behavioural therapy (CBT-ED), Specialist Supportive Clinical Management, and Maudsley Anorexia Nervosa Treatment for Adults (MANTRA) for adults with anorexia nervosa, and CBT-ED based approaches for adults with bulimia and binge eating disorder. CBT-ED remission rates are as high as 65.5% at the end of the treatment (Fairburn et al., 2015) for non-underweight patients, but therapy outcomes are poorer for anorexia nervosa treatments. While CBT is efficacious for eating disorders, it is not consistently greater than non-specific supportive therapies when considering dropout rates and residual symptomatology (Linardon et al., 2017). Given that none of these therapies are fully effective in treating eating disorders, it is important to understand other factors that might add to the effects of existing therapies or that could be used in the development of new therapy models.

Various models have been developed to explain different aspects of eating disorders and body image issues. Schmidt and Treasure (2006) suggested a cognitive-interpersonal maintenance model for anorexia nervosa. The dual pathway model of bulimia nervosa proposes two paths that lead to eating pathology, due to socio-cultural pressures to be thin (Stice, 2001). Transdiagnostic cognitive-behavioural models acknowledge the roles of clinical perfectionism, core low self-esteem, mood intolerance and interpersonal difficulties as maintenance factors for eating disorders (Fairburn et al., 2003). In this thesis, I will focus on emotional aspects of eating pathology that are not currently part of front-line therapies and their models, in order to examine whether such elements can be used to improve existing models.

Different theoretical models point out the critical role of the emotional component in eating pathology. Both escape theory (Heatherton & Baumeister, 1991) and affect regulation models (Lavender et al., 2015) assume that bingeing-purging episodes serve as a coping response to negative affect by producing short-term relief. Functional analysis of binge eating (McManus & Waller, 1995) suggests that bingeing has the effect of blocking negative emotions. Similarly, according to the transactional model of emotion dysregulation in anorexia nervosa, disordered eating behaviours such as restricting and extreme exercising can function to suppress negative emotions or distract from negative emotions (Haynos & Fruzzetti, 2011; Smyth et al., 2007). Neurobiological theories emphasize the role of hormones and neurotransmitters in how negative emotions can trigger binge-eating (Leehr et al., 2015).

### Self-compassion

Self-compassion is suggested as an alternative way to cope with negative emotions (Diedrich et al., 2014; Feliu-Soler et al., 2017). Given the role of negative emotions in eating pathology, self-compassion might be a valuable construct to improve our ability to treat such issues. Neff (2011) has defined self-compassion as “treating oneself with kindness, recognising one’s shared humanity, and being mindful when considering negative aspects of oneself”. Neff (2003a) proposed three interacting components: self-kindness vs self-judgment; common humanity vs isolation; and mindfulness vs over-identification. Self-kindness refers to being caring and understanding of oneself rather than engaging in harsh judgments and self-criticism, even at times of failure. Common humanity involves recognizing that humans are imperfect and make mistakes, while at the same time seeing such mistakes as a part of the shared human experience rather than isolated instances. Mindfulness involves being aware of one’s painful thoughts and feelings in a non-judgmental way.

Self-compassion has been conceptualised from an evolutionary, attachment theory and neuroscience perspective. Gilbert (2009, p. xiii) defines compassion as "a sensitivity to suffering in self and others with a commitment to try to alleviate and prevent it." Gilbert’s (2005) emotion regulation model consists of three interacting systems: threat-protection; drive-resource seeking; and safeness-soothing systems. Self-compassion is the main mechanism behind the soothing system that functions to regulate affect that is activated by the threat system. It is proposed that individuals raised in a supportive environment have a higher capacity to activate feelings of safety and warmth linked to the self-soothing system (Gilbert, 2014). Accordingly, individuals may have difficulties managing their painful emotions if their soothing system is underdeveloped.

Growing evidence has shown that self-compassion is associated with greater well-being, more positive emotions, and less negative emotions (Birnie et al., 2010; Gilbert, 2005; Hofmann, et al., 2011; Neff & Dahm, 2015; Neff et al., 2007; Warren et al., 2016; Zessin et al., 2015). A recent meta-analysis shows that higher self-compassion is related to lower levels of psychological stress, anxiety, and depressive symptoms (MacBeth & Gumley, 2012). An experimental study reported that both trait and induced self-compassion were associated with lower levels of emotional reactivity, less negative affectivity, and higher acceptance (Leary et al., 2007). Self-compassion is suggested to modify negative affect and generate more positive emotions, highlighting the emotion regulation at self-compassion’s core (Berking & Whitley, 2014; Inwood & Ferrari, 2018; Neff et al., 2007).

Individuals who have higher self-compassion seem to modify the context in which negative experiences occur rather than trying to escape or avoid such experiences. Therefore, self-compassion functions as adaptive emotion regulation that helps positive cognitive reappraisal and acceptance of negative situations (Allen & Leary, 2010; Diedrich et al., 2014; Leary et al., 2007). Several authors proposed that self-compassion defuses negative emotions by offering non-judgmental awareness of one’s emotions and responding to stressful events in a self-supportive way (Allen & Leary, 2010; Neff et al., 2005). Practicing self-compassion may help to manage negative emotions by improving abilities in identifying and accepting emotions, and lowering emotional numbing (Ogden et al., 2006). Given the role of negative emotions in the aetiology and maintenance of eating disorders, self-compassion would be a valuable concept to investigate.

### Self-compassion-based interventions

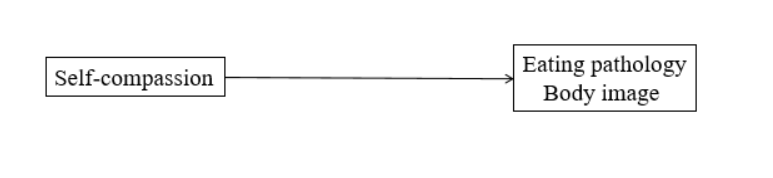
Self-compassion related interventions have become increasingly popular in recent literature. Currently,two main empirically supported self-compassion related interventions are available - Mindful Self-Compassion (MSC; Neff & Germer, 2013), and Compassion-Focused Therapy (CFT; Gilbert, 2014). Mindful Self-compassion is derived from Buddhist psychology and applied psychological science research. The programme contains core meditations (e.g., affectionate breathing) and psychoeducation regarding self-compassion and mindfulness. It also addresses core values, managing difficult emotions and human negativity bias (Germer & Neff, 2013). Mindful self-compassion is a group-based programme that lasts eight weeks with 2.5-hour sessions.

On the other hand, the theoretical underpinning of Compassion-Focused Therapy is based on evolutionary psychology, attachment theory, neuroscience, emotion, and cognitive psychology and social mentality theory (Gilbert, 2010). Compassion-Focused Therapy aims to provide psychoeducation of emotion-regulation systems and cultivate compassionate capacities in imagery, empathy, distress tolerance, mindfulness, acceptance, behavioural practice, and mediation. It could be either delivered individually or in a group. Group treatment is eight to 12 weekly structured 2-hour sessions. One meta-analysis examining randomized control trials (RCT) based on compassion-based interventions reported a statistically significant and small-to-moderate effect for reducing depression, anxiety, and psychological distress (Kirby et al., 2017).

### Self-compassion relating to eating disorders and body image

There is a growing body of research illustrating that a higher level of self-compassion is consistently associated with lower eating pathology and body image issues. Braun et al.’s (2016) systematic review with 28 studies concluded that self-compassion plays a protective role against poor body image and eating pathology. However, while the evidence suggests that self-compassion may serve as a protective factor against such issues, there is variability in the models of how self-compassion might relate to eating and body image. I will discuss existing models in the literature and address the gaps.

First, self-compassion relates negatively to body image issues and eating pathology in both non-clinical and clinical eating disorder patients’ populations. In a community sample of women, self-compassion was associated with reduced disordered eating and thin-ideal internalization (Tylka et al., 2015). Similar patterns were found in a study of female undergraduates, whereby self-compassion was negatively associated with eating pathology, weight concerns, shape concerns, and dietary restraints (Kelly et al., 2014). In a study with clinical eating disorder patients, higher improvement in self-compassion early in treatment was related to significant reduction in eating pathology over three months (Kelly et al., 2014). These findings and their implications of causality are illustrated by the simple model in Figure 1.1. However, the potential mechanism underpinning that link remains unclear.



*Figure 1.1.* Models suggest self-compassion as independent/causal factor

Second, considering that issue of linkage, several studies propose that self-compassion might facilitate or mediate the association between the initial occurrence of risk factors and eating and body image psychopathology (see Figure 1.2.). Lower self-compassion partially mediates the link between drive for thinness and body dissatisfaction among individuals with eating disorders (Ferreira et al., 2013). Another study reported that self-compassion partially mediates the relationship between self-esteem and body image avoidance behaviours (Stapleton et al., 2017). Barnett and Sharp’s (2016) study found that the link between perfectionism and body image satisfaction was mediated by self-compassion.

Graphical user interface, application, Word

Description automatically generated

*Figure 1.2.* Models suggest self-compassion as mediator

Self-compassion is also suggested as moderator, changing the strength or direction of the relationship between various risk factors, and eating psychopathology and body image (see Figure 1.3.). In a study of women, self-compassion moderated the inverse association between body-related threats and body appreciation (Homan & Tylka, 2015). Another study suggests that the inverse relationship between body mass index (BMI) and body image flexibility and the positive association between BMI and eating pathology were each weaker where there were higher levels of self-compassion among women (Kelly et al., 2014).

Graphical user interface, application, Word

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*Figure 1.3.* Models suggest self-compassion as moderator

However, while these studies are suggestive, the variability in the theoretical models and methodologies makes it difficult to draw clear conclusions from the literature. There is a need to quantify the relationship between self-compassion and eating pathology/body image.

### Self-compassion related interventions for eating pathology and body image

To date, self-compassion-based interventions have been tested to determine whether such approaches reduce body dissatisfaction and eating pathology. For instance, Albertson et al. (2015) carried out to a shorter version of MSC that only required participants to listen to self-compassion mediations for three weeks. The guided meditations consisted of ‘compassionate body scan’, ‘affectionate breathing’ and ‘loving kindness meditations’. The study reported that such meditations were effective in reducing body dissatisfaction among women compared to controls, with a medium effect size.

A pilot study compared a CFT-based self-help intervention for binge eating disorder to a behaviourally based intervention (Kelly & Carter, 2015). The self-compassion condition involved cultivating a self-compassionate mindset through imagery, self-talk, and letter writing for three weeks. Their results reported that the self-compassion intervention was effective in reducing global eating disorder pathology, eating concerns, and weight concerns (Kelly & Carter, 2015).

To summarise, there is promising but preliminary evidence of effectiveness of self-compassion-based interventions, with further research emerging since the previous systematic review on this topic (Braun, et al., 2016). Therefore, it will be important to update that review and quantify the effect of such compassion-based interventions on eating pathology and body image.

### Thesis outline

Given the issues raised in this introduction, it is clear that a number of steps are needed to address the gaps in this field. This dissertation will aim to address the key points raised. Chapter 2 will extend the previous systematic review on the links between self-compassion and eating/body image issues, updating the previous work, including treatment outcomes, and adding the rigour of a meta-analytic approach (Turk & Waller, 2020) to examine the magnitude and statistical significance of the relationship between self-compassion and eating/body image issues.

Chapter 3 reports a cross-sectional study of the links between self-compassion and eating and body dissatisfaction among men and women, identifying potential mediators for each gender (Turk, Kellett & Waller, 2021a). Chapter 4 will extend that work in the form of a longitudinal mediational study, amongst women only, to enhance the causal implications from the study in Chapter 3 (Turk, Kellett & Waller, 2021b).

In order to determine whether the findings of those studies can inform practicable and effective brief interventions, Chapter 5 will report a feasibility study of online self-compassion versus body exposure interventions for body image problems in women (Turk, Kellett, & Waller, 2022). Those findings are used to inform Chapter 6, where a randomised controlled design is reported that tests the effectiveness of different brief self-compassion-based interventions, delivered online. Finally, Chapter 7 discusses, synthesises and evaluates the findings of the above series of interconnected studies.

# Chapter 2

## Does self-compassion play a role in eating pathology and body image? A systematic review and meta-analysis

### Abstract

Eating disorders are severe mental health conditions, with substantial consequences for health and quality of life. Such disorders are strongly associated with body image concerns. It is important to consider treatments that might enhance our ability to treat such cases. Recently, there has been a growing body of research on self-compassion in relation to such problems. However, we are not yet clear about the extent of such effects, given the range of studies and methodologies used. Therefore,a systematic literature review was carried out using four key databases. Meta-analysis was used to reach conclusions about the size of the effects and moderators. Random-effects meta-analyses were conducted with 59 studies. Higher self-compassion was associated with lower eating pathology, reduced body image concerns, and greater positive body image, with medium to strong effect sizes (respectively, *r* = -0.34, *r =* -0.45, *r* = 0.52). Furthermore, self-compassion interventions for eating pathology and body image were effective, and superior to control groups (respectively, *g* = 0.58, *g* = 0.39). These findings support the role of self-compassion in understanding and addressing eating and body image concerns.Self-compassion appears to be an adaptive emotion regulation strategy in eating disorders and body image.

### Introduction

As stated in the previous chapter, eating disorders can be severe mental health conditions, and they are associated with significant physical and psychological impairment. A key area thought to improve outcomes is to address the affective component of eating disorders directly (e.g., Engel et al., 2013; Goss & Allan, 2014; Wonderlich et al., 2008). The evidence underpinning such an approach comes from several functional accounts of eating disorders (Haynos & Fruzzetti, 2011; Heatherton & Baumeister, 1991; Lavender et al., 2014; Leehr et al., 2015; McCarthy, 1990; McManus &Waller, 1995; Smyth et al., 2007), suggesting that disordered eating behaviours can be a coping response to negative emotions (e.g., suppression/blocking/distraction). The introduction chapter indicated how the escape theory (Heatherton & Baumeister, 1991), affect regulation models (Lavender et al., 2014; McCarthy, 1990), the functional analysis of binge-eating (McManus & Waller, 1995), the transactional model of emotion dysregulation in anorexia nervosa (Haynos & Fruzzetti, 2011; Smyth et al., 2007) and neurobiological theories (Leehr et al., 2015) explain the critical role of emotions in eating disorders.

Self-compassion has been proposed to be an adaptive way of regulating such emotions (Gilbert, 2019; Neff, 2003a). Self-compassion might reduce the use of dysfunctional attempts to regulate emotions in eating disorders. Neff (2003a) suggested that self-compassionate individuals are less likely to experience their emotions adversely. With self-compassion, instead of escaping from negative emotions or pushing them away, those emotions are acknowledged as valid and important. Therefore, self-compassionate people are less likely to engage in avoidance/escape or suppression of emotions. Indeed, compassion training can activate brain areas that have been associated with positive emotions (Klimecki et al., 2014). Gilbert’s model suggests that individuals who are less compassionate have difficulties generating and activating self-soothing emotions. These individuals are not able to regulate threat-based emotions, and therefore they overeat as a way of calming emotional states.

As stated previously, recent studies have also suggested that self-compassion can: buffer against risk factors for eating and body image concerns (e.g., Ferreira et al., 2014; Stutts & Blomquist, 2018); prevent the initial occurrence of risk factors (e.g., Ferreira et al., 2013; Marta-Simões et al., 2016); and reduce existing eating and body image concerns (e.g., Breines et al., 2014; Kelly & Carter, 2015). However, the variability in treatment targets (e.g., body image, eating behaviours, eating attitudes) and methodologies means that it is difficult to draw clear conclusions from the literature. Braun et al. (2016) undertook a systematic review of the role of self-compassion in eating and body image concerns and concluded that self-compassion may protect against eating and body image concerns. However, given the research that has emerged since then and the need to quantify the effects of self-compassion, it is appropriate to update that systematic review and to present a meta-analysis of the degree to which self-compassion is associated with and impacts on eating and body image concerns.

The first aim of this systematic review and meta-analysis was to investigate the association of self-compassion with levels of eating and body image concerns. The second aim was to determine whether self-compassion-related interventions are effective in enhancing eating and body image concerns. Based on the literature, it is hypothesized that:

1. Low self-compassion will be associated with high eating pathology
2. Self-compassion interventions will reduce eating pathology
3. Self-compassion will be positively associated with positive body image
4. Self-compassion will be negatively associated with body image concerns
5. Self-compassion interventions will positively enhance healthy body image.

### Method

#### Identification and selection of studies

A literature search was conducted (up to 19th December 2019), using four electronic databases (PsycINFO, PubMed, ProQuest, Web of Science). The search terms (see Table 2.1.) were used in a three-component strategy (Body Experience Terms; Compassion Terms; Eating and Body Terms). Additionally, the reference lists of identified studies were manually screened and previous reviews of self-compassion in the context of eating and body concerns were searched, in order to identify any other relevant studies.

#### Eligibility criteria

Studies were included if: (i) they used quantitative designs (e.g., experimental, correlational); (ii) they were written in English; and (iii) they were published in peer-reviewed journals. Papers for the correlational component of the analyses had to have used a validated or standardised measure of self-compassion and eating and/or body image variables.

Eating pathology refers to unhealthy eating attitudes and behaviours (e.g., binging and purging), and it can be measured by a number of validated tools (e.g., Eating Disorder Examination - Questionnaire [EDE-Q; Fairburn & Beglin, 1994]). Body image is the individual’s subjective evaluation of their own physical appearance (Thompson et al., 1999). Positive and negative body image appear to be distinct constructs, both dimensionally and qualitatively (Tylka & Wood-Barcalow, 2015). Positive body image involves protective attitudes and behaviours regarding one’s own body (e.g., appreciation and acceptance - Tylka & Wood-Barcalow, 2015), whereas negative body image centres on negative subjective evaluation of one’s physical body (Stice & Shaw, 2002).

**Table 2.1*.***

*Research terms used for the literature review: “AND” was used to show that papers required having one term from each column, while “OR” was used to show that any of those keywords is enough for eligibility*

|  |  |  |
| --- | --- | --- |
| (Body Experience Terms) AND ( Compassion Terms ) AND ( Eating and Body Terms ) | | |
| Objectification  OR  Self-objectification  OR  Objectified  OR  Body surveillance  OR  Objectified body  OR  Body preoccupation  OR  Body monitoring  OR  Body checking  OR  Body shame  OR  Body appreciation  OR  Body comparison | Compassion  OR  Self-compassion  OR  Self-warmth  OR  Self-kindness  OR  Self-compassionate | Eating  OR  Eating pathology  OR  Eating disorders  OR  Disordered eating  OR  Eating symptoms  OR  Eating symptomatology  OR  Anorexia  OR  Bulimia  OR  Bulimic  OR  Binge  OR  Bingeing  OR  Binge-eating  OR  Purging  OR  Purge  OR  Restriction  OR  Diet  OR  Restrained eating  OR  OSFED  OR  EDNOS  OR  Compulsive exercise  OR  Exercise  OR  Body dissatisfaction  OR  Body image |

Intervention studies had to use an identified self-compassion intervention, and address eating and/or body image. No age or gender restriction was imposed. Both clinical and non-clinical samples were included. Papers were excluded if: they did not measure either self-compassion or eating and/or body image outcome variables; they primarily focused on body dysmorphic disorder; or the patients had identified neurological or psychotic disorders. Book chapters, reviews, and qualitative papers were also excluded. The grey literature was excluded to ensure that only high-quality articles were included. Excluding the grey literature from the current review was compensated for using statistical publication bias methods. Finally, studies were excluded if they did not provide sufficient data to calculate effect sizes.

#### Data extraction

For the meta-analysis, reported correlations of self-compassion with eating pathology and body image were extracted to test hypothesis 1. To test hypotheses 3 and 4, positive body image variables (e.g., body appreciation or body satisfaction) and body image concerns (e.g., body shame or body dissatisfaction) were extracted from each paper where these were reported. The following data were also extracted from each study, to test for moderators - year of publication, design, and sample characteristics (gender, age, and clinical status and BMI).

To test hypotheses 2 and 5, outcome data from self-compassion interventions (means, standard deviations/standard errors and sample sizes) were extracted for eating pathology and body image. Studies were included if they used either the Self-Compassion Scale (SCS; Neff, 2003b) or the Self-Compassion Scale-Short Form (SCS-SF; Raes et al., 2011), as they are the only validated measures of self-compassion. Any psychometrically validated measure of eating pathology or/and body image concerns was used.

#### Quality assessment

The quality of included studies was assessed, in order to inform the critique of current literature and to inform areas for future directions (rather than to remove any studies from the review).Methodological quality was examined using the Effective Public Health Practice Project (EPHPP) assessment tool for quantitative studies (see Appendix 1A). The EPHPP has demonstrated good inter-rater reliability and construct validity (Thomas et al., 2004). All studies were checked for a range of components - selection bias, study design, confounders, blinding, data collection method, and attrition. Each component was rated as weak, moderate, strong, or not applicable. Each study was given an overall score based on the number of components meeting criteria. A paper rating of ‘strong’ indicated no weak component ratings, ‘moderate’ indicated one weak component rating, and ‘weak’ indicated two or more weak component ratings).

#### Data analyses

Effect size coding

Effect sizes (*r* values) were directly obtained from correlational studies to examine the association between self-compassion and eating pathology and body image. Effect sizes were interpreted according to Cohen’s (1992) guidelines: *r* = .10 as small, *r* = .30 as medium, and *r* = .50 as large. In the case of one study (Barnett & Sharp, 2016 – study 2), the scoring of the effect size was reversed, as examination of the scoring criteria used suggested that it had been scored incorrectly in the original paper. Removal of this study did not reduce the overall effect size.

For intervention studies, when studies had both within-subject comparisons and between-subject comparisons, I included only the between-subject comparisons. A single group pre-post study shows the effect of an intervention on a group, whereas randomized and non-randomized group comparison studies indicate the effects of the intervention on the experimental group compared to the control group. Therefore, meta-analyses were conducted separately based on research design. Effect sizes were taken directly from the study, where they were provided. Otherwise, for single group pre-post studies, the following formula was used to calculate the effect size (*d*):

Where not provided in the studies, the value of *‘r’* (correlation between the two conditions) was assumed conservatively to be 0.7 (Rosenthal, 1993). If studies reported only the Standard Error (*SE*) instead of Standard Deviation (*S*), *S* was obtained from *SE* by multiplying by the square root of the sample size*.*

For group comparison studies, effect sizes were calculated by using the following formulas[[1]](#footnote-1). If the two groups had an equal number of participants

  Or, if the two groups differed in sample size;

Effect sizes were calculated from first available post-intervention time point. Only one out of five group comparison studies for eating pathology had an active control group. Therefore, all such effect sizes were calculated based on the wait-list control group. Similarly, effect sizes were calculated using the wait-list control group for body image studies, due to only six studies having had active control groups.

Obtained Cohen’s *d* effect sizes were converted to Hedge’s *g*,to correct for small sample bias (Hedges & Olkin, 1985). Effect sizes were interpreted using Cohen’s convention, where 0.2 is indicative of a small effect, 0.5 a moderate effect, and 0.8 a large effect (Cohen, 1992).

Independence of effect sizes

Some of the included studies reported multiple effect sizes for outcome measures. Multiple effect sizes within the same study violate the assumption of independence in meta-analytic modelling. Therefore, if studies reported more than one measure of eating and/or body concerns, I selected and used the primary key outcome measure. The most widely used self-report measures (e.g., EDE-Q for eating psychopathology) took precedence. For example, Kelly and Stephen (2016) reported The Body Appreciation Scale (BAS) and The Body Areas Satisfaction Scale as measures of body image. Most other included studies used the BAS (e.g., Andrew et al., 2016; Homan, & Tylka, 2015; Kelly et al., 2016). Therefore, the BAS was used, to provide consistency across studies. In cases where studies did not use those common outcome measures, I selected the measure that was most strongly related to self-compassion. For instance, Stutt and Blomquits (2018) reported eating pathology using nine items relating to compensatory behaviors in eating pathology, drawn from the ADD Health Survey (http://www.cpc.unc.edu/projects/addhealth) and eight items from the Eating Loss of Control Scale (ELOCS; Blomquist et al., 2014). As self-compassion has been suggested as a healthy emotional regulation practice (Berking & Whitley, 2014), the ELOCS was chosen for meta-analysis as it is associated with greater emotion dysregulation (Blomquist et al., 2014).

Meta-analytic model

Meta-analysis was carried out using *Meta-Essentials* (Suurmond et al., 2017). Due to a wide range of the characteristics of samples and the interventions included in this meta-analysis, a random-effects model was used to take into consideration between-study and within-study variance. Heterogeneity of effect sizes was examined using the *Q*-statisticwith a *p*-value and *I2* statistic. The *Q*-statistic is a measure of variation around the average. The *I2* statistic indicates the proportion of total variance attributable to between-study variation. As benchmark values, 25%, 50%, and 75% were used to identify low, moderate and high heterogeneity, respectively (Higgins et al., 2003).

Follow-up subgroup and moderator analyses were conducted to explore potential sources of heterogeneity. Subgroup analyses were used to examine categorical variables (e.g., the clinical status of participants, different measures of outcomes), while the characteristics of the included population samples (e.g., BMI, mean of age, percentage of female participants, quality of the studies) and duration of the body image interventions were investigated as potential moderators to explain between-study variation. Subgroup analyses were conducted if each subgroup had a minimum of four studies (Fu et al., 2011).

Publication bias

Meta-Essentials has multiple ways to examine publication bias. Funnel plots were used to indicate standard error (sample size) against reported effect size, where symmetrical distribution of samples shows the absence of publication bias. Additionally, a trim and fill imputation procedure were used to produce an estimate of the number of the studies missing due to publication bias (Duval & Tweedie, 2000).

### Results

#### Study selection

The search initially identified 4345 publications. The search results from each database were imported into Mendeley reference management software. All studies were then combined and duplicates removed. After removing duplicates, 4036 studies remained. Having examined of abstracts of those studies, 200 studies were retained for further consideration. Of those 200, 133 were excluded (reasons outlined in Figure 2.1.), leaving a total of 67 studies meeting the inclusion criteria for the review. Only 59 of those studies were included in this meta-analysis, due to their having sufficient data to calculate effect sizes.

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*Figure 2.1.* PRISMA flowchart of inclusion of studies

#### Study characteristics

Table 2.2. presents an overview of the characteristics of the included studies. The sample size of those studies ranged from 9 to 1306. The majority used only a female sample (*n* = 48) or a predominantly female sample (*n* = 5). Fourteen studies recruited eating disorder patient samples (four assessed only binge-eating disorder patients; one targeted bulimic symptoms). Twenty-nine studies recruited student participants. The included studies came from a number of countries: USA (*n* = 26), Canada (*n* = 13), Portugal (*n* = 13), Australia (*n* = 4), UK (*n* = 2), and Thailand (*n* = 1). The majority of studies (*n* = 43) were published after 2014, supporting the need for an update on the Braun et al. (2016) systematic review.

**Table 2.2.**

*Characteristics of included studies*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Study | Design | Measure | Construct Measure | Sample |
| Correlational Studies | | | | |
| *Eating Pathology and Self-compassion* | | | | |
| Fresnics, Wang & Borders, 2019 | Cross-sectional Correlational | *Self-Compassion Scale-Short Form*  *Eating Disorder Examination Questionnaire* Freiburg Mindfulness Inventory Ruminative Response Scale | Self-compassion  Eating pathology | 190 female undergraduates |
| Pullmer, Zaitsoff & Coelho, 2019 | Cross-sectional Correlational | *Self-Compassion Scale-Short Form*  *Eating Disorder Examination Questionnaire Hopkins* Symptom Checklist | Self-compassion  Eating pathology | 58 female ED patient |
| Gouveia, Canavarro &  Moreira, 2019 | Cross-sectional Correlational | Child and Adolescent Mindfulness Measure *Self-compassion Scale short form* Difficulties in Emotion regulation Scale *Emotional eating subscale of the Dutch Eating Behaviour Questionnaire* | Self-compassion  Eating pathology | 245 Adolescent  (120F/ 125M) |
| Kelly & Tasca, 2016 | Longitudinal | *Self-Compassion Scale-Short Form*  Experiences of Shame Scale  *Eating Disorder Examination Questionnaire* | Self-compassion  Eating pathology | 78 ED patient (76F/ 2M) |
| Taylor, Daiss, & Krietsch, 2015 | Cross-sectional  Correlational | *Self-compassion scale short form*  Mindful Eating Questionnaire  *Eating Attitudes Test-26* | Self-compassion  Eating pathology | 150 college students  (128F/ 22M) |
| Tylka, Russel, & Neal, 2015 | Cross-sectional  Correlational | Perceived Sociocultural Pressures Scale  *Self-compassion Scale—Short Form*  Internalization subscale of the Sociocultural Attitudes towards Appearance Questionnaire  *Eating Attitudes Test-26* | Self-compassion  Eating pathology | 435 community women |
| Ferreira, Matos,  Duarte, & Pinto-Gouveia, 2014 | Cross-sectional  Correlational | *Eating Disorder Examination 16.0D*  Shame Experiences Interview  Impact of Event Scale—Revised  Centrality of Event Scale  *Self-Compassion Scale* | Self-compassion  Eating pathology | 34 ED patient |
| Kelly & Carter, 2014 | Longitudinal Correlational | *Eating Disorder Examination–Questionnaire*  Experience of Shame Scale  Social Safeness and Pleasure Scale  Social Provisions Scale  *Self-Compassion Scale-Short Form* | Self-compassion Eating pathology | 89 ED patient (86 F/ 3 M) |
| Kelly, Carter, Zuroff & Borairi, 2013 | Cross-sectional  Correlational | *Eating Disorder Examination Questionnaire*  Experiences of Shame Scale  *Self-Compassion Scale-Short Form*  Fear of self-compassion | Self-compassion  Eating pathology | 74 ED patient  (72F/ 2M) |
| *Body Image and Self-compassion* | | | | |
| Lonergan et al, 2019 | Cross-sectional  Correlational | Photo Manipulation and Investment Scales  *Body Shape Satisfaction Scale*  *Self-Compassion Scale Short-Form* | Body image  Self-compassion | 184 students (95F/ 89M) |
| Modica, 2019 | Cross-sectional  Correlational | Facebook use  The Facebook Questionnaire  Physical Appearance Comparison Scale  Facebook Intensity Scale  *Body Esteem Scale*  *Body Surveillance subscale of Objectified Body Consciousness Scale*  Appearance subscale of the Contingencies of Self-Worth Scale  *Self-compassion Scale* | Body surveillance  Self-compassion  Body esteem | 232 women |
| Schmidt, Raque-Bogdan & Hollern, 2019 | Cross-sectional Correlational | *Self-Compassion Scale*  *Body Appreciation Scale*  *Multidimensional Body-self Relations Questionnaire* Body Image Quality of Life Inventory  Positive and Negative Affect Schedule | Self-compassion  Body appreciation | 152 female undergraduate students |
| Barnett & Sharp, 2016 (Study, 1) | Cross-sectional  Correlational | The Almost Perfect Scale – Revised Short Form  *The Body Image Satisfaction Scale*  *The Self-Compassion Scale* | Self-compassion  Body satisfaction | 580 female students |
| Marta-Simões, Ferreira, & Mendes,  2016 | Cross-sectional  Correlational | Other as Shamer Scale  *Self-Compassion Scale*  *Body Appreciation Scale* | Self-compassion  Body appreciation | 155 individuals  (111 F/ 44 M) |
| Raque-Bogdan, Piontkowski, Hui, Ziemer & Garriott, 2016 | Cross-sectional  Correlational | Experiences in Close Relationships –Relationship Structures scale  *Self-Compassion Scale*  *Body Appreciation Scale* | Self-compassion  Body appreciation | 1306 female |
| Webb, Fiery, & Jafari, 2016 | Cross-sectional  Correlational | Anti-Fat Attitudes questionnaire  The Fat Talk Scale  *Objectified Body Consciousness Scale*  *Self-Compassion Scale* | Self-compassion  Body shame | 309 undergraduate women |
| Andrew, Tiggeman & Clark, 2016 | Cross-sectional  Correlational | *Body Appreciation Scale*  Media consumption  Body Acceptance by Others Scale  *Self-Compassion Scale-Short Form*  Emotional Autonomy Scale  *Body Surveillance Subscale of the Objectified Body Consciousness Scale*  Physical Appearance Comparison Scale  Internalization subscale of the Sociocultural Attitudes  Towards Appearance Questionnaire | Self-compassion  Body appreciation  Body surveillance | 266 undergraduate women |
| Homan & Tylka, 2015 | Cross-sectional  Correlational | *Self-Compassion Scale Short Form*  The Body Comparison Orientation subscale from the Body, Eating, and Exercise Comparison Orientation Measure  *Body Appreciation Scale*  Contingencies of Self-Worth Scale | Self-compassion  Body appreciation Body comparison | 263 Female |
| Duarte,  Ferreira, Trindade & Pinto-Gouveia, 2015 | Cross-sectional  Correlational | *Figure Rating Scale*  Physical Appearance Scale  *Self-Compassion Scale*  World Health Organization Brief Quality of Life Assessment Scale | Self-compassion  Body dissatisfaction | 662 female students |
| Breines, Toole, Tu & Chen, 2014 (study 2) | Lab based\* | State appearance-related self-compassion  Objectified Body Consciousness scale  Disordered eating scale adapted from Eisenberg and Neumark-Sztainer | Self-compassion  Body surveillance  Eating pathology | 158 female undergraduates |
| Daye, Webb & Jafari, 2014 | Cross-sectional  Correlational | The Caregiver Eating Messages Scale  *Objectified body consciousness*  *Self-Compassion Scale* | Body shame  Self-compassion | 322 college women |
| Pinto-Gouveia, Ferreira & Duarte, 2014 | Cross-sectional  Correlational | Other as Shamer Scale  Striving to Avoid Inferiority Scale  Social Comparison through Physical Appearance Scale  The Forms of Self-Criticizing and Self-Reassuring Scale  *Self-Compassion Scale*  *Body dissatisfaction scale of Eating Disorder Inventory*  Eating Disorder Examination 16.OD | Self-compassion  Body dissatisfaction | 123 women non clinical  102 patients with ED |
| Pisitsungkagarn,  Taephant & Attasaranya, 2014 | Cross-sectional  Correlational | *Body Appreciation Scale*  Rosenberg’s Self-esteem Scale  *Self-compassion Scale* | Self-compassion  Body appreciation | 302 Thai female undergraduates |
| Wasylkiw, MacKinnon, & MacLennan, 2012 (Study 1) | Cross-sectional correlational | Rosenberg Self-Esteem Scale  *Self-Compassion Scale*  *Body Shape Questionnaire*  *Body Appreciation Scale*  Weight concern subscale from the Body Esteem Scale | Self-compassion  Body appreciation  Body dissatisfaction | 142 female undergraduates |
| Mosewich et al, 2011 | Cross-sectional  Correlational | *Self-Compassion Scale*  Rosenberg Self-Esteem Scale  Self-Conscious Affect for Adolescents  Social Physique Anxiety Scale  Obligatory Exercise Questionnaire  *Objectified body consciousness*  Performance Failure Appraisal Inventory  Fear of Negative Evaluation Scale | Self-compassion  Body surveillance Body shame | 151 women athletes |
| *Eating Pathology and Body Image and Self-compassion* | | | | |
| Kramer & Cuccolo, 2019 | Intervention\* | *Body Appreciation Scale-2*  *Self-Compassion Scale*  *Eating Disorder Examination Questionnaire*  *Multidimensional Body-Self Relations*  *Questionnaire*  Five Facet Mindfulness Questionnaire | Self-compassion  Eating pathology  Body appreciation  Body dissatisfaction | 99 students  (76 F/ 23M) |
| Pullmer, Coelho, & Zaitsoff, 2019 | Cross-sectional Longitudinal | *Body Areas Satisfaction Scale*  *Self-Compassion Scale Eating Disorder Examination Questionnaire*  Hopkins Symptom Checklist | Self-compassion Body satisfaction Eating pathology | 238 adolescent student (134 F/ 104 M) |
| Gouvenia, Canavarro, & Moreira, 2018 | Cross-sectional  Correlational | Interpersonal Mindfulness in Parenting Scale  *Self-Compassion Scale*  *Experience of Shame Scale*  *Emotional Eating subscale of the Dutch Eating Behavior Questionnaire* | Self-compassion  Eating pathology  Body shame | 572 dyads mother/father and adolescent (445 F/127 M ) |
| Marta-Simões & Ferreira, 2018 | Cross-sectional  Correlational | Early Memories of Warmth and Safeness Scale—Peers Version  *Self-Compassion Scale*  Social Safeness and Pleasure Scale  *Body Appreciation Scale-2*  *Eating Disorder Examination Questionnaire* | Self-compassion  Body appreciation  Eating Pathology | 387 women |
| Stutts & Blomquist, 2018 | Longitudinal  Correlational | *Self-Compassion Scale*  *Weight concern and shape concern subscales of the Eating Disorder Examination Questionnaire*  ADD Health Survey  *Eating Loss of Control Scale*  Perceived Stress Scale | Self-compassion  Body dissatisfaction  Eating pathology | 765 student (535 F/ 230 M) |
| Ferreira, Oliveira, & Mendes, 2017 | Cross-sectional Correlational | Early Memories of Warmth and Safeness Scale  *Self-Compassion Scale*  *Body Appreciation Scale*  *Eating Disorder Examination Questionnaire* | Self-compassion  Body appreciation  Eating pathology | 490 women general population |
| Barnett & Sharp, 2016 (Study 2) | Cross-sectional Correlational | The Almost Perfect Scale – Revised Short Form  *The Body Image Satisfaction Scale*  *Self-Compassion Scale – Short Form*  *Eating Attitudes Test* | Self-compassion  Body satisfaction  Eating pathology | 398 female students |
| Kelly, Miller, & Stephen, 2016 | Daily surveys | *Self-Compassion Scale-Short Form*  Intuitive Eating Scale-2  *Body Appreciation Scale*  *three items derived from the Eating Disorder Examination Questionnaire*  the Positive and Negative Affect Schedule | Self-compassion  Body appreciation  Body dissatisfaction  Eating attitudes | 92 undergraduate females |
| Webb & Hardin, 2016 | Cross-sectional Correlational | Modified Weight Bias Internalization Scale  *Body Image Shame Scale*  *Body Image Acceptance and Action Questionnaire*  *Self-Compassion Scale*  Intuitive Eating Scale-2 | Self-compassion  Body shame  Body acceptance  Eating attitudes | 333 college women |
| Kelly & Stephen, 2016 | Daily Dairy | *Self-compassion Scale Short form*  The Rosenberg Self-Esteem Inventory  The Intuitive Eating Scale-2  *1 item of Restraint subscale of the Eating Disorders Examination Questionnaire*  *The Body Appreciation Scale*  The Body Areas Satisfaction Scale  Body Image States Scale | Self-compassion  Body appreciation  Eating Pathology | 92 female college students |
| Kelly, Vimalakanthan, & Miller, 2014 | Cross-sectional Correlational | *Self-compassion scale*  Rosenberg Self-esteem inventory  *Body-Image Acceptance and Action Questionnaire*  *EDE-Q* | Self-compassion  Body acceptance  Body dissatisfaction  Eating Pathology | 153 female students |
| Ferreira, Pinto-Gouveia, & Duarte, 2013 | Cross-sectional correlational | *Self-Compassion Scale*  Other as Shamer Scale  Depression, Anxiety and Stress Scales  *Eating Disorder Inventory*  *Eating Disorder Examination 16.0D* | Self-compassion  Eating pathology  Body dissatisfaction | 102 ED female patient  123 female general population |
| Schoenefeld & Webb, 2013 | Cross-sectional Correlational | *Self-compassion Scale*  Distress Tolerance Scale  *Body Image-Acceptance and Action Questionnaire*  Intuitive Eating Scale  Rosenberg Self-Esteem Scale | Self-compassion Eating attitudes Body acceptance | 322 female undergraduate students |
| Wasylkiw, MacKinnon,& MacLennan, 2012 | Study 2:  Cross-sectional correlational | Rosenberg Self-Esteem Scale  *Self-Compassion Scale*  *Body Shape Questionnaire*  *Rigid Restraint Scale*  The Center for Epidemiologic Studies  Depression Scale | Self-compassion  Body dissatisfaction  Eating pathology | 189 female undergraduates |
| Intervention Studies | | | | |
| *Eating Pathology and Self-compassion* | | | | |
| Kelly, Wisniewski, Martin-Wagar, & Hoffman, 2017 | Group-Based CFT RCT- 12 weeks | Eating Disorder Examination Questionnaire  Self-compassion Scale Fears of Compassion Scale Experience of Shame Scale | Self-compassion Eating pathology | 22 ED patient |
| Williams, Tsivos, Brown, Whitelock, & Sampson, 2017 | Retrospective study  CFT intervention- 12 months | Eating Disorder Examination Questionnaire | Self-compassion  Eating pathology | 9 females |
| Kelly & Carter, 2015 | CFT based self-compassion RCT- 3 weeks | Eating Disorder Examination Questionnaire  Binge Eating Frequency  Self-compassion Scale  The Center of Epidemiological Studies for Depression  Fears of Compassion Scale  Credibility/Expectancy Questionnaire  Homework Rating Scale | Self-compassion  Eating pathology | 41 individuals with BED |
| Gale, Gilbert, Read & Goss, 2014 | Repeated measures design CFT intervention- 16 weeks | The Eating Disorder Examination Questionnaire  The Stirling Eating Disorder Scale  The Clinical Outcomes in Routine Evaluation – Outcome Measure | Eating Pathology  Self-compassion | 139 ED patient |
| Adams & Leary, 2007 | Experimental manipulation of self-compassion | Revised Rigid Restraint Scale | Eating pathology | 84 female students |
| *Body Image and Self-compassion* | | | | |
| Ziemer, Lamphere,Raque-Bogdan & Schmidt, 2019 | Randomized controlled study of writing intervention- 3 weeks | Body Appreciation Scale 2  Body Image Quality of Life Inventory  Positive and Negative Affect Schedule  Self-Compassion Scale | Self-compassion  Body image | 152 female students |
| Moffitt, Neumann, & Williamson, 2018 | Mixed experimental design- 3 minutes | Self-Compassion Scale  Rosenberg Self-Esteem Scale  Body Dissatisfaction subscale from the Eating Disorders Inventory  Visual analogue Scales  Self-improvement motivation | Self-compassion  Body Dissatisfaction | 153 female undergraduates |
| Rodgers et al., 2018 | Bodimojo: grounded in self-compassion mobile-based intervention- 6 weeks | The Self-Compassion Scale  Appearance Esteem subscale of the Body Esteem Scale  Physical Appearance Comparison Scale  Body Image-Acceptance and Action Questionnaire  Positive and Negative Affect Schedule 10-Children | Self-compassion  Body image | 274 adolescent (71 Male/ 203 Female) |
| Stern & Engeln, 2018 | Study 1: experimental manipulation- 15 min | Positive and Negative Affect Schedule  Body Image States Scale | Body satisfaction | 251 female undergraduates |
| Study 2: experimental manipulation- 15 min | Positive and Negative Affect Schedule Body Image States Scale | Body satisfaction | 240 undergraduate females |
| Study 3: online intervention- 3 min | Positive and Negative Affect Schedule Body Image States Scale | Body satisfaction | 158 sorority females |
| Seekis, Bradley & Duffy, 2017 | Experimental manipulation- 5 min | State Body Appreciation Scale-2  Body Image States Scale  The Physical Appearance State and Trait Anxiety Scale – state version | Body Image | 96 female university students |
| Toole & Craighead, 2016 | Online self-compassion intervention- 2 weeks | The Self-Compassion Scale  The Body Appreciation Scale  Rosenberg Self-Esteem Scale  Body Surveillance subscale of the  Objectified Body Consciousness Scale  Body Shame subscale of the OBCS  Contingencies of  Self-Worth Scale-Appearance Subscale  Body Shape Questionnaire | Self-compassion  Body dissatisfaction  Body surveillance  Body shame | 87 undergraduate women |
| Albertson, Neff &  Dill-Shacklefor, 2015 | RCT brief meditation intervention- 3 weeks | The Self-compassion Scale  Body Shape Questionnaire  Body Shame subscale of the  Objectified Body Consciousness Scale  Body Appreciation Scale  The Contingencies of Self-Worth Scale | Self-compassion  Body dissatisfaction  Body shame  Body image | 228 adult women |
| *Eating Pathology and Body Image and Self-compassion* | | | | |
| Pinto-Gouveia et al, 2019 | Non controlled  BEfree intervention | Binge eating symptomatology (BES)  EDE 16.0D  The Acceptance and Action Questionnaire-II  Cognitive Fusion Questionnaire-Body Image  The Engage Living Scale  Other as Shamer Scale  Forms of Self-Criticising/Attacking & Self Reassuring Scale  Self-Compassion Scale  Five Facet Mindfulness Questionnaire-15 | Self-compassion  Eating Pathology  Body Image | 31 women with BED and overweight/ obese |
| Voelker, Petrie, Huang, & Chandran, 2019 | Bodies in motion intervention- 4 weeks | Weight Pressures in Sport for Females  Perceived Sociocultural Pressures Scale  Sociocultural Attitudes Towards Appearance Questionnaire-4  Concerns about Weight and Concerns about Shape subscales from the EDE-Q  Body Shame Scale  Body Appreciation Scale-2  Body Parts Satisfaction Scale-Revised  Positive and Negative Affect Schedule  bulimic symptomatology score from nine items on the EDE-Q  Dietary Intent Scale  Frieberg Mindfulness Inventory-Short Form  Self-Compassion Scale-Short Form | Self-compassion  Body image  Eating pathology | 97 athletes |
| Kelly & Waring, 2018 | Self-compassionate letter-writing intervention- 2 weeks | Self-Compassion Scale  Fear of Compassion Scale  Other as Shamer Scale  Experience of Shame Scale  Autonomous and Controlled Motivation for Treatment Questionnaire  Readiness Ruler  Eating Disorder Examination Questionnaire | Self-compassion  Eating pathology  Body shame | 40 nontreatment seeking female |
| Duarte, Pinto-Gouveia & Stubbs, 2017 | Low-intensity 4-week intervention | Eating Disorder Examination  The Binge Eating Scale  Body Image Shame Scale  Depression, Anxiety, and Stress Scale Cognitive Fusion Questionnaire for food craving  Body Image Acceptance and Action Questionnaire  Five‐Facet Mindfulness Questionnaire  Compassionate Engagement and Action Scales  Self‐Compassion Scale  Self‐Criticism and Self‐Reassurance Scale | Self-compassion  Body image  Eating pathology | 20 BED women |
| Palmeira, Cunha & Pinto-Gouveia, 2017 | Kg-free: an acceptance-mindfulness, compassion-Intervention-12 weeks | Weight Self-Stigma Questionnaire  Obesity Related Well-Being Questionnaire  Three Factor Eating Questionnaire–21R  Acceptance and Action Questionnaire for  Weight-Related Difficulties–Revised  Other as Shamer Scale  Self-Compassion Scale  Five Facet Mindfulness Questionnaire | Self-compassion  Eating pathology | 53 overweight/ obese women |
| Pinto-Gouveia  et al., 2017 | Nonrandomized Controlled Longitudinal design-12 weeks | EDE 16.0D  Binge Eating Scale  Beck Depression Inventory‐I  Other as Shamer Scale  Obesity‐Related Well‐Being Questionnaire  Body Image‐Acceptance and Action Questionnaire  Cognitive Fusion Questionnaire‐Body Image  The Engaged Living Scale  Self‐Compassion Scale  Five Facet Mindfulness | Self-compassion  Body image  Eating pathology | 36 BED female overweight/ obese |

*Note.* Measures in italic font indicate chosen measures for meta-analysis \*: only correlational data used in meta-analysis

The majority of studies measured self-compassion using the Self-Compassion Scale (Neff, 2003b; *n* = 35), some used the Self-Compassion Scale-Short Form (Raes et al, 2011; *n* = 14), and the remainder did not measure self-compassion directly but used a self-compassion intervention (*n* = 10). The most commonly used measures of eating pathology were the EDE-Q (*n* = 19), the Eating Attitudes Test (Garner et al., 1982; *n* = 4), and the Dutch Eating Behavior Questionnaire (Van Strien et al., 1986, *n* = 2). In terms of body image, the majority of the studies used the Body Appreciation Scale (Avalos et al., 2005; *n* = 12) or the Body Appreciation Scale-2 (Tylka & Wood-Barcalow, 2015; n = 5). Other studies used the Objectified Body Consciousness Scale (McKinley & Hyde, 1996; *n* =8), the Body Shape Questionnaire (Evans & Dolan, 1993; *n* = 3), or the Body Esteem Scale (Franzoi & Shields, 1984; *n* = 3).

Nature of the correlational studies

Of the 59 studies, 39 were correlational designs. Four of the 39 were longitudinal studies and two were daily diary studies. The remainder were correlational studies. Nine addressed only eating pathology, 16 addressed only body image, and 14 measured both.

Nature of intervention studies

The intervention studies identified included a variety of designs, such as randomized controlled trials, case series, nonrandomized control studies. Of the 20 studies examining the effectiveness of self-compassion interventions, 16 had a control group (three addressed eating pathology, nine body image, and four both). Only four studies were with a single group, examining the effectiveness of uncontrolled interventions on eating pathology.

Of the 16 studies with control groups, a variety of treatment methods were used to address body image and eating pathology, including writing interventions, self-compassion meditation, and a number of proprietary programs (e.g., Bodies in Motion, BEFree). Of the four studies that lacked a comparison condition, four were delivered in a group format, and the other delivered compassion-focused therapy individually.

#### Quality assessment

Quality rating of studies is presented in Table 2.3. Attrition could not be considered in understanding the quality of cross-sectional correlational studies because there was only one data point (meaning that attrition could not take place). Confounders and blinding do not apply in non-intervention studies within the EPHPP assessment tool. Therefore, cross-sectional correlational studies were assessed using only the remaining three criteria. Of the 59 studies, only five received strong quality score ratings, 21 were rated as moderate, and 33 were rated as weak.

The main limitation across studies was selection bias. Most of the studies (*n* = 37) failed to recruit a representative sample, which limits the generalizability of the findings. The majority of the samples were based on young college women. However, body image concerns and eating pathology are more prevalent among younger adult females (e.g., Pritchard, 2008), so that might not be a weakness per se. Another methodological weakness was study design. Thirty-nine studies used correlational designs, which preclude causal inferences. The major strength was the data collection method, as almost all studies (*n* = 56) used reliable and valid measures. However, the self-report questionnaires used in those studies are subject to response bias (Van de Mortel, 2008). Intervention studies most commonly received weak ratings due to the presence of confounders (*n* = 7). Regarding blinding, most intervention studies failed to state whether assessors were aware of the exposure status of participants. However, participants were not aware of the research questions (*n* = 15).

**Table 2.3.**

*Quality Assessment of Included Studies Using the EPHPP tool\**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Author (date) | Component Rating | | | | | | Overall  Rating |
| Selection Bias | Study Design | Confounders | Blinding | Data Collection Method | Attrition |
| Correlational Studies | | | | | | | |
| *Eating Pathology and Self compassion* | | | | | | | |
| Fresnics, Wang & Borders, 2019 | W | M | M | NA | S | M | Moderate |
| Pullmer, Zaitsoff & Coelho, 2019 | M | W | NA | NA | S | NA | Moderate |
| Gouvenia, Canavarro &  Moreira, 2019 | M | W | NA | NA | S | NA | Moderate |
| Kelly & Tasca, 2016 | M | M | NA | NA | S | M | Strong |
| Taylor, Daiss, & Krietsch. 2015 | W | W | NA | NA | S | NA | Weak |
| Tylka, Russel, & Neal, 2015 | W | W | NA | NA | S | NA | Weak |
| Ferreira, Matos,  Duarte, & Pinto-Gouvei, 2014 | M | W | NA | NA | S | NA | Moderate |
| Kelly & Carter, 2014 | M | W | NA | NA | S | NA | Weak |
| Kelly, Carter, Zuroff & Borairi, 2013 | M | M | NA | NA | S | M | Strong |
| *Body Image and Self-compassion* | | | | | | | |
| Lonergan et al, 2019 | W | W | NA | NA | S | NA | Weak |
| Modica, 2019 | W | W | NA | NA | M | NA | Weak |
| Schmidt, Raque-Bogdan & Hollern, 2019 | W | W | NA | NA | S | NA | Weak |
| Barnett & Sharp, 2016 (Study 1) | W | W | NA | NA | M | NA | Weak |
| Marta-Simões, Ferreira, &  Mendes, 2016 | M | W | NA | NA | S | NA | Moderate |
| Raque-Bogdan, Piontkowski, Hui, Ziemer& Garriott, 2016 | W | W | NA | NA | S | NA | Weak |
| Webb, Fiery, & Jafari, 2016 | W | W | NA | NA | S | NA | Weak |
| Andrew, Tiggeman, & Clark, 2016 | W | W | NA | NA | S | NA | Weak |
| Homan & Tylka, 2015 | W | W | NA | NA | S | NA | Weak |
| Duarte,  Ferreira, Trindade & Pinto-Gouveia, 2015 | W | W | NA | NA | S | NA | Weak |
| Breines, Toole, Tu &  Chen, 2014 (study 2) | W | M | W | M | S | NA | Weak |
| Daye, Webb, & Jafari, 2014 | W | W | NA | NA | S | NA | Weak |
| Pinto-Gouveia, Ferreira, &  Duarte, 2014 | M | W | NA | NA | S | NA | Moderate |
| Pisitsungkagarn, Taephant, & Attasaranya, 2014 | W | W | NA | NA | S | NA | Weak |
| Wasylkiw, MacKinnon, & MacLennan, 2012 (Study 1) | W | W | NA | NA | S | NA | Weak |
| Mosewich et al., 2011 | M | W | NA | NA | S | NA | Moderate |
| *Eating Pathology and Body Image and Self-compassion* | | | | | | | |
| Kramer & Cuccolo, 2019 | W | M | M | NA | S | M | Moderate |
| Pullmer, Coelho, & Zaitsoff, 2019 | M | M | NA | NA | S | S | Strong |
| Gouvenia, Canavarro, &  Moreira, 2018 | M | W | NA | NA | S | NA | Moderate |
| Marta‐Simões & Ferreira, 2018 | W | W | NA | NA | S | NA | Weak |
| Stutts & Blomquist, 2018 | W | M | NA | NA | S | M | Moderate |
| Ferreira, Oliveira, &  Mendes, 2017 | W | W | NA | NA | S | NA | Weak |
| Barnett & Sharp, 2016 (Study 2) | W | W | NA | NA | S | NA | Weak |
| Kelly, Miller, & Stephen, 2016 | W | W | NA | NA | S | NA | Weak |
| Webb & Hardin, 2016 | W | W | NA | NA | S | NA | Weak |
| Kelly & Stephen, 2016 | W | W | NA | NA | S | NA | Weak |
| Kelly, Vimalakanthan, & Miller, 2014 | W | W | NA | NA | S | NA | Weak |
| Ferreira, Pinto-Gouveina, & Duarte, 2013 | M | W | NA | NA | S | NA | Weak |
| Schoenefeld & Webb, 2013 | W | W | NA | NA | S | NA | Weak |
| Wasylkiw, MacKinnon, & MacLennan, 2012 (Study 2) | W | W | NA | NA | S | NA | Weak |
| Interventional Studies | | | | | | | |
| *Eating Pathology and Self-compassion* | | | | | | | |
| Kelly, Wisniewski, Martin-Wagar, & Hoffman, 2017 | M | S | S | M | S | W | Moderate |
| Williams et. al (2017) | M | M | W | W | S | W | Weak |
| Kelly & Carter (2015) | M | S | S | M | S | M | Strong |
| Gale,Gilbert, Read & Goss (2014) | M | M | W | W | S | M | Weak |
| Adams & Leary (2007) | W | M | W | M | S | NA | Weak |
| *Body Image and Self-compassion* | | | | | | | |
| Ziemer, Lamphere,Raque-Bogdan & Schmidt, 2019 | W | S | M | M | S | S | Moderate |
| Moffitt, Neumann, & Williamson, 2018 | W | S | S | M | S | S | Moderate |
| Rodgers et al., 2018 | M | S | M | M | S | S | Strong |
| Stern & Engeln, 2018 (Study 1) | W | S | M | M | S | S | Moderate |
| (Study 2) | W | S | M | M | S | S | Moderate |
| (Study 3) | W | S | W | M | S | M | Weak |
| Seekis, Bradley, & Duffy , 2017 | W | S | S | M | S | M | Moderate |
| Toole & Craighead, 2016 | W | S | S | M | S | S | Moderate |
| Albertson, Neff &  Dill-Shacklefor, 2015 | M | S | S | M | S | W | Moderate |
| *Eating Pathology and Body Image and Self-compassion* | | | | | | | |
| Pinto-Gouveia et al., 2019 | M | M | M | M | S | W | Moderate |
| Voelker, Petrie, Huang, & Chandran, 2019 | W | S | S | W | S | M | Weak |
| Kelly & Waring, 2018 | W | S | S | M | S | W | Weak |
| Duarte, Pinto‐Gouveia, & Stubbs, 2017 | M | S | M | M | S | W | Moderate |
| Palmeira, Cunha, & Pinto-Gouveia, 2017 | M | M | W | M | S | M | Moderate |
| Pinto‐Gouveia  et al., 2017 | M | M | S | W | S | W | Weak |

Note: \*, EPHPP, Effective Public Health Practice Project. S: Strong, no weak component rating; M: Moderate, one weak component rating; W: Weak, two or more weak component ratings.NA: not applicable

#### Meta-analysis of associations between eating pathology and self-compassion (hypothesis 1)

Figure 2.2. displays a forest plot for eating pathology, with each individual effect size representing a correlation between eating pathology and self-compassion. The combined random effects estimate for the association between eating pathology and self-compassion was *r* = -0.34 (95% CI = -0.40 to -0.28, Z = -10.58; *p* < 0.001), based on 5132 participants taken from 22 studies. This overall effect (*r*) was of a medium size (Cohen, 1992), showing that greater self-compassion is associated with lower levels of eating pathology. There was substantial variability across the studies (Q = 82.81, *p* < 0.001), with a high level of heterogeneity (*I2* = 74.64 %).

Subgroup analysis and meta-regression results are presented in Table 2.4. The correlation between self-compassion and eating pathology was not significantly affected by the type of self-compassion measure (*p* = 0.19). The effect size for the eating disorder group (*r* = -0.49) tended to be larger than for the non-clinical group (*r* = -0.31). However, a note of caution is necessary here, since each subgroup has high heterogeneity.

Chart, box and whisker chart

Description automatically generated *Figure 2.2*. Forest plot of the correlations between self-compassion and eating pathology

**Table 2.4.**

*Subgroup and meta-regression analysis of relationship between eating pathology and self-compassion*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Number of Studies | Correlation (*r*) | 95% CI | I2 | *p* |
| Clinical status | | | | | .04\* |
| ED | 5 | -0.49\* | -0.69 to -0.23 | 62.92 |  |
| Non-ED | 17 | -0.31\* | -0.37 to -0.25 | 73.58 |  |
| Independent measure |  |  |  |  | 0.19 |
| SCS | 10 | -0.31\* | -0.38 to -0.23 | 59.56 |  |
| SCS-SF | 12 | -0.38\* | -0.48 to -0.26 | 80.57 |  |
| Moderator | Number of Studies | B-Coefficient | 95% CI | SE | *p* |
| Age (mean) | 19 | -0.10 | -0.01 to 0.01 | 0.01 | .65 |
| Percentage of female participants | 21 | -0.03 | -0.55 to 0.47 | 0.24 | .88 |
| BMI (mean) | 13 | -0.16 | -0.04 to 0.03 | 0.01 | .56 |
| Study Quality Rating (0-3 criteria) | 22 | -0.53 | -0.20 to -0.03 | 0.04 | .005\* |

*Note*. \*significant at *p* < .05, BMI: Body Mass Index; CI: confidence interval; ED: eating disorder group; SE; standard error; SCS: Self-Compassion Scale, SCS-SF: Self-compassion Scale-Short Form

Medium to large heterogeneity was observed in the subgroups. Moderating effects for age, gender, and BMI were non-significant. Therefore, the relationship between self-compassion and eating pathology did not differ according to participants’ age, gender, or BMI. Only the quality of the studies was associated with the relationship between self-compassion and eating pathology. Self-compassion was more strongly linked to eating pathology in the higher-quality studies.

The funnel plot (see Figure 2.3.) suggested a slightly asymmetric distribution of study findings. The blue dots indicate the observed studies, and the green circle show the missing studies imputed by the trim-and-fill method. Trim and fill bias analysis imputed two studies. When the meta-analysis was adjusted for this potential bias, the new effect size slightly reduced (*r* = -0.33, 95% CI -0.42 to -0.25).

*Figure 2.3*. Funnel plot for the relationship between self-compassion and eating pathology. CES: Combined Effect Size.

#### Meta-analysis of effects of self-compassion interventions on eating pathology (hypothesis 2)

Studies with no comparison group

The effects of self-compassion intervention studies with a single groupfrom baseline to post-intervention were examined. There were four studies with a total sample size of 187. The combined effect size in this group was large and significant (*g* = 1.30, 95 % CI = 0.25 to 0.50; Z = 5.18; *p* < 0.001), showing that self-compassion interventions reduced eating pathology substantially from baseline to post-intervention (see Figure 2.4.). Between-study variance was large and significant (Q = 20.10, *p* < 0.001, *I2*= 85.15 %). There were too few studies to test moderators or publication bias.

Chart, box and whisker chart

Description automatically generated

*Figure 2.4.*  Forest plot showing the effect of the self-compassion interventions on eating pathology in studies with no comparison group

Studies with a comparison group

The effects of the self-compassion-related intervention on eating pathology were compared with a control group in six studies (*N* = 153 in self-compassion interventions; *N* = 133 in control groups). Self-compassion interventions had a significant impact on eating pathology compared to the control conditions (only Kelly et al. [2007] had an active control group, in the form of treatment as usual), with an effect size of 0.58 (95 % CI = 0.16 to 0.20; Z = 3.22; *p* < 0.001). The distribution of effect sizes is displayed in Figure 2.5. *I2* indicates that 40.48 % of the variation was attributable to between-study variance (Q = 10.08 *p* = 0.12). There were insufficient studies to examine publication bias.

Graphical user interface

Description automatically generated with medium confidence*Figure 2.5.* Forest plot showing effect sizes for changes in eating pathology compared to the control group

Summary

Overall, higher levels of self-compassion were associated with lower levels of eating pathology, with a medium effect size. Similarly, self-compassion-related interventions are effective in reducing eating pathology compared to controls, again with a medium effect size.

#### Meta-analysis of associations of positive body image and self-compassion (hypothesis 3)

Twenty studies examined the relationship between self-compassion and positive body image variables, including a total of 6230 participants. Figure 2.6. shows that there was a large, combined effect for the association between higher self-compassion and greater positive body image, *r* = 0.52, (95% CI = 0.46 to 0.57, Z = 16.28; *p* < 0.001). Across the studies, heterogeneity was significant and large (Q = 115.66, *p* < 0.001, *I2* = 83.57 %).

Chart

Description automatically generated with medium confidence

*Figure 2.6.* Forest plot for the correlation between positive body image and self-compassion

Subgroup analysis examined the association between the effect sizes and the different measures of self-compassion. The differences in effect sizes between SCS (*r* = 0.52) and SCS-SF (*r* = 0.51) was not significant (p = 0.82; see Table 2.5.). However, that conclusion should be treated with caution, because these subgroups are not sufficiently homogenous.

The results of the meta-regression analyses indicate that gender and quality of studies were not significant predictors of effect size. However, the moderating effects of age and BMI were significant, indicating that the association between positive body image and self-compassion is higher in individuals with higher BMI and a greater age (see Table 5).

**Table 2.5.**

*Subgroup and meta-regression analysis of relationship between positive body image and self-compassion*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Number of Studies | Correlation (*r*) | 95% CI | I2 | *p* |
| Independent Measure |  |  |  |  | 0.82 |
| SCS | 14 | 0.52\* | 0.46 to 0.58 | 83.56 |  |
| SCS-SF | 6 | 0.51\* | 0.33 to 0.65 | 85.80 |  |
| Moderator | Number of Studies | B-Coefficient | 95% CI | SE | *p* |
| Age (mean) | 18 | 0.47 | 0.00 to 0.02 | 0.01 | 0.03 |
| Percentage of female participants | 20 | -0.5 | -0.65 to 0.55 | 0.29 | 0.86 |
| BMI (mean) | 13 | 0.71 | 0.02 to 0.09 | 0.01 | 0.01 |
| Study Quality Rating (0-3 criteria) | 20 | 0.24 | -0.06 to 0.20 | 0.06 | 0.27 |

*Note*. BMI: Body Mass Index; CI: confidence interval; SE; standard error, SCS: Self-Compassion Scale; SCS-SF: Self-compassion Scale-Short Form

Considering publication bias, the inspection of the funnel plot suggests symmetric distribution of results (see Figure 2.7.). After adjustment for omitted studies (*n* = 1), the effect size changed slightly to an *r* of 0.55 (95% CI 0.47 to 0.63).

#### Meta-analysis of associations of body image concerns and self-compassion (hypothesis 4)

As shown in Figure 2.8., the results of 21 studies (*N* = 5966) showed that the combined uncorrected random effects estimate for the relationship between body image concerns and self-compassion was *r* = -0.45 (95% CI = -0.50 to -0.39; Z = -14.37; *p* <.0001). This represents a medium effect size, indicating that higher levels of body image concerns are related to lower levels of self-compassion. There was significantly high heterogeneity (Q = 130.29, *p* < 0.001, *I*2 = 84.65), with 84 % of the variance in the effect size attributable to between-study variance.

Subgroup analysis shows that the correlation between self-compassion and body image concerns was not significantly affected by the type of the body image measure (*p* = 0.26) or the type of self-compassion measure (*p* = 0.44; see Table 2.6.). However, the high heterogeneity in those two subgroups means that these conclusions are not reliable.

*Figure 2.7*. Funnel plot for relationship between self-compassion and positive body image. CES: Combined Effect Size.

Chart, scatter chart, box and whisker chart

Description automatically generated

*Figure 2.8.* Forest plot for the relationship between self-compassion and body image concerns

The results of the meta-regression analyses showed that the moderating effects of age, gender, BMI, and study quality were not significant (see Table 2.6.). Visual inspection of the funnel plot (see Figure 2.9.) suggested a relatively symmetric distribution of study findings. Additionally, the trim-and-fill analysis showed that there were no missing studies.

**Table 2.6.**

*Subgroup and meta-regression analysis of relationship between body image concerns and self-compassion*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | | Number of Studies | Correlation (*r*) | 95% CI | | I2 | *p* |
| Variables | | | | | | | 0.26 |
| Body Dissatisfaction | 11 | | -0.43\* | -0.53 to -0.32 | 88.79 | |  |
| Body Shame | 6 | | -0.49\* | -0.52 to -0.45 | 00.01 | |  |
| Independent measure |  | |  |  |  | | 0.44 |
| SCS | 14 | | -0.47\* | -0.51 to -0.42 | 63.60 | |  |
| SCS-SF | 7 | | -0.41\* | -0.57 to -0.23 | 91.51 | |  |
| Moderator | Number of Studies | | B-Coefficient | 95% CI | SE | | *p* |
| Age (mean) | 18 | | -0.09 | -0.02 to 0.01 | 0.01 | | 0.74 |
| Percentage of females | 21 | | -0.12 | -0.63 to 0.38 | 0.24 | | 0.60 |
| BMI (mean) | 13 | | 0.24 | -0.03 to 0.07 | 0.02 | | 0.37 |
| Study Quality Rating (0-3 criteria) | 21 | | -0.18 | -0.22 to 0.10 | 0.08 | | 0.42 |

*Note*. \*significant at *p* < .05, BMI: Body Mass Index; CI: confidence interval; SE; standard error; SCS: Self-Compassion Scale; SCS-SF: Self-compassion Scale-Short Form

*Figure 2.9*. Funnel plot for relationship between self-compassion and body image concerns. CES: Combined Effect Size.

#### Meta-analysis of impact of self-compassion interventions on body image (hypothesis 5)

The effects of self-compassion-related interventions were compared with a control group in 13 studies, totalling *N* = 1714 (*N* = 819in intervention group; *N* = 895 in control). In Figure 2.10., studies 1 to 7 had active control groups, while studies 8 to 13 were studies with waitlist control groups. The overall effect was small to moderate at *g* = 0.39 (95 % CI = 0.22 to 0.55; Z = 5.02; *p* < 0.001), indicating that the self-compassion group had more improvement in body image than the control group. Between-study heterogeneity was low but significant (*I2* = 49.06 %; Q = 23.56, *p* < 0.05).

Chart, box and whisker chart

Description automatically generated

*Figure 2.10*. Forest plot showing the effect of self-compassion interventions compared to the control group.

The effect sizes were similar for studies involving active control groups (*g* = 0.39) and waitlist control groups (*g* = 0.38), though Meta-Essentials cautions that such analyses are not meaningful. There was no significant moderator effect of the duration of interventions (b = -0.08, 95% CI [0.00, 0.00], p = .80). Therefore, longer self-compassion interventions were no more effective than brief ones.

Inspection of the funnel plot and trim and fill procedure identified an asymmetric distribution of the study results (see Figure 2.11.). After adjusting for missing studies (*n* = 3), the effect size dropped from *g* = 0.39 to *g* = 0.29 (95 % CI = 0.12 to 0.46), representing a small effect size in favour of self-compassion interventions over controls.

*Figure 2.11*. Funnel plot of body image effect sizes for self-compassion group versus the control group. CES: Combined Effect Size.

Summary

Self-compassion interventions resulted in more positive body image and lower body image concerns, with medium effect sizes. This outcome demonstrates that the relationship between self-compassion and body image variables is causal, rather than simply being correlational. Thus, self-compassion interventions are effective in enhancing healthy body image.

### Discussion

The objective of this systematic review and meta-analysis was to examine the relationship of self-compassion with eating concerns and body image. Where possible (particularly where RCTs were used), the causality of that relationship was addressed in order to understand the effectiveness of self-compassion related interventions. The findings support the hypotheses throughout, showing significant correlations and causal effects of self-compassion on eating pathology and body image. They broadly support previous reviews and meta-analyses on self-compassion in relation to mental health (e.g., Ferrari et al., 2019; Kirby et al., 2017; Macbeth & Gumley, 2012; Marsh et al., 2018; Zessin et al., 2015).

The relationship of self-compassion with eating concerns and body image was characterized by a medium to high level of heterogeneity. Follow-up meta-regression analysis indicated that the association between self-compassion and eating pathology was higher in better quality studies, indicating the importance of stronger studies in this field. Regarding positive body image, BMI and age were significant moderators, indicating that self-compassion is more related to positive self-perception if individuals are older and bigger in size, suggesting that these findings need to be understood in the context of demographic factors. Considering body image interventions, it is important to note that there was no moderator effect of the duration of interventions, suggesting that short self-compassion interventions are still effective.

#### Limitations of this review

The current review is the first meta-analysis to examine the relationship of self-compassion with eating pathology and body image and shows evidence of both correlational and causal links. However, this current review also has limitations. First, only studies published in the English language were included. Thus, the findings might be an under-representation of non-Western cultures, potentially resulting in limited generalizability or inflation of the findings due to positive findings being more likely to be published in English language journals. The current review is also limited by the quality of existing studies, which rely heavily on correlational designs. Another limitation is that I did not pre-register this review.

The combined effect sizes here must be interpreted with caution. A recent meta-analysis indicated that the association between psychopathology and negative indicators of self-compassion is stronger than the link with positive indicators (Muris & Petrocchi, 2017). Therefore, the protective role of self-compassion against eating and body image concerns could be overestimated due to the negative subscales (self-judgment, isolation, and over-identification) that have already been shown to be related to psychopathology.

It is also important to note that the small number of samples in several analyses mean that it was not possible to interpret heterogeneity fully. When larger numbers of interventions have been reported, it will become possible to undertake the necessary moderator and subgroup analyses to account for the heterogeneity. Similarly, larger numbers of intervention studies with active control groups would ensure that effect sizes were more reliable (Cuijpers et al., 2017; Cunningham et al., 2013). Finally, many of the self-compassion interventions were part of a wider therapy, meaning that the apparent effect size might have been affected. ‘Pure’ self-compassion studies need to be compared with other treatment approaches.

It is also important to note that positive and negative body image have been identified as being qualitatively different constructs (Tylka & Wood-Barcalow, 2015). As most studies in this review used either positive or negative body image measures, it is not possible to compare them directly. Future research should consider both constructs in order to distinguish the impact of self-compassion on these two different indicators of body image.

#### Research and clinical implications

As it is clear that self-compassion plays a role in understanding eating concerns and body image, it is important to consider the underlying mechanism that explain why and how self-compassion has its impact. Further research is needed to determine such mechanisms. For example, self-compassion has been suggested to be a moderator (e.g., Lonergan et al., 2019; Pisitsungkagarn et al., 2014) which interacts with other risk factors (e.g., body surveillance, thin-ideal internalization) to drive eating and body image concerns. Others have proposed self-compassion as a potential mediator, where lower levels of self-compassion partially or fully account for the effect of a range of risk factors (e.g., shame, perfectionism) on eating pathology and body image (e.g., Marta-Simões et al., 2016; Raque-Bogdan et al., 2016). However, it will be particularly important to consider self-compassion as a potential causal factor, given that the evolutionary theory of compassion suggests that individuals who do not develop self-compassion in their early childhood might be prone to shame and guilt, leading to increased eating and body image concerns (Gilbert, 2014). Such models need to be tested in the field of eating disorders and considered within prevention as well as treatment approaches.

Given the role of negative emotions in eating pathology (as outlined above), it can be hypothesised that self-compassion operates by providing a more adaptive means of coping with emotion (e.g., Neff, 2003a). Self-compassion requires mindful awareness of negative emotions, so that unwanted feelings are not avoided or suppressed (Neff, 2003a). Therefore, it is possible that self-compassion enables individuals to confront distressing emotions (Finlay-Jones et al., 2015), rather than coping with them maladaptively by engaging in pathological eating behaviours (e.g., restriction, binging, vomiting). Future research should more closely monitor the psychological and biological correlates of self-compassion that might reflect such a process.

As raised above, self-compassion is likely to work via its impact on emotion regulation in eating disorders. One could argue that Gilbert’s (2014) approach is relevant to understanding the aetiology of eating pathology and body image, given its focus on evolutionary theory. On the other hand, Germer and Neff’s (2013) approach might be more useful in understanding the maintenance of eating pathology and body image and provides more immediate methods of directing clinical change (e.g., self-compassion mediation/letter writing). However, the data to date do not allow us to differentiate between the models in such a way. Therefore, future research and clinical work should look at which models are related to self-compassion.

#### Conclusion

The results of the present meta-analysis suggest that self-compassion is causally linked to eating pathology and body image, with broadly moderate effect sizes. Self-compassion approaches therefore provide a potentially useful tool for addressing emotionally driven behaviours. This effect of self-compassion is robust, with little influence of moderators or demographics. Self-compassion approaches are relatively new, and their mechanisms of change not yet fully understood. Therefore, this treatment approach merits further attention and development in research, therapy and prevention settings, particularly where eating and body concerns are emotionally driven and maintained. To determine its optimum use, self-compassion should be considered both as a stand-alone therapy and in combination with existing evidence-based approaches.

# Chapter 3

## Determining the potential links of self-compassion with eating pathology and body image: a cross-sectional mediational study

### Abstract

This study examined whether rumination, shame, self-criticism, and perfectionism mediate the previously established link between self-compassion, eating and body dissatisfaction. A cross-sectional online survey was completed by a community sample of non-clinical adult women (*N* = 369) and men (*N* = 201). Participants completed validated and standardised measures of self-compassion, rumination, external shame, self-criticism, perfectionism, eating pathology, and body dissatisfaction. Multiple regression analyses tested the model and external shame had the strongest explanatory role. It partially mediated the relationship with eating pathology and body dissatisfaction for women, and fully mediated those relationships for men. In each case, reduced self-compassion was associated with higher levels of shame, which were linked to higher levels of eating and body dissatisfaction. These results highlight the potential importance of self-compassion and shame in understanding eating pathology and body dissatisfaction, emphasising the likely value of targeting shame during eating disorder prevention and treatment.

### Introduction

As indicated in the introduction chapter, most of models recognise emotional regulation difficulty as a key part of the development and maintenance of eating pathology (Dingemans et al., 2017; Engel et al., 2013). Eating pathology among adult men and women is also associated with more maladaptive emotion regulation strategies (Dingemans et al., 2017; Gianini et al., 2013; Kukk & Akkermann, 2020; Lavender et al., 2015). However, the role and influence of emotions is still not clearly elaborated in models of eating disorders or their treatment (Fox et al., 2012; Svaldi et al., 2012).

It has been demonstrated that self-compassion can be an important strategy to cope with negative emotions in other disorders (e.g., Diedrich et al., 2014; Feliu-Soler et al., 2017). As previous chapter provided a clear link between self-compassion to eating pathology and body image, it is important to identify potential mechanism how lower self-compassion is related to such problems, particularly in terms of targeting possible mediators (Windgassen et al., 2016). In this way, treatment outcomes might be enhanced by modifying existing therapies to improve individuals’ levels of self-compassion (Gilbert, 2014; Neff, 2003a).

Studies exploring the link between self-compassion and eating pathology/body image have been inconclusive, due to methodological limitations. Chapter 2 has shown that greater self-compassion is associated with lower levels of eating pathology and body dissatisfaction, with medium effect sizes (respectively, *r* = -0.34, *r =* -0.44)*.* However, the potential mechanisms underlying that link are not well understood, to date. A cross-sectional study found a negative indirect effect of self-compassionate attitudes on disordered eating, via higher self-compassionate actions and higher body compassion (De Carvalho Barreto et al., 2018). Another cross-sectional study reported a negative indirect effect of self-compassion on binge eating severity via higher emotional tolerance and higher unconditional self-acceptance (Webb & Forman, 2013). Results from a lab-based study indicated that body shame mediates the relationship between self-compassion and anticipated disordered eating (Breines et al., 2014). Similarly, psychological distress has been found to be a mediator between self-compassion and eating pathology in a clinical sample of female adolescents (Pullmer et al., 2019). The common feature of those mediators is that they are related to emotions.

It is clear that a comprehensive model of the link between self-compassion and eating and body dissatisfaction is needed, building on the different empirical links that have been suggested in the literature outlined above and other theoretical links. Therefore, in this study I suggest four potential mediators, which are related to negative emotions about self. Those potential mediators are internalized and comparative self-criticism (Fenning et al., 2008; Neff et al., 2007); rumination (Neff et al., 2007; Smith et al., 2018); standard and discrepancy perfectionism (Bardone-Cone et al., 2007; Stoeber et al., 2020); and external shame (Ferreira et al., 2013; Johnson & O’Brien, 2013).

*Rumination* is characterized by a cognitive process involving repetitive focus of the individuals’ attention on negative feelings and symptoms, their cause, meaning, and consequences (Nolen-Hoeksema, 1991; Nolen-Hoeksema et al., 2008). However, individuals who are higher in self-compassion maintain awareness, explore, and understand their feelings (Neff, 2003a). Therefore, they are less likely to suppress their emotions following a perceived failure, resulting in a lower likelihood of rumination. Rumination has been shown to be relevant to eating and body dissatisfaction. In a recent meta-analysis of 38 studies, Smith, Mason, and Lavender (2018) reported that rumination is associated with eating disorder psychopathology with a medium effect size, though the sample was mostly female (87%). It predicts the onset of binge-eating and purging behaviours among undergraduate students (Gordon et al., 2012) and adolescent females (Holm-Denoma, & Hankin, 2010). One recent study shows that lower depressive rumination mediates the link between greater self-compassion and less eating pathology cross-sectionally but not longitudinally (Fresnics et al., 2019). Giving its promising role, it is warranted to assess rumination as a potential mechanism to explain the relationship between self-compassion and body/eating concerns among males as well.

*Self-criticism* can be conceptualised as having two elements - internalized self-criticism (negative view of self-based on one’s own high standards), and comparative self-criticism (negative view of self in comparisons to others who are seen as threatening). As self-compassion holds that failure is part of human experience, compassionate individuals are less likely to view themselves negatively and to evaluate themselves compared to others. Being compassionate towards yourself reduces internalized self-criticism, can lead to a lower likelihood of eating and body dissatisfaction. It is suggested that self-compassion buffers against negative self-feelings (Leary et al., 2007). Therefore, in the presence of self-compassion, individuals are less likely to have internalized self-criticism (a negative view of oneself in comparison to high personal standards).

Experiencing shame has been regarded as central in eating pathology in both community and clinical samples (Gee & Troop, 2003; Mustapic et al., 2015). Goss and Gilbert (2002) suggested that eating pathology behaviours function through regulating threats and feelings of acceptance in a social group (e.g., controlling food and body weight or shape not to feel rejected). Kelly and Tasca (2016) reported that change in shame was a significant predictor of subsequent eating disorder symptoms in a largely female (97%) clinical sample. They also found that feelings of shame, in turn, were lower than usual following a period of higher self-compassion or lower eating symptoms. Nevertheless, external shame is unexplored to date as a potential mediator in any association between self-compassion and eating and body dissatisfaction.

In the presence of self-compassion, individuals are less likely to have *perfectionistic concerns* that are associated with performance evaluation (and the perceived gap between personal standards and one’s evaluation of having met those standards). Individuals showing high levels perfectionism feel that they constantly strive for unreasonable levels of success (in particular, a “perfect” weight or body), and assess their worth based on accomplishment. Such perfectionism means that one consistently fails to meet the standards one has set for oneself. Hence, perfectionism is associated with maladaptive emotion regulation tendencies (Rice et al., 2014), resulting in disordered eating behaviours as an attempt to meet their idealized physical body. While there are extensive theoretical models and empirical studies demonstrating that perfectionism contributes to the development and maintenance of eating pathology (e.g., Bardone et al., 2007; Lilenfeld et al., 2006; Stice, 2002), its role as a potential mediator is not yet understood.

Although previous empirical and theoretical research has examined the variables included in this study, this is the first study to examine those variables in a mediator model, while other studies focus on self-compassion as a potential mediator (e.g., Barnett & Sharp, 2016; Ferreira et al., 2013). Therefore, the aim of this study was to test whether perfectionism, self-criticism, rumination, and external shame might explain the link of self-compassion with eating pathology and body dissatisfaction in both women and men.

This study used a cross-sectional study to identify such key explanatory mechanisms. It was hypothesised that: self-compassion will be associated with eating pathology and body dissatisfaction; self-compassion will be associated with perfectionism, self-criticism, rumination, and shame; perfectionism, self-criticism, rumination, and shame will be associated with eating pathology and body dissatisfaction; and the effects of self-compassion on eating pathology and body dissatisfaction will be mediated by perfectionism, self-criticism, rumination, and shame.

### Method

#### Ethical considerations

Ethical approval for the research study was obtained from the Department of Psychology Research Ethics Committee at the University of Sheffield (see Appendix 2A).

#### Design

This mediational study used a cross-sectional design. It was pre-registered with ASPREDICTED (no: 32861; see Appendix 2B).

#### Participants

Male and female participants were eligible if they were 18+ years old and fluent in English. Participants were not eligible if they were below 18 years old, had any self-reported neurological or psychotic conditions, or were not fluent in English.

An *a priori* sample size calculation was undertaken using G\*power 3.1.9.4 (Faul et al., 2007) and Cohen’s (1992) table. Prior studies suggested medium effect sizes for the relationship between self-compassion and eating and body dissatisfaction (e.g., Ferreira et al., 2013) and between self-compassion and factors such as rumination and shame (e.g., Mehr & Adams, 2016; Raes, 2010). Based on these medium effect sizes, a sample size of 102 per gender was required for a multiple regression analysis with seven independent variables, assuming an alpha of 0.05 and power of 80%. The sample consisted of 570 adults from the community - 369 women and 201 men. Therefore, the study was adequately powered.

Participants’ ages ranged from 18 to 79 years (mean = 29.78 years, *SD* = 9.7). They had a range of academic experience (0.4% no school completed, 22.3% high school, 24.0% Bachelor’s degree, 40% Master’s degree, and 13% doctoral degree). They self-identified as belonging to the following ethnic/racial groups: 58% white; 12% South Asian/Asian British; 8% Black/African/Caribbean/Black British; and 22% other. They had a range of employment status (42.3% employed, 48.4% students, 9.3% other). Participants had a mean BMI of 25.4 (*SD* = 6.8), which was similar for women (25.3; *SD* = 7.1) and men (25.6; *SD* = 6.0). BMI categories were represented as follows: 4.9 % underweight (< 18.5), 52.8% normal weight (18.5 – 24.9), 22.6% overweight (25.0 – 29.9), and 14.7 % obese (≥30).

#### Measures

Using Qualtrics software, the participants completed measures of demographic characteristics (age, gender, education level, and ethnicity). They completed self-report measures of: self-compassion (independent variable); standard and discrepancy perfectionism, comparative and internalized self-criticism, rumination and external shame (mediating variables); and body dissatisfaction and eating attitudes (dependent variables; see Appendix 2C for the measures).

Self-compassion

Self-compassion was assessed using the Self-Compassion Scale (SCS; Neff, 2003b). Items are worded to represent both positive and negative dimensions of self-compassion, which are divided into the following six subscales: Self-Kindness vs Self-Judgment, Common Humanity vs Isolation, Mindfulness vs Over-identification (Neff, 2003b). The overall self-compassion score is used, in the absence of specific hypotheses on the subscales of self-compassion. Participants rate according to a 5-point Likert scale (1 = *almost never*; 5 = *almost always*). A sample item is: “I’m disapproving and judgmental about my own flaws and inadequacies”. The SCS has shown good construct validity in young adult men and women, correlating in expected directions with scales of self-criticism, perfectionism, depression, and anxiety (Neff, 2003a). Neff (2003a) also found good three-week test-retest reliability and Cronbach’s alpha for all subscales in a sample of young adult men and women.

Perfectionism

Perfectionism was measured using the Short Form of the Revised Almost Perfect Scale (SAPS; Rice et al., 2014). The SAPS has two subscales - standards (high performance expectations) and discrepancy (self-critical performance evaluations or negative perfectionistic concerns). The SAPS has good psychometric features, including convergent and discriminant validity, internal consistency, and measurement invariance between women and men (Rice et al., 2014). The items are rated on a 7-point Likert scale ranging from 1 = *Strongly Disagree* to 7 = *Strongly Agree*. A sample item is: “My performance rarely measures up to my standards”.

Self-criticism

Self-criticism was assessed using the Levels of Self-Criticism Scale (LOSC; Thompson & Zuroff, 2004). The LOSC addresses two dimensions of self-criticism - comparative self-criticism (CSC) with 12 items (e.g., “I am usually uncomfortable in social situations where I don't know what to expect”), and internalized self-criticism (ISC) with 10 items (e.g. “I am very frustrated with myself when I don't meet the standards I have for myself”). Both scales are included in the analyses as they are each relevant to the model (see Figure 1). Thompson and Zuroff (2004) have shown that LOSC has good internal consistency (CSC α = 0.84; ISC α = 0.88). They also reported good evidence for the convergent and discriminant validity of the LOSC. Respondents rated items on a 7-point Likert scale that ranged from 1 = *Strongly Disagree* to 7 = *Strongly Agree*. Responses are summed, and higher scores reflect greater self-criticism.

Rumination

Rumination was measured using the Ruminative Thought Style Questionnaire (RTSQ; Brinker & Dozois, 2009). The RTSQ has demonstrated good convergent validity with the Response Style Questionnaire, the Global Rumination Scale and the Beck Depression Inventory, adequate test–retest reliability and high internal consistency (Brinker & Dozois 2009). A sample item is: “Sometimes I realize I have been sitting and thinking about something for hours”. All responses are recorded on a 7-point Likert scale from 1 = *Not at all* to 7 = *Very well*. Item scores are summed, with higher scores indicating greater rumination.

External Shame

External shame was measured using the Other as Shamer Scale (OAS; Goss et al., 1994). The OAS has high internal consistency (α = .92). As I specifically propose external shame as relevant to my model, the OAS is an appropriate measure to use here. On items such as “Other people think I have lost control over my body and feelings,” participants responded on a 5-point scale that ranged from 0 (*never*) to 4 (*almost always*). Higher summed scores reflect greater external shame. The scale assesses three distinct dimensions of external shame: inferiority (e.g., “Other people see me as small and insignificant”); emptiness (e.g., “Others see me as empty and unfulfilled”); and how others behave when they see me make mistakes (e.g., “Other people always remember my mistakes”). In the original study, a three-factor exploratory solution was put forward, and it was found to have good construct validity, relating to measures of internal shame, experience of shame and guilt (Goss et al., 1994).

Body Dissatisfaction

Body dissatisfaction was assessed using a shortened form of the Body Shape Questionnaire (BSQ-16; Evans & Dolan, 1993), which assesses body dissatisfaction. The BSQ-16 has excellent α values (.93 to .96), and good concurrent and discriminant validity (Evans & Dolan, 1993). The BSQ has demonstrated reliability and validity for women and men (Rosen et al., 1996). Participants respond from 1 (*never*) to 6 (*always*) for each item (e.g., “Have you avoided wearing clothes which make you particularly aware of the shape of your body?”). Higher scores indicate greater body image dissatisfaction.

Eating Disorder Psychopathology

This was measured using the Eating Disorder Examination Questionnaire – version 6.0 (EDE-Q; Fairburn & Beglin, 2008). It consists of four attitudinal sub-scales – the restraint subscale, the eating concern subscale, the shape concern subscale, and the weight concern subscale. Each reflects experiences over the last 28 days. Items are rated on a seven-point scale, ranging from 0 (*no days/not at all*) to 6 (*everyday/markedly*). Higher scores indicate greater ED pathology. A sample item is “Have you gone for long periods of time (8 waking hours or more) without eating anything at all in order to influence your shape or weight?”. The psychometric properties of the EDE-Q have been demonstrated in clinical and non-clinical samples, showing adequate test-retest reliability, internal consistency, and construct validity (Berg et al., 2012). In the current study, internal consistency for the global score was 0.95 in the female sample and 0.94 in the male sample. The alpha level was similar to a study with a non-clinical male sample (Schaefer et al., 2018).

#### Procedures

Recruitment of the current sample was conducted through multiple sources, such as leaflets displayed within the University of Sheffield, and the University of Sheffield announcement system. When inviting the participants, the purpose of the study was described as being to discover: “how being kind to yourself (self-compassion) might be related to eating concerns”. An online advert was posted on a variety of Internet sites, such as Facebook, Twitter, Reddit, LinkedIn, and Instagram. The study leaflet provided information regarding the inclusion and exclusion criteria, and a link to the information sheet. The recruitment process lasted from 16 December 2019 to 6 February 2020, until the minimum target sample size was achieved.

This study was administered online, using the Qualtrics survey platform. Prior to any data collection, an information sheet showing the aim and the entire process of the study and what it involves was provided (see Appendix 2D). Then, informed consent was obtained from the participants (see Appendix 2E). Participants were asked to complete the questionnaires outlined above, and the demographic information. At the end of the survey, participants were provided a debrief (see Appendix 2F).

#### Data analysis

SPSS Statistics (version 25) was used for all data analyses. Data were initially screened for normality of distribution. The assumption of normality was investigated through a visual inspection of the histograms and Probability-Probability (P-P) plots. The skewness and kurtosis for each dependent variable were assessed. These analyses showed that the data were suitable for regression analyses, as they met the assumptions for normality. There were no missing data.

A series of mediation analyses were conducted to address aim 1, using the PROCESS tool in SPSS (Hayes, 2017). Preacher and Hayes (2008) suggest that bootstrapping provides the most robust and reasonable method of deciding confidence limits for specific indirect effects under most conditions. It is a resampling method based on random sampling with replacement. Therefore, the analysis used a 95% bias-corrected confidence interval that does not include zero, based on 5,000 bootstrappings, to test the significance of indirect effects. Aim 2 was tested by running the same analyses for men and women separately.

### Results

#### Sample characteristics

Descriptive data for the total sample are given in Table 3.1., split by gender. Scores on the SCS, LOSC, SAPS, BSQ-16, and EDE-Q were similar to those established for other nonclinical populations (Mond et al., 2006; Neff & McGehee, 2010; Rice et al., 2014; Thompson & Zuroff, 2004; Wasylkiw et al., 2012). The mean scores on the RTSQ and OAS were slightly higher than in a community sample (Brinker & Dozois, 2009; Marta-Simones et al., 2016). In line with previous research, women had significantly lower scores than men on self-compassion, and higher scores on standard perfectionism, internalized self-criticism, body image, and eating pathology (El Ansari et al., 2014; Rose et al., 2013; Yarnell et al., 2019).

**Table 3.1.**

*Descriptive Statistics and Internal Consistency of the Questionnaires for this Sample*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Total ( *N* = 570) | | Women (*N* = 369) | Men (*N* = 201) |  | |
|  | M *(SD)* | *α* | M *(SD)* | M *(SD)* | *t* | *p* |
| Age | 29.8 *(9.80)* | -- | 29.3 *(10.2)* | 20.67 *(8.80)* | 1.67 | *NS* |
| Self-compassion (SCS) | 2.9 *(0.64)* | .76 | 2.90 *(0.70)* | 3.00 *(0.50)* | 3.35 | .001 |
| Shame (OAS) | 24.7 *(13.5)* | .94 | 25.1 *(13.5)* | 24.1 *(13.5)* | 0.77 | *NS* |
| Rumination (RTSQ) | 84.5 *(22.5)* | .93 | 84.7 *(22.8)* | 84.1 *(22.1)* | 0.33 | *NS* |
| Standard  Perfectionism (SAPS) | 22.8 *(4.5)* | .87 | 23.1 *(4.40)* | 22.2 *(4.60)* | 2.31 | .02 |
| Discrepancy  Perfectionism (SAPS) | 18.4 *(5.8)* | .84 | 18.4 *(6.00)* | 18.5 *(5.40)* | 0.16 | *NS* |
| Comparative  self-criticism (LOSC) | 43.8 *(10.7)* | .74 | 44.1 *(11.3)* | 43.5 *(9.60)* | 0.66 | *NS* |
| Internalized  self-criticism (LOSC) | 47.0 *(12.3)* | .90 | 48.4 *(12.2)* | 44.5 *(12.2)* | 3.63 | .001 |
| Body dissatisfaction(BSQ-16) | 44.0 *(19.5)* | .95 | 48.3 *(19.7)* | 36.1 *(16.5)* | 7.83 | .001 |
| Eating  pathology (EDE-Q) | 1.7 *(1.30)* | .95 | 1.90 *(1.40)* | 1.40 *(1.10)* | 5.21 | .001 |

*Note.* SCS: Self-Compassion Scale (Neff, 2003b), OAS: Other as Shamer Scale Scale (Goss, Gilbert & Allan, 1994), RTSQ: Ruminative Thought Style Questionnaire (Brinker & Dozois, 2009), SAPS: Short Form of the Revised Almost Perfect Scale (Rice, Richardson, & Tueller, 2014), LOSC: Levels of Self-Criticism Scale (Thompson & Zuroff, 2004)., BSQ-16: Shortened form of the Body Shape Questionnaire (Evans & Dolan, 1993), EDE-Q: Eating Disorder Examination Questionnaire (Fairburn & Beglin, 2008). *α = Cronbach’s alpha as a measure of internal consistency.*

#### Bivariate Associations

The correlation coefficients for each pair of variables were conducted for women and men separately (see Table 3.2.). The total self-compassion score was significantly associated with all of the proposed dependent and potential mediator variables. I transformed the Fisher’s r scores to Z values to examine whether differences in correlations between female and male were significant. (Cohen et al., 2013). There was a negative correlation between self-compassion and eating pathology (women: *r* = -.48; men: *r* = -.34), but the difference between those correlations was not significant (p = .06). The pattern was similar to the correlations between self-compassion and body dissatisfaction (women: *r* = -.53; men: *r* = -.30). In this case, the difference in correlations was significant (*p* < .05).

**Table 3.2.**

*Correlations between independent, mediating and dependent variables. Coefficients above the diagonal represent correlations for the women (N = 369), while those below the diagonal represent correlations among men (N = 201)*

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Variable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1.Self-compassion (SCS) | -- | -.61\*\* | -.53\*\* | -.57\*\* | -.69\*\* | -.67\*\* | -.53\*\* | -.48\*\* |
| 2.Shame (OAS) | -.52\*\* | -- | .58\*\* | .49\*\* | .75\*\* | .51\*\* | .51\*\* | .45\*\* |
| 3.Rumination (RTSQ) | -.50\*\* | .51\*\* | -- | .48\*\* | .55\*\* | .52\*\* | .41\*\* | .35\*\* |
| 4.Discrepancy perfectionism (SAPS) | -.44\*\* | .39\*\* | .44\*\* | -- | .51\*\* | .62\*\* | .41\*\* | .37\*\* |
| 5.Comparative self-criticism (LOSC) | -.64\*\* | .68\*\* | .48\*\* | .47\*\* | -- | .54\*\* | .48\*\* | .47\*\* |
| 6.Internalized self-criticism (LOSC) | -.64\*\* | .51\*\* | .52\*\* | .54\*\* | .51\*\* | -- | .44\*\* | .40\*\* |
| 7.Body dissatisfaction (BSQ-16) | -.30\*\* | .47\*\* | .29\*\* | .24\*\* | .39\*\* | .30\*\* | -- | .87\*\* |
| 8.Eating pathology (EDE-Q) | -.34\*\* | .39\*\* | .24\*\* | .22\*\* | .39\*\* | .27\*\* | .76\*\* | -- |

Note. \*\* = p < .001,\* = p < .05; SCS: Self-Compassion Scale, OAS: Other as Shamer Scale, RTSQ: Ruminative Thought Style Questionnaire, SAPS: Short Form of the Revised Almost Perfect Scale, LOSC: Levels of Self-Criticism Scale, BSQ-16: Shortened form of the Body Shape Questionnaire, EDE-Q: Eating Disorder Examination Questionnaire

#### Mediation analyses

Regression analyses were used to test the hypothesis that external shame, self-criticism, rumination and perfectionism mediate the effect of self-compassion on eating pathology and body dissatisfaction. This was done separately for women and men.

##### Women

Figure 3.1. shows that self-compassion was a significant predictor of rumination (B = -18.19, SE = 1.5, *p* < .001), internalized self-criticism (B = -12.20, SE = .70, *p* < .001), comparative self-criticism (B = -11.57, SE = .64, *p* < .001), shame (B = -12.36, SE = .83, *p* < .001), standard perfectionism (B = -0.84, SE = .35, *p* < .05) and discrepancy perfectionism (B = -5.09, SE = .39, *p* < .001).

Diagram

Description automatically generated

*Figure 3.1.* The mediating effect of six variables in the relationship between self-compassion and eating pathology among women. Solid lines illustrate significant effects. *α* and *b* represent coefficients, and *SE* = standard error.

Eating Pathology.Figure 3.1. shows that only shame and comparative self-criticism were significant predictors of eating pathology (respectively - *B* = 0.02, *SE* = .01, *p* < .05; *B* = 0.02, *SE* = 0.01, *p* < .05). Just under a third of the variance in eating pathology was accounted for by the predictors (*R2* = .29). A 95% confidence interval based on 5,000 bootstrap samples showed that the indirect effect of self-compassion on eating pathology through shame and comparative self-criticism was significant [*B* = -0.20, *SE* = .10, 95% CI (-0.42, -0.01); *B* = -0.24, *SE* = .12, 95% CI (-0.47, -0.00)]. To summarise the relationships among women, lower levels of self-compassion were associated with higher levels of shame and comparative self-criticism, which, in turn, were associated with higher levels of eating pathology. Self-compassion still had a significant predictive effect for eating pathology (*B* = -0.45, *SE* = .15, *p* < .05) after controlling for shame and comparative self-criticism, which indicates partial mediation.

Body Dissatisfaction. Only shame was a significant predictor of body dissatisfaction (*B* = 0.35, *SE* = .10, *p* < .05; see Figure 3.2.). Approximately a third of the variance in body dissatisfaction was accounted for by the predictors (*R2* = .35). The indirect effect of self-compassion on body dissatisfaction only through shame was significant, [ *B* = -4.36, *SE* = 1.31, 95% (CI -6.99, -1.88)]. Among women, the relationship between high levels of self-compassion and lower levels of body dissatisfaction was partially mediated by lower levels of shame. Self-compassion was still a significant predictor of eating pathology (*B* = -7.69, *SE* = 2.01, *p* < .05) after controlling for shame.

Graphical user interface, application, Word

Description automatically generated

*Figure 3.2.* The mediating effect of six variables in the relationship between self-compassion and body dissatisfaction among women. Solid lines illustrate significant effects. *α* and *b* represent coefficients, and *SE* = standard error.

##### Men

Figure 3.3. shows that self-compassion was a significant predictor of rumination (*B* = -19.40, *SE* = 2.40, *p* < .001), internalized self-criticism (*B* = -13.94, *SE* = 1.17, *p* < .001), comparative self-criticism (*B* = -10.82, *SE* = .93, *p* < .001), external shame (*B* = -12.49, *SE* = 1.45, *p* < .001) and discrepancy perfectionism (*B* = -4.20, *SE* = .61, *p* < .001).

Chart, diagram

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*Figure 3.3.* The mediating effect of six variables in the relationship between self-compassion and eating pathology among men. Solid lines illustrate significant effects. *α* and *b* represent coefficients, and *SE* = standard error.

Eating Pathology.Shame was the only predictor of eating pathology (*B* = 0.02, *SE* = 0.01, *p* < 0.05). One fifth of the variance in eating pathology was accounted for by the predictors (*R2* = .19). A 95% confidence interval based on 5,000 bootstrap samples indicated that the indirect effect of self-compassion on eating pathology through shame was significant, *B* = -0.23, *SE* = 0.11 CI -0.44, -0.03. Reduced self-compassion was associated with increased levels of shame, which, in turn, were associated higher levels of eating pathology. Self-compassion was no longer a significant predictor of eating pathology after controlling for shame (*B* = -0.22, *SE* = .21, p = 0.27), which is consistent with full mediation (see Figure 3.3.).

Body **dissatisfaction**. Figure 3.4. shows that shame was the only predictor of body dissatisfaction (*B* = 0.02, *SE* = 0.01, p < .05). A quarter of the variance in body dissatisfaction was accounted for by the predictors (*R2* = .24). A 95% confidence interval based on 5,000 bootstrap samples indicated that the indirect effect of self-compassion on body dissatisfaction through shame was significant, (*B* = -5.43, *SE* = 0.1.6 CI (-8.78, -2.70)]. Self-compassion was no longer a significant predictor of body dissatisfaction after controlling for shame (*B* = .52, *SE* = 2.79, p = .85), which is consistent with full mediation.

Graphical user interface, Word

Description automatically generated

*Figure 3.4.* The mediating effect of six variables in the relationship between self-compassion and body dissatisfaction among men. Solid lines illustrate significant effects. *α* and *b* represent coefficients, and *SE* = standard error.

**Summary**

Self-compassion was associated with eating pathology and body dissatisfaction for men and women. Shame fully mediated the relationship between self-compassion and eating pathology and body dissatisfaction for men, and partially mediated such relationship for women. In addition, comparative self-criticism contributed to the partial mediating effect between self-compassion and eating pathology among women.

### Discussion

The aim of this sufficiently powered study was to identify potential mechanisms underlying the link between lower self-compassion and greater levels of eating pathology and dissatisfaction. The potential mediating roles of external shame, rumination, perfectionism, and self-criticism were considered, using a community sample of women and men. As hypothesized, greater self-compassion was associated with lower levels of eating pathology and body dissatisfaction. A lower level of shame was the only consistent mediator across women and men. Comparative self-criticism played a smaller role, partially mediating the link between self-compassion and eating pathology among women. However, there were no significant mediational effects of rumination or perfectionism in the relationship between self-compassion and such concerns.

The primary association here was in line with findings from the meta-analysis in Chapter 2, where a greater self-compassion was associated with lower levels of eating pathology and body dissatisfaction. However, most of the potential mediators in the present model have not been examined in previous studies. While Fresnics et al. (2019) found a significant mediating effect of *rumination* in that association, that link was not replicated here. It is possible that the measure of rumination used here focuses on a general tendency towards a ruminative style of thinking, whereas depressive rumination might be more likely to be associated with greater eating pathology, predicting the onset of bingeing and purging behaviours (e.g., Gordon et al., 2012; Wang & Borders, 2018). The link from *perfectionism* to higher eating pathology and body dissatisfaction was not significant. One potential explanation of the absence of such effect is that cognitive processes (perfectionist concerns) might not be as detrimental as negative feelings, given that individuals with eating pathology tend to have difficulties with managing their emotions.

The finding that self-compassion is indirectly related to eating pathology and body dissatisfaction through *external shame* is novel however. These findings emphasize the importance of negative socially-based affect (shame) in this relationship and therefore implicates wider societal influences. Shame’s mediating effects here are similar to those shown elsewhere, in the link between self-compassion and depression (Johnson & O’Brien, 2013). Although previous research has reported that shame is important in eating and body dissatisfaction, it has focused mainly on women or they are not specific to the external shame (e.g., Kelly & Tasca, 2016).

While self-compassion, external shame and drive for thinness have been linked previously, the model used was different (Ferreira et al., 2013), with self-compassion as the mediator rather than the independent variable. Theoretical models are not clear whether self-compassion or external shame are more appropriate as the independent variable or the mediator in such a situation. However, considering temporal/developmental issues, I would argue that the early caregiving environment (e.g., parental warmth, kindness, and emotional closeness) is likely to result in related self-compassion being the earlier trait development, while external shame is more likely to follow subsequent events, making it likely to be the mediator in this relationship (e.g., Matos et al., 2017). A third possibility is that self-compassion could be seen as a moderator of the shame-eating pathology and body dissatisfaction relationship, with higher levels of self-compassion protecting against the effects of shame. However, the question of which of these is the most appropriate model requires further, longitudinal research.

These results support models and theories that indicate emotions are important for understanding eating pathology and body dissatisfaction (Cooper & Fairburn, 2011; Lavender et al., 2015). Therefore, enhancing adaptive emotional coping is likely to be important, along with identifying negative emotional coping mechanisms. Neff’s (2003a) theory of self-compassion might explain the associations found here. Neff suggests that self-compassion is based on a feeling of self-acceptance and awareness of one’s emotions in a balanced way. This non-judgmental acceptance of emotions might mitigate the desire to hide or escape that is central to the experience of shame (Tangney et al., 1992). Therefore, acknowledging emotions as being valid might lessen maladaptive coping. For instance, when individuals experience negative emotions, if they accept those emotions then they do not need to use secretive or isolating approaches (e.g., bingeing/purging) to manage shame. Similarly, these findings support Gilbert’s theory (2005) that when individuals experience “living in the minds of others”, the social world becomes a threat and leads to varieties of defence, such as wanting to hide, conceal, or not to be seen. Therefore, such individuals might engage with disordered eating behaviours to deal with external shame.

The findings suggest that feelings that stem from self-other processing (e.g., external shame) could be more closely linked to eating pathology than self-self processing. It is in line with the evolutionary perspective and social rank theory, which suggest that individuals might engage in controlling their weight, body shape or eating patterns as strategies to assure social acceptance when they experience the self as unattractive and rejectable, and their social world becomes unsafe (Allan & Gilbert, [1995](https://onlinelibrary.wiley.com/doi/full/10.1002/cpp.1830?casa_token=nEM3NFRCrjkAAAAA%3AXy3K9ozX7itOYCNrK7SyjaVCisVE1ILfQosY1xTfYQvQ-OZZS2RSNcs3gziLMT95zy-vwPN08qjTw3c#cpp1830-bib-0003), [1997](https://onlinelibrary.wiley.com/doi/full/10.1002/cpp.1830?casa_token=nEM3NFRCrjkAAAAA%3AXy3K9ozX7itOYCNrK7SyjaVCisVE1ILfQosY1xTfYQvQ-OZZS2RSNcs3gziLMT95zy-vwPN08qjTw3c#cpp1830-bib-0004); Gilbert, 2007).

#### Limitations and Future Directions

Despite the presence of women and men in the sample, the generalisability of these results is limited by the sample consisting of a community group of adults with relatively high educational levels. Further research is needed to extend and replicate these findings across different age groups, cultures and backgrounds, and among eating disorder patients. Equally important, these findings are based on cross-sectional data, meaning that causality cannot be confirmed. However, this model provides a helpful foundation for identifying important areas for future research using longitudinal approaches.

Although I did not detect multi-collinearity, collinearity between variables (especially between external shame and rumination in the present study) might still affect the power of the analysis (Beasley, 2014; Johnston et al., 2018), particularly because the data are cross-sectional. Therefore, results should be interpreted with caution, especially when determining the optimum mediator or moderator model to explain the links between these constructs (see above).

Finally, shame and self-criticism are common features across different psychopathologies, such as borderline personality disorder (Gratz et al., 2010) and addiction (Luoma et al., 2012). Therefore, the mediational model proposed in this study might not be specific to eating and body dissatisfaction. It should be tested in individuals with other psychopathologies, to determine whether the outcomes differ or whether there is a common model for issues such as impulsivity or compulsivity across disorders.

#### Clinical implications

Despite methodological limitations, these results might have important implications for treatment and prevention. Clinically, they suggest that it may be potentially useful to cultivate self-compassion in individuals with disturbed eating and body image, to mitigate the detrimental effect of shame. According to meta-analysis in the previous chapter, self-compassion related interventions are effective in reducing eating pathology and body dissatisfaction. Such approaches include compassion-focused therapy (which has been developed specifically for individuals who struggle with shame and self-criticism - Gilbert, 2014), and Acceptance and Commitment Therapy (which targets shame - Luoma & Platt, 2015). In cases where eating pathology and body dissatisfaction have a strong emotional component, combining self-compassion interventions with cognitive-behavioural techniques might help to identify and challenge their critical thoughts. All these considerations need to be considered in the context of being able to develop and deliver manualised, brief, acceptable, effective, and cost-efficient interventions. Clinicians could consider assessing patients’ levels of self-compassion and shame, in order to determine whether improving self-compassion might impact on shame levels during treatment.

### Conclusion

This current study has addressed a critical gap in the literature, delineating mechanisms by which self-compassion is associated with eating pathology and body dissatisfaction among men and women. This study has identified shame as a robust mechanism linking lower self-compassion to eating pathology and body dissatisfaction. External shame appears to act as a toxic link. Those with low self-compassion are also shaming of self, which results in problems of poor body image and eating. Shame emerges as a potential intervention target where the individual’s eating pathology is emotionally driven and where there is a problematic relationship with self. Longitudinal studies are therefore needed to further test the validity of this model of eating pathology and body dissatisfaction.

# Chapter 4

## Determining the potential link of self‑compassion with eating pathology and body image among women: a longitudinal mediational study

### Abstract

This longitudinal study aims to determine what factors mediate the previously established link between self-compassion and eating pathology/body image concerns, over a six-month period. A community sample of 274 adult women (*M* = 29.50 years) completed standardised and validated measures of self-compassion (Self-Compassion Scale), rumination (Ruminative Thought Style Questionnaire), external shame (Other as Shamer Scale), perfectionism (Short Form of the Revised Almost Perfect Scale), self-criticism (Levels of Self-Criticism Scale), eating pathology (Eating Disorder Examination Questionnaire) and body dissatisfaction (Body Shape Questionnaire). Participants reported levels of self-compassion at Time 1, potential mediators (rumination, shame, self-criticism, perfectionism) at three months; and eating pathology and body dissatisfaction a further three months later. Multiple imputation was used for missing data. Stepwise multiple regression found shame was the most consistent mediator and also acted as a full mediator of the self-compassion-eating/body image relationship. Discrepancy perfectionism also played a mediating role in the link between self-compassion and body dissatisfaction. These results support that self-compassion is relevant to eating pathology and body dissatisfaction and demonstrate that shame is an important mechanism in that relationship. This pattern suggests that interventions that reduce shame should be considered when addressing issues relating to self-compassion and its links to eating disorders.

### Introduction

The study in Chapter 3 examined the potential mechanisms underpinning the association between self-compassion and eating pathology/body dissatisfaction, since it is not known how self-compassion leads to positive changes in eating pathology and body dissatisfaction. The findings indicated that external shame is an important factor. However, the cross-sectional design of Study 1 does not truly test the temporal precedence of change. Similarly, most research on such mechanisms has utilized cross-sectional designs, in which self-compassion and its correlates have been investigated at a single time point (Ferreira et al., 2013; Schoenefeld & Webb, 2013). Therefore, such studies fail to represent true mediational processes, which necessarily develop over time (Kazdin, 2007; Maxwell et al., 2011). Therefore, this study will address the potential role of mediators in the relationship between self-compassion and eating pathology/body dissatisfaction, using a longitudinal design.

This current study replicates previously proposed potential mediators – perfectionism, self-criticism, rumination, and shame – longitudinally. As mentioned, each of these has been shown to be associated with self-compassion and eating pathology/body dissatisfaction (Bardone-Cone et al., 2007; Fennig et al., 2008; Johnson & O'Brien, 2013; Linnett & Kibowski, 2019; Neff et al., 2007; Stoeber et al., 2020). For instance, individuals with a lack of self-compassion are likely to be less forgiving of their errors, and hence more perfectionist. Those individuals might be more likely to engage in eating disorder behaviours as an attempt to control their image in order to try to achieve the ‘perfect’ idealized physical body. In contrast, self-compassionate people are prone to be less self-judgemental, making them less self-critical. Hence, even if they do not meet an ‘ideal’ body image, they are less likely to have eating pathology. Similarly, they are less likely to feel shame following a perceived failure (e.g., not having an ideal body), which makes them less likely to engage in eating pathology behaviours to avoid that feeling of shame (Ferreira et al., 2013). Regarding rumination, individuals with increased self-compassion are likely to be emotionally more open, and hence less likely to suppress their emotions and ruminate. Therefore, they are less prone to engage in eating pathology behaviours to regulate their negative emotions (Smith et al., 2018).

As mentioned before, theoretical models are still unclear as to whether self-compassion or these proposed mediating variables should have the lead causal role as independent variable. Consequently, a case could be made for a number of studies, each investigating different temporal models. However, in this case self-compassion is considered as the primary variable in the proposed causal chain because it can be argued that the early caregiving environment (e.g., parental warmth, kindness) is likely to lead self-compassion developing earlier than features such as perfectionism, self-criticism, rumination and shame (Kelly & Dupasquier, 2016).

The aim of the current study is to examine longitudinally the mechanisms linking self-compassion with eating pathology and body dissatisfaction among women. Perfectionism, self-criticism, rumination and shame were considered as potential mediators in those relationships (see Figure 4.1.). As outlined above, I hypothesized longitudinal links between:

1. Self-compassion (independent variable) and eating pathology/body dissatisfaction (dependent variables).
2. Self-compassion and perfectionism/self-criticism/rumination/shame (mediators).
3. Perfectionism/self-criticism/rumination/shame (mediators) and eating pathology/body image (dependent variables).

Finally, I hypothesized that the longitudinal relationship between self-compassion and eating pathology/body dissatisfaction would be mediated by perfectionism, self-criticism, rumination, and shame.

Diagram

Description automatically generated

*Figure 4.1*. Proposed mediational model, which suggests that the longitudinal relationship between self-compassion and eating pathology/body dissatisfaction will be mediated by perfectionism, self-criticism, rumination, and shame.

### Method

#### Ethical issues

Ethical approval for the research study was obtained from the Department of Psychology Ethics Committee at the University of Sheffield (reference 031350; see Appendix 2A). The study was pre-registered with ASPREDICTED (no: 32863; see Appendix 3A).

#### Design

This mediational study employed a longitudinal design over six months. Data were collected at three time points to reflect the three steps in the hypothesised model. I collected the levels of: self-compassion at Time 1; potential mediators (rumination, shame, self-criticism, perfectionism) at three months (Time 2); and eating pathology and body dissatisfaction a further three months later (Time 3).

#### Participants

An *a priori* sample size calculation was undertaken using G\*power 3.1.9.4 (Faul et al., 2007) and Cohen’s (1992) table. These indicated that 97 participants were required in the third and final stage (80% power; *p* < .05, assuming a medium effect size, as shown in the literature (e.g., Ferreire et al., 2013). Assuming a conservative 30% attrition rate at each stage, I aimed to recruit at least 200 women at Time 1.

The eligibility criteria were that participants needed to be female, 18+ years old, and fluent in English. If they were male, under 18 years old, not fluent in English, or diagnosed with a psychotic/neurological condition, they were directed out of the survey (*N* = 102). The study only included English speakers to avoid risks of translation issues adding uncontrolled variability to the data. Of the 274 women who consented and participated at baseline (Time 1), 184 (67.1%) completed at Time 2 (three months post-baseline), and 169 (61.7 %) completed the final stage (Time 3 – six months post-baseline). Participants still could complete stage 3 if they had not completed stage 2 (*N* = 90). To summarise, theattrition rate from time 1 to time 2 was 32.9%, and it was 38.3 % from time 1 to time 3. The Time 3 *N* indicated that the study was still appropriately powered (see above).

Participants’ ages ranged from 18 to 70 years (*M* = 29.50 years, *SD* = 9.09). They had a range of academic experience (22.6% high school, 36.9% Bachelor’s degree, 28.1% Master’s degree, and 12.4% doctoral degree). They self-identified as belonging to the following ethnic/racial groups: 62% white; 13.5% mixed/multiple ethnic groups; 10.2% South Asian/Asian British; 4% Black/African/Caribbean/Black British; and 10.2% other. They had a range of employment statuses (43.4 % employed, 48.2% students, 4.7% self-employed).

#### Measures

Using Qualtrics software, the participants completed measures of demographic characteristics (age, gender, education level, and ethnicity). Participants self-reported weight and height (used to calculate body mass index [BMI]) and completed self-report measures of: self-compassion; perfectionism; self-criticism; rumination; shame; body dissatisfaction; and eating pathology (see Appendix 2C). Detailed description, psychometric features, validity and reliability of the measures used can be found in the previous chapter.

Independent variable (Time 1)

Self-compassionwas measured using the Self-Compassion Scale (SCS; Neff, 2003b).

Mediators (Time 2)

*Perfectionism*was assessed using the Short Form of the Revised Almost Perfect Scale (SAPS) (Rice et al., 2014). *Self-criticism*was measured with the Levels of Self-Criticism Scale (LOSC) (Thompson & Zuroff, 2004). *Rumination*was assessed withthe Ruminative Thought Style Questionnaire (RTSQ; Brinker, & Dozois, 2009). *Shame* was examined with the Other as Shamer Scale (OAS) (Goss et al., 1994).

Dependent variables (Time 3)

*Body dissatisfaction*was measured with the shortened form of the Body Shape Questionnaire (BSQ-16) (Evans & Dolan, 1993). *Eating pathology*was examined with a subset of scales from theEating Disorder Examination-Questionnaire – version 6.0 (EDE-Q) (Fairburn & Beglin, 2008). Only the Restraint and the Eating Concern subscales were used to measure eating pathology, as they do not reflect body dissatisfaction (which were measured by the BSQ-16).

#### Procedure

The current study used the participants from a previous cross-sectional study for the baseline (Time 1) data. Women from that study were asked to provide their email address, if they were willing to complete further questionnaires. 274 participants from 369 agreed to complete the longitudinal study. Recruitment of that sample was conducted through multiple sources, including leaflets displayed within a university, internet adverts including mail groups, and social media. Prior to any data collection, informed consent was obtained from all participants.

#### Data analysis

Binary logistic regression analyses were used to determine whether there were any significant differences in Time 1 scores between those who did or did not participate at stages 2 and 3. To reduce the risk of such attrition influencing outcomes, multiple imputations (20 imputations) were used to correct for missing data. The hypotheses were tested using Pearson correlations to determine bivariate association. To test mediation, the Baron and Kenny method was used, as it is compatible with multiple imputation datasets (Baron & Kenny, 1986). Three simple regressions were used to address hypotheses 1-3, and then a stepwise multiple regression analysis was used to test hypothesis 4.

### Results

#### Attrition analysis

There were 11 variables at time 1 (self-compassion, rumination, shame, standard perfectionism, discrepancy perfectionism, internalized self-criticism, comparative self-criticism, eating pathology, body dissatisfaction, age and BMI) that might have affected whether participants dropped out or not. These were compared across those participants who did or did not take part at times 2 and 3. Binary logistic analysis shows that there was a significant difference between who participated and those who did not at time 2 (χ2 = 20.66, df = 11; *p* < .05). The only variable at time 1 that was associated with attrition at time 2 was higher EDE-Q scores, which were associated with higher drop-out (*p* < .05). There was no significant difference in time 1 scores between those who participated at time 3 and those who did not (χ2 = 13.46, df *=* 11; p = .26).

#### Descriptive Statistics

Table 1 presents the descriptive statistics for the study variables. Scores on the SCS, RTSQ, and BSQ-16 were similar to those established for other nonclinical populations. However, scores on the LOSC, SAPS, and EDE-Q were slightly higher than previous studies (see Table 4.1.).

**Table 4.1.**

*Descriptive statistics and internal consistency of the questionnaires, with means compared to those of other studies with comparable populations (Pooled results from 20 imputations, N =274)*

|  |  |  |  |
| --- | --- | --- | --- |
|  | *Present study*  M (*SD*) | *α* | *Previous Studies*  M (*SD*) |
| Time 1-Self-compassion (SCS) | 2.89 *(0.68)* | .76 | 2.99 *(0.61)1* |
| Time 2-Externaal Shame (OAS) | 24.46 *(17.5)* | .94 | 20.0 *(10.1)2* |
| Time 2-Rumination (RTSQ) | 93.01 *(31.6)* | .94 | 88.94 *(17.78)3* |
| Time 2-Standard Perfectionism (SAPS) | 22.79 *(4.97)* | .84 | 24.12 *(3.63)4* |
| Time 2-Discrepancy Perfectionism (SAPS) | 18.75 *(6.95)* | .89 | 14.2 *(3.31)4* |
| Time 2- Comparative self-criticism (LOSC) | 45.04 *(14.23)* | .81 | 35.99 *(9.99)5* |
| Time 2- Internalized self-criticism (LOSC) | 48.95 *(12.25)* | .90 | 35.82 *(11.84)5* |
| Time 3-Body dissatisfaction (BSQ-16) | 46.65 *(24.83)* | .94 | 51.36 *(17.67)6* [37] |
| Time 3- Eating pathology (EDE-Q) | 1.97 *(1.99)* | .95 | 1.55 *(1.20)7* [35] |

*Note.* SCS: Self-Compassion Scale, OAS: Other as Shamer Scale, RTSQ: Ruminative Thought Style Questionnaire, SAPS: Short Form of the Revised Almost Perfect Scale, LOSC: Levels of Self-Criticism Scale, BSQ-16: Shortened form of the Body Shape Questionnaire, EDE-Q: Eating Disorder Examination Questionnaire. It was not possible to calculate Cronbach’s alpha values from multiple imputation data, so completer data were used. Scores from community sample studies. 1: Neff & McGehee, 2010, 2: (Goss et al., 1994, 3: Brinker & Dozois, 2009, 4: Rice et al., 2014, 5: Clark & Coker, 2009, 6: Wasylkiw et al., 2012, 7:Fairburn & Beglin, 1994. *α = Cronbach’s alpha as a measure of internal consistency.*

#### Bivariate correlations

Table 4.2. presents the correlations among the proposed mediators, predictor and outcome variables. All relationships were significant except for standard perfectionism, which was only significantly correlated with discrepancy perfectionism and internalized self-criticism. External shame was very strongly correlated with comparative and internalized self-criticism (.78 and .60). Therefore, to reduce the risk of multicollinearity due to the use of variables that measure the same construct, comparative and internalised self-criticism were omitted from the final analyses.

**Table 4.2.**

*Correlations between hypothesised independent, mediating, and dependent variables, prior to running the mediator analyses (Pooled results from 20 imputations, N=274)*

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1. T1-Self-compassion | -- |  |  |  |  |  |  |  |  |
| 2. T2-Standard  Perfectionism | -.03 | -- |  |  |  |  |  |  |  |
| 3. T2-Discrepancy Perfectionism | -.55\*\* | .20\*\* | -- |  |  |  |  |  |  |
| 4. T2-Rumination | -.40\*\* | .10 | .48\*\* | -- |  |  |  |  |  |
| 5. T2-Shame2 | -.58\*\* | -.01 | .47\*\* | .54\*\* | -- |  |  |  |  |
| 6. T2- Comparative  self-criticism | -.61\*\* | .00 | .53\*\* | .52\*\* | .78\*\* | -- |  |  |  |
| 7. T2- Internalized  self-criticism | -.63\*\* | .31\*\* | .62\*\* | .53\*\* | .60\*\* | .65\*\* | -- |  |  |
| 8. T3-Body dissatisfaction | -.39\*\* | .11 | .42\*\* | .39\*\* | .46\*\* | .50\*\* | .47\*\* | -- |  |
| 9. T3- Eating pathology | -.28\*\* | .02 | .25\*\* | .27\*\* | .44\*\* | .39\*\* | .35\*\* | .76\*\* | -- |

Note. T1: Time 1, T2: Time 2, T3: Time 3; \*\* < .01

#### Mediation analysis

##### Eating Pathology

Hypothesis 1. Higher levels of self-compassion were associated with eating pathology over the full period of six months [B = -.54, *SE* = .14, *t*(272) = 4.04, *p* < .001]. In order to rule out the possibility that a link between self-compassion and eating pathology might be explained by weight, the association of self-compassion with BMI was tested. It was shown that BMI was not associated with self-compassion (*r* = -0.05, p = .44).

Hypothesis 2. Higher levels of self-compassion at time 1 were associated with lower levels at time 2 of discrepancy perfectionism [B = -4.68, *SE* = .56, *t*(272) = 8.41, *p* < .001]; rumination [B = -14.67, *SE* = 2.67, *t*(272) = 5.49, *p* < .001]; external shame [B = -12.07, *SE* = 1.32, *t*(272) = 9.12, *p* < .001]. However, self-compassion was not related to standard perfectionism [B = -.16, *SE* = .40, *t*(272) = 0.41, p = .68].

Hypothesis 3. At time 2, only higher levels of shame significantly predicted greater eating pathology at time 3 [B = .04, *SE* = .01, *t*(269) = 4.101, *p* < .001]. The remaining time potential mediators were not related to eating pathology (standard perfectionism [B = -.05, *SE* = .03, *t*(269) = 0.20, p = .84]; discrepancy perfectionism [B = .01, *SE*= .02, *t*(269) = 0.55, p = .58]; or rumination [B = .01, *SE* = .01, *t*(269) = 0.18, p = .86]).

Hypothesis 4**.** In the final mediational stage in the analysis,self-compassion [B = -.03, *SE* = .17, *t*(268) = 0.20, p = .84] was no longer a significant predictor of eating pathology after controlling for the mediating variables. Of the four potential mediators, only shame played a significant role [B = .04, *SE* = .01, *t*(268) = 3.93, *p* < .001] (see Table 4.3.). The remainder did not mediate the self-compassion-eating pathology link (standard perfectionism [B = -.01, *SE* = .03, *t*(268) = 0.19, p = .77]; discrepancy perfectionism [B = .01, *SE* = .02, *t*(268) = 0.44, p = .66]; or rumination [B = .01, *SE* = .01, *t*(268) = 0.17, p = .86]). Thus, external shame acted as a perfect mediator in the relationship between self-compassion and eating pathology.

**Table 4.3.**

*The results of the mediator analyses, testing the roles of hypothesised factors in explaining the links of self-compassion with eating pathology and body dissatisfaction (Intention to Treat analyses - pooled results from 20 imputations, N=274)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Step | | B | *SE* | *t* | *p* |
| *1* | Self-compassion > Eating Pathology | -.54 | .14 | -4.04 | .001 |
| *2* | Self-compassion > Discrepancy Perfectionism  Self-compassion > Standard Perfectionism  Self-compassion > Rumination  Self-compassion > Shame | -4.68  -.16  -14.67  -12.07 | .56  .40  2.67  1.32 | 8.42  0.41  5.49  9.12 | .001  .68  .001  .001 |
| *3* | Discrepancy Perfectionism > Eating Pathology  Standard Perfectionism > Eating Pathology  Rumination > Eating Pathology  Shame > Eating Pathology | .01  -.05  .01  .04 | .02  .03  .01  .01 | .55  -.20  .18  4.10 | .58  .84  .86  .001 |
| *4* | Self-compassion > Discrepancy Perfectionism > Eating Pathology  Self-compassion > Standard Perfectionism > Eating Pathology  Self-compassion > Rumination > Eating Pathology  Self-compassion > Shame > Eating Pathology | .01  -.01  .01  -.03 | .02  .03  .01  .01 | .44  -.19  .17  3.93 | .66  .77  .86  .001 |
| Step | | B | *SE* | *t* | *p* |
| *1* | Self-compassion > Body Dissatisfaction | -10.22 | 1.78 | 5.76 | .001 |
| *2* | Self-compassion > Disc Perfectionism  Self-compassion > Standard Perfectionism  Self-compassion > Rumination  Self-compassion > Shame | -4.68  -.16  -14.67  -12.07 | .56  .40  2.67  1.32 | 8.42  0.41  5.49  9.12 | .001  .68  .001  .001 |
| *3* | Discrepancy Perfectionism > Body Dissatisfaction  Standard Perfectionism > Body Dissatisfaction  Rumination > Body Dissatisfaction  Shame > Body Dissatisfaction | .68  .28  .08  .37 | .25  .32  .09  .12 | 2.74  .88  .97  3.05 | .05  .38  .34  .05 |
| *4* | Self-compassion > Disc Perfectionism > Body Dissatisfaction  Self-compassion > Standard Perfectionism > Body Dissatisfaction  Self-compassion > Rumination > Body Dissatisfaction  Self-compassion > Shame > Body Dissatisfaction | .59  .30  .08  .33 | .28  .32  .09  .15 | 2.10  .95  .98  2.25 | .05  .35  .33  .05 |

##### Body dissatisfaction

Hypothesis 1. Higher levels of self-compassion were associated body dissatisfaction over the full period of six months [B = -10.22, *SE* = 1.78, *t*(272) = 5.76, *p* < .001].

Hypothesis 2**.** The findings are as detailed above.

Hypothesis 3**.** At time 2, only higher levels of shame [B = .37, *SE* = .12, *t*(269) = 3.05, *p* < .05] and discrepancy perfectionism [B = .68, *SE* = .25, *t*(269) = 2.74, *p* < .05] significantly predicted higher body dissatisfaction at time 3. The remaining time 2 potential mediators were not related to body dissatisfaction (standard perfectionism [B = .28, *SE* =.32, *t*(269) = 0.88, p =.38]; and rumination [B = .08, *SE* = .09, *t*(269) = 0.97, p = .34]).

Hypothesis 4**.** In the final mediational stage of the analysis, self-compassion [B = -2.19, SE = 2.68, *t*(268) = 0.82, p = .42] was no longer a significant predictor of body dissatisfaction after controlling for the mediating variables. Of the four potential mediators, external shame [B = .33, *SE* = .15 *t*(268) = 2.25, *p* < .05] and discrepancy perfectionism [B = .59, *SE* = .28, *t*(268) = 2.10, *p* < .05] each played a significant role. The remainder did not mediate the self-compassion-body image dissatisfaction link (standard perfectionism [B = .30, *SE* = .32, *t*(268) = 0.95, p = .35] ; rumination [B = .08, *SE* = .09, *t*(268) = 0.98, p = .33]). To summarise, external shame and discrepancy perfectionism fully mediated the relationship between self-compassion and body dissatisfaction.

### Discussion

The aim of the present sufficiently powered study was to investigate the factors that might link self-compassion with eating pathology and body dissatisfaction among women and used a longitudinal design over a period of six months in a community sample. Potential mediating factors were self-criticism, external shame, rumination, and perfectionism. The findings of this study demonstrate that external shame is a perfect mediator of the link between self-compassion and eating pathology, while both shame and discrepancy perfectionism perfectly mediate the link between self-compassion and body dissatisfaction.

The pattern of bivariate associations reflected previous studies (e.g., Bardone-Cone et al., 2007; Fenning et al., 2008; Johnson et al., 2013; Linnett, & Kibowski, 2019; Neff et al., 2007). In particular, the link between greater self-compassion and lower eating pathology and body dissatisfaction is consistent with conclusions from cross-sectional data in the meta-analysis in the Chapter 2. These results are in line with a previous study, which reported that a mediating role of shame in the link between self-compassion and depression (Johnson, & O'Brien, 2013). In particular, the mediating role of external shame in the relationship between eating pathology/body dissatisfaction is similar to that found in a cross-sectional study in Chapter 3. Similarly, findings from a lab-based study showed that body shame mediated the relationship between self-compassion and anticipated disordered eating (Breines et al., 2014). However, this the first study to confirm such a model longitudinally, making the findings more likely to be meaningful. The fact that women who were self-compassionate had more positive body image appears to be because they feel less external shame. This is in keeping with Kelly and Tasca’s (2016) finding that patients with an eating disorder experiences lower levels of shame after a period of increased self-compassion during treatment. However, it is also important to understand the mediating role of discrepancy perfectionism, which appears to reflect women who are more self-compassionate being less concerned about failing to get things right.

These results are in line with theories on the role of emotions/and or emotion regulation in eating pathology (Fox et al., 2012). It can be hypothesised that self-compassionate individuals are more aware of their thoughts and emotions, and approach them with a non-judgmental attitude (Neff, 2003a). This lack of judgement might lead them to feel less external shame. Therefore, when such individuals experience negative emotions, they do not engage in eating pathology behaviours to manage those emotional states.

This study has a number of limitations, which need to be addressed in future research. First, such research should sample more diverse participants in terms of gender, ethnicity, and clinical status (particularly those with eating disorders). Similarly, there is potential for bias due to the exclusion of non-English speakers, and future studies should investigate this model in non-English speaking samples. Second, more robust measures that do not rely on self report would reduce the potential impact of bias in the participants’ responses. Third, there are multiple measures of perfectionism, which measure somewhat different constructs (Hewitt & Flett, 1991; Rice & Preusser, 2002; Slaney et al., 2001). Therefore, future research will be needed to determine which conceptualisations and measures of perfectionism are most useful in understanding the impact of self-compassion. Fourth, considering possible biases in self-reported BMI (Meyer et al., 2009), future research should measure weight and height objectively.

The results of the current study have potential implications for reducing eating pathology and body dissatisfaction in women, either in treatment or prevention work. Self-compassion interventions reduce eating pathology in both clinical and non-clinical populations (Albertson et al., 2015; Kelly & Carter, 2015) especially when implemented early in therapy (Kelly et al., 2013). These findings suggest that such self-compassion work should be used particularly where the individual experiences shame and/or where the individual fears getting things wrong, and that external shame and discrepancy perfectionism should be assessed at the outset of treatment.

Taken as a whole, this longitudinal evaluation supports the role of external shame as mediator between self-compassion and both eating pathology and body dissatisfaction. It also demonstrates a role for discrepancy perfectionism in explaining body dissatisfaction. Experimental studies (e.g., manipulating external shame) would help us to establish a greater degree of accuracy in this matter.

### Conclusion

This longitudinal study contributes to understanding of the role of self-compassion in terms of eating pathology and body dissatisfaction, and particularly adds to the evidence that this relationship develops over time. Overall, the results highlight the importance of external shame and discrepancy perfectionism, emphasising their relevance during prevention and treatment. These findings indicate that such mechanisms should be factored into considerations regarding the design and component parts of interventions for reducing eating pathology and body dissatisfaction. The study suggests that focussing on self-compassion as an intervention for eating pathology and body dissatisfaction is indicated.

# Chapter 5

## Comparing self-compassion versus body exposure for adult women with moderate to severe body dissatisfaction: A feasibility and pilot trial

### Abstract

This study assessed the feasibility and compared the effectiveness of two brief online interventions for body shame for women with moderate to severe negative body image, to inform the design of a future randomized controlled trial. The primary feasibility outcomes were recruitment, measure completion rates, retention rates, and internet connection failure rates. The secondary pilot outcomes were change on clinical measures and state shame ratings during the two interventions. Participants were randomly allocated to either online (40-minute single session) body-exposure or self-compassion interventions. Five validated nomothetic outcome measures (body dissatisfaction, appreciation, eating disorder, external shame, anxiety)were taken at three time points (pre-intervention, post-intervention, two-week follow-up). Subjective units of body shame (SUBS 0-100 scale) were rated every five minutes during each intervention. The target of recruiting 30 participants in 60 days was successfully achieved. The measure completion rate was high (100%) and retention rates (80-100%) showed moderate-to-high acceptability of the interventions. Online delivery was moderately viable, with a 12.5% session disconnection rate. The self-compassion intervention significantly reduced SUBS ratings during the course of the intervention, but there was no difference between the interventions on nomothetic outcome measures. Findings suggest that a fully powered trial is viable, and so a sample size calculation and methodological lessons are provided.

### Introduction

As demonstrated previously, body image concerns are a risk and maintenance factor for eating pathology more widely, rather than just among those with eating disorders (Stice & Shaw, 2002). Several approaches to body image have been identified and found to be effective (e.g., Alleva et al., 2015) and this study considers comparing self-compassion intervention with

mirror exposure technique.

Mirror exposure is particularly effective for body image disturbance (Griffen et al., 2018). This involves deliberate and systematic exposure to the body (e.g., repeatedly standing in front of a full-length mirror or computer screen and attending to one’s body for a prolonged period, without distraction or avoidance). Although such focus is likely to increase anxiety at the beginning, sustained exposure to the feared object (in this case, one’s body) reduces anxiety via habituation (Waller & Raykos, 2019). Exposure techniques are hypothesised to work by reducing anxiety/distress through extinction of the fear as the safety behaviour of body avoidance cannot be used (Butler & Heimberg, 2020). Exposures for body image disturbance are typically delivered in 30-40 minutes and this was the case in the current study.

The meta-analysis in Chapter 2 suggests that self-compassion related interventions impact on eating and body image pathology. Such self-compassion-based interventions aim to cultivate a sense of compassion, warmth, and emotional responsiveness to the body. There are various ways of delivering such interventions (e.g., writing, imaginal, or meditative). Despite the apparent effectiveness of self-compassion interventions, the quality assessment of the studies in the literature showed that most of the studies are small or lack an active control group and/or follow-up measures. Therefore, randomized controlled trials that compare self-compassion interventions with existing evidence-based approaches (such as mirror exposure) are necessary to support the wider implementation of self-compassion as a treatment and prevention method for body image issues (Toole & Craighead, 2006). The current study considers using guided meditations that were matched in terms of time with the exposure condition.

There is also a need to develop and evaluate interventions that can be easily translated into the ‘change method’ section of treatment sessions (Blackburn et al., 2001) or as homework exercises. These interventions should be brief and easily put into practice. Both compassion and exposure approaches have the potential to meet these criteria. For instance, Moffitt et al. (2018) reported that a three-minute self-compassion intervention for state weight and appearance dissatisfaction was effective for participants with moderate trait body dissatisfaction and was strongest for those with high trait body dissatisfaction. Trippett (2017) showed an overall positive effect of a single 15-minute mirror exposure session on non-clinical women (particularly among overweight adults), improving body perception and body satisfaction. Therefore, these two approaches were used here, in the first study to compare the interventions against each other.

As well as comparing their outcomes for body image overall, it is also important to determine whether exposure and self-compassion have different psychological impacts, in order to identify who might benefit from each approach. For example, given the nature of their proposed mechanisms (e.g., the role of shame in explaining the impact of self-compassion interventions – in Chapter 3 & 4), it is possible that individuals with higher trait anxiety benefit more from exposure, while those higher trait shame benefit more from self-compassion interventions. It is also important to determine the duration of such effects, meaning that it is necessary to address both short- and longer-term outcomes. Therefore, this research will address the feasibility of comparing the two approaches (mirror exposure and self-compassion), in order to determine which approach is more effective at reducing eating pathology and body image dissatisfaction, and whether they differ in their impact on shame in achieving their effects.

To conclude, despite the emerging evidence base for compassion and exposure for body dissatisfaction, most studies are small, deliver lengthy interventions, have no active control group, and lack any follow-up. Therefore, controlled studies that compare brief versions of existing evidence-based approaches are at a premium in supporting the wider implementation of interventions in routine services. I therefore conducted a pilot and feasibility randomised controlled trial. Feasibility and pilot studies are valuable and necessary before running a full trial to identify any problems. Medical Research Council guidance was followed during the development of the interventions (Craig et al., 2008). For instance, I identified suitable primary, secondary and follow-up measures. I also included the understanding the process of change (Skivington et al., 2021). The typical size of such studies is usually around 10-15 per group. The primary feasibility aim was to assess recruitment rates, viability of online delivery and acceptability of interventions. The secondary pilot aim was to provide a preliminary indication of the effectiveness of the interventions (effect sizes) at the end of intervention and at follow-up, to inform sample size calculations for the subsequent RCT. Therefore, this study will consider the following issues, in order to inform the design and methodology of a larger study:

1. The viability of recruiting a sufficient number of participants.
2. Participants’ completion rates of selected measures and retention rates indicating the acceptability of these measures.
3. The number of times that internet connections are lost, indicating the robustness of using online delivery.
4. Complete a preliminary comparison of the effectiveness of the interventions on state and trait outcome measures to inform sample size calculations.

### Method

#### Ethical considerations

Ethical approval for this study was obtained from the Department of Psychology Research Ethics Committee at the University of Sheffield (no: 035857; see Appendix 4A).

#### Design

The design was a randomised and controlled feasibility and pilot trial. This had a 2 (therapy type; between subjects) x 3 (time [pre-intervention, post-intervention and follow-up]; within subjects) design. Participants were allocated to either the body exposure or the self-compassion condition using a computer-generated random sequence. The study was pre-registered with ClinicalTrials.gov (ClinicalTrials.gov ID: NCT04665167; see Appendix 4B). Sample Size

I planned to enrol 12-15 patients per condition (total = 24-30).

#### Participants

Participants were eligible to participate if they: (1) were self-identified women; (2) were 18+ years old; (3) scored over 25 on the Body Shape Questionnaire (see below); (4) did not have any learning disability, severe mental illness or alcohol/substance dependence, history of self-injury, current eating disorder, or current clinical depression; (5) were not currently undergoing psychological therapies; (6) had a self-reported body mass index (BMI) ≥ 18.5; (7) were able to use a computer/tablet with a webcam and had an adequate internet connection; and (8) were able to use a space where they could stand far enough back from their computer to be able to see their body full length on the screen.

Participants were excluded if they: (1) were not fluent in English; (2) had any learning disability, severe mental illness or alcohol/substance dependence, history of self-injury, current eating disorder or current clinical depression; (3) were self-identified male; (4) were under 18 years old; (5) were currently undergoing psychological therapies; (6) had any psychiatric illness requiring secondary care intervention; (7) had a BMI below 18.5; and (8) had no access to a tablet or computer with an internet connection.

#### Measures

The participants completed measures of demographic characteristics (age, gender, education level, employment status, and ethnicity) and self-reported weight and height (used to calculate body mass index [BMI]). The following measures were used before the intervention (pre-test), immediately after the intervention (post-test), and two weeks following the intervention for follow-up (see Appendix 4C).

Indicators of Feasibility

Feasibility was assessed primarily via recruitment. My target was to recruit 30 participants in 60 days. Recruitment was defined as participants who completed the pre-test measures. If this was achieved in 60-90 days the feasibility was defined as moderate, and more than 90 days indicated low feasibility. Acceptability was assessed via level of completion of the measures and the proxy of retention rates, with 100% completion rate showing high acceptability, moderate acceptability as 80%, and low acceptability as less than 80%. These benchmarks were based on previous eating disorder trials (Burnette & Mazzeo, 2020; Kilpela et al., 2016; Simpson et al., 2020; Stice et al., 2012). The suitability of using an online approach was assessed by the percentage of interventions that experienced loss of internet connection (0% = high feasibility; 1-20% = moderate feasibility; more than 20% = low feasibility).

The Body Appreciation Scale-2

This is a 10-item positive body image measure (BAS-2; Tylka & Wood-Barcalow, 2015). As positive and negative body image have been identified as being qualitatively different constructs, this study considers the effects of intervention on each construct (Tylka & Wood-Barcalow, 2015). Higher scores indicate higher body appreciation. It has demonstrated excellent internal consistency (Cronbach’s α = .97) and construct validity. In the current study, α was .89 for the pre-test, .86 for the post-test, and .64 for the follow-up.

The Eating Disorder Examination – Questionnaire Short

This is a 12-item short measure of eating pathology (EDE-QS; Gideon et al., 2016). It shows high internal consistency (Cronbach’s α = .913). Higher scores reflect higher eating pathology. It correlates strongly with the global score of the original EDE-Q (Gideon et al., 2016; r =.91 for people without ED; r = .82 for people with ED). Cronbach’s α in the present study was .68, .76 and .73 respectively for pre-test, post-test and follow-up.

The Other as Shamer Scale-2

This is a short measure of external shame that refers to ‘experience of self as seen and judged by others’ ((OAS-2; Goss et al., 1994; Matos et al., 2015). The OAS-2 has good internal consistency (Cronbach’s α = 82). Higher scores show higher shame. It also has good concurrent and divergent validity, being highly correlated with the long-form OAS (*r* = .91; Matos et al., 2015). In the current study, Cronbach’s α values were 0.86, .90 and .89 for the pre-test, post-test, and follow-up.

Generalized Anxiety Disorder Scale

This is a 7-item self-report anxiety questionnaire (GAD-7; Spitzer et al., 2006). It has high internal consistency (Cronbach’s α = .89) and is a valid measure of anxiety in non-clinical populations (Lowe et al., 2018). Participants respond from 1 (not at all) to 4 (nearly every day) for each item. Item scores were summed. In the current study, Cronbach’s α values were .82, .83 and .89 for pre-tests, post-tests, and follow-up, respectively.

The Body Shape Questionnaire:

This is an eight-item questionnaire that measures body dissatisfaction (BSQ-8B; Evan & Dolan, 1993). Higher scores show higher body dissatisfaction. Scores over 25 indicate moderate and severe body dissatisfaction. Such cut-off was selected for eligibility so that there was sufficient negative body image to allow for improvement. BSQ-8B has a good internal consistency (alpha values in the range .87 to .92). The BSQ-8 is a sufficiently well-validated measure. However, in this study, the pre-test alpha was low (0.56), though it rose to acceptable levels at the post-test (.70) and the follow-up points (.85). Therefore, the utility of the BSQ-8B will be considered below, as a feasibility issue. The average body dissatisfaction score of a community sample was 18.33 (SD = 7.02), for a student sample M = 18.86 (SD=6.68; Maraldo et al., 2016), and for a clinical sample M = 32.11 (SD= 9.56; Warren et al., 2008). The scores in the present study are like those of clinical groups.

State Body Shame

To determine the process of change during the exposure and compassion interventions, I tested whether participants’ shame changes during the intervention process. This is in keeping with measuring subjective units of distress (SUDS) during in-session behavioural approaches. Self-compassion interventions are hypothesised to work through reducing shame. Therefore, participants were asked to rate their level of body shame, from 0 (no shame at all) to 100 (totally ashamed), approximately every 5 minutes (minutes 0, 4, 8, 15, 21, 28, 33, 37 and 40) during the intervention sessions.

Post Intervention Feedback Form**:**

Participants were asked to complete a feedback form immediately after the session, asking how useful the intervention was, and how much they adhered to the exercises (1= not at all; 5 = very much). Participants were asked to rate (1 = not at all; 5 = very much) whether: (1) the facilitator was helpful; (2) the session helped to improve their body image; and (3) they would recommend the intervention to other people with body image concerns. They were also asked if there was anything practical that could be changed (duration/frequency/format) that would have made it easier for them to undertake the sessions. Lastly, participants were asked to provide general feedback (e.g., on the length, content or the structure of the intervention, and on their interaction with the facilitator).

Adherence Measurement

Adherence check questions were designed for the facilitator to check adherence to intervention protocols (see details below).

#### Procedure

Recruitment was carried out online using social media (Facebook, Twitter, Reddit). All applicants were screened for eligibility within the recruitment process (Figure 5.1.). If they met the criteria, subjects were invited to participate and sent information sheet (see Appendix 4D).

Then, informed consent was obtained (see Appendix 4E). Participants were asked to complete pre-test questionnaires and book a session. Those who booked a session were randomly allocated to one of the two intervention conditions using a computerized random number generator. Participants were asked to wear form-fitting clothes and to be in a quiet place before the session. A reminder email, including a unique link to an online meeting, was sent to participants before the session. This email reminded participants to complete the pre-test questionnaires if they had not yet done so. All interventions were conducted online with the facilitator on Google Meet. In case of tardiness or issues with logging on, the facilitator waited for participants for 15 minutes. I conducted this study online, due to the COVID-19 pandemic.

Interventions were implemented according to intervention protocols prepared for the study (see Table 5.2.). At the beginning of the session, participants’ physical positions were adjusted based on the allocated intervention (see below). They were reminded to check that their laptop or computer that they were using was fully charged or plugged in. They were informed that if the session was interrupted in any way (e.g., someone walks in through the door), the facilitator was going to end the session by saying: “I can see that you are busy at the moment, we can arrange another time to meet.” Such participants were then sent an email to schedule another meeting. The rationale of the research and the procedure of the intervention were explained. Participants were asked to rate how strongly they expected that the intervention would improve their body image (from 0 = not at all to 10 = totally). The interventions lasted about 40 minutes. Participants were also informed that if they were uncomfortable at any time and decided not to continue, they could stop at any point.

At the end of the intervention, participants were asked to complete the post-test, which included the measures of eating disorder symptoms, negative body image, positive body image, anxiety and shame, and the post-intervention feedback form. Participants were also told that they were going to receive a follow-up survey in two weeks, and it was important for them to complete it so that the researchers could decide whether this intervention is effective in the longer term. After delivering the intervention, the facilitator completed the adherence check questions detailed in Table 5.1. Interventions were facilitated by FT, who received regular supervision from SK and GW, who are experienced clinical psychologists. Participants were provided a debrief at the end of the follow-up measures (see Appendix 4F).

**Table 5.1.**

*Adherence measurement for each conditions*

|  |  |
| --- | --- |
| Self-compassion intervention | Body exposure intervention |
| 1. Did I do the setting up? 2. Were the conditions for self-compassion introduced? 3. Did I ask about the participants’ expectations at the beginning of the intervention? 4. Did I ask about shame 9 times? 5. Did I phrase shame questions consistently? 6. Did I take 40 minutes or less/more? 7. *Did I do the meditations in the same order for everyone?* 8. *Did I talk too fast or too slowly? (Did I finish each meditation in roughly 5 mins?)* | 1. Did I do the setting up? 2. Were the conditions for exposure introduced? 3. Did I ask about the participants’ expectations at the beginning of the intervention? 4. Did I ask about shame 9 times? 5. Did I phrase the shame questions consistently? 6. Did I take 40 minutes or less/more? 7. *When participant start being very emotional, did I encourage them to be neutral?* 8. *Did I remind them to look at their body (if necessary)?* 9. *Did I remind them to focus on specific body parts (if necessary)?* 10. *Did I remind them not to distract themselves (if necessary)?* 11. *Did I give the participant the chance to talk? (Did I stay silent properly? Did I interrupt her when she was talking?)* |

*Note.* Italics show the unique questions for each condition

#### Interventions

Table 5.2. details the similar and different elements of the two 40-minute interventions.

**Table 5.2.**

*Intervention descriptions*

|  |  |
| --- | --- |
| Body image exposure | Self-compassion |
| The body image exposure condition used in this study is an adapted version of guided non-judgmental mirror exposure therapy.  Rationale and procedure for the intervention is described  During the intervention sessions, participants were asked to rate their level of shame approximately every 5 min (minute 0, 4, 8, 15, 21, 28, 33, 37, 40)  *They were asked to stand so that they can see their whole body – far enough back*  *Participants were asked to look at their bodies on screen.*  *Participants were continually encouraged by the facilitator for looking at and talking about the body parts.* | The self-compassion intervention condition consists of Neff’s self-compassion exercises. These exercises are part of the self-compassion intervention condition. The meditation text used in this study is obtained from the following link <https://self-compassion.org/category/exercises/>.  Rationale and procedure for the intervention is described  During the intervention sessions, participants were asked to rate their level of shame approximately every 5 min (minute 0, 4, 8, 15, 21, 28, 33, 37, 40)  *Participants were asked to close their eyes gently*  *Seven short (5 minutes long on average) self-compassion meditation were delivered.*  *Building warmth through touch exercise, self-compassion break, compassionate body scan, loving-kindness meditation, affectionate breathing exercise, noticing practice, and self-compassion break* |

*Note.* Italics show the unique procedure elements for each condition

##### Self-compassion Intervention

The self-compassion intervention condition consisted of a number of short self-compassion meditations. First, participants were introduced to the intervention. They were told that being self-compassionate means embodying the qualities of kindness, warmth, and non-judgment, then directing them towards themselves. The researcher told them that they were going to do activities such as gentle breathing and meditation with her guidance, and it was going to take 40 minutes. They were informed that the researcher would ask them to rate their body shame about their whole body approximately every five minutes. Participants were also told that: “There is no right or wrong way to undertake these exercises. Just try to follow the instructions and to take up a compassionate stance, being patient with yourself and non-critical. If your mind is wandering, try to bring it back to the meditation practice.” Then, the researcher delivered the following self-compassion exercises:

* Building warmth through touch exercise
* Self-compassion break
* Compassionate body scan
* Loving-kindness meditation
* Affectionate breathing exercise
* Noticing practice
* Self-compassion break

Each exercise was shortened and adapted from materials on the following website: <https://self-compassion.org/category/exercises/> (see the Appendix 4G for the script and 4H for the adherence check quesitons). For instance, in the ‘self-compassion break’ exercise, participants were invited to focus on a certain part of their body that they did not like, or they were uncomfortable with, whereas the original exercise invited them to think about a difficult situation in their life.

##### Body Exposure Intervention

The body exposure condition in this study was an adapted version of the guided non-judgmental mirror exposure therapy used by Delinsky and Wilson (2006; see the Appendix 4I for the script and 4J for the adherence check questions). When participants attended to the session in Google Meet, their screen and physical position were adjusted. They were told to pin their image so that they can see their body in the full screen and to stand far enough back so that they could see their whole body within the frame. They were informed that they would be looking at their body on the screen for 40 minutes and staying with the feelings associated with their body. The facilitator informed participants that they were asked rate their body shame about their whole body approximately every five minutes as they proceeded. Such times were linked to those of self-compassion group. Participants were also asked to: (1) focus on their body at all times; rather than distracting themselves in any way (e.g., thinking about other things); (2) describe their body in a neutral way – not emotional or critical - so that if they said ‘I have ugly ears’, they would be asked to explain what their ears looked like more objectively, rather than making a judgment; and (3) keep focused on their body for the whole 40 minutes.

Participants were instructed to describe their body, starting with the top of their head and working all the way down one bit at a time until they reached their feet. Then they were asked to do that again, starting with their feet and going up to their head. This ‘down then up’ approach was repeated until the 40-minute period was over. When participants struggled to find anything to describe, the researcher suggested that they should talk about parts of their body that they had not mentioned (e.g., “You have not mentioned your ears so far”), or to talk about other aspects, such as shape, proportion, size, colour, or texture of their body parts. Throughout, if participants were critical of their bodies, they were encouraged to be more neutral and objective.

#### Data Analysis

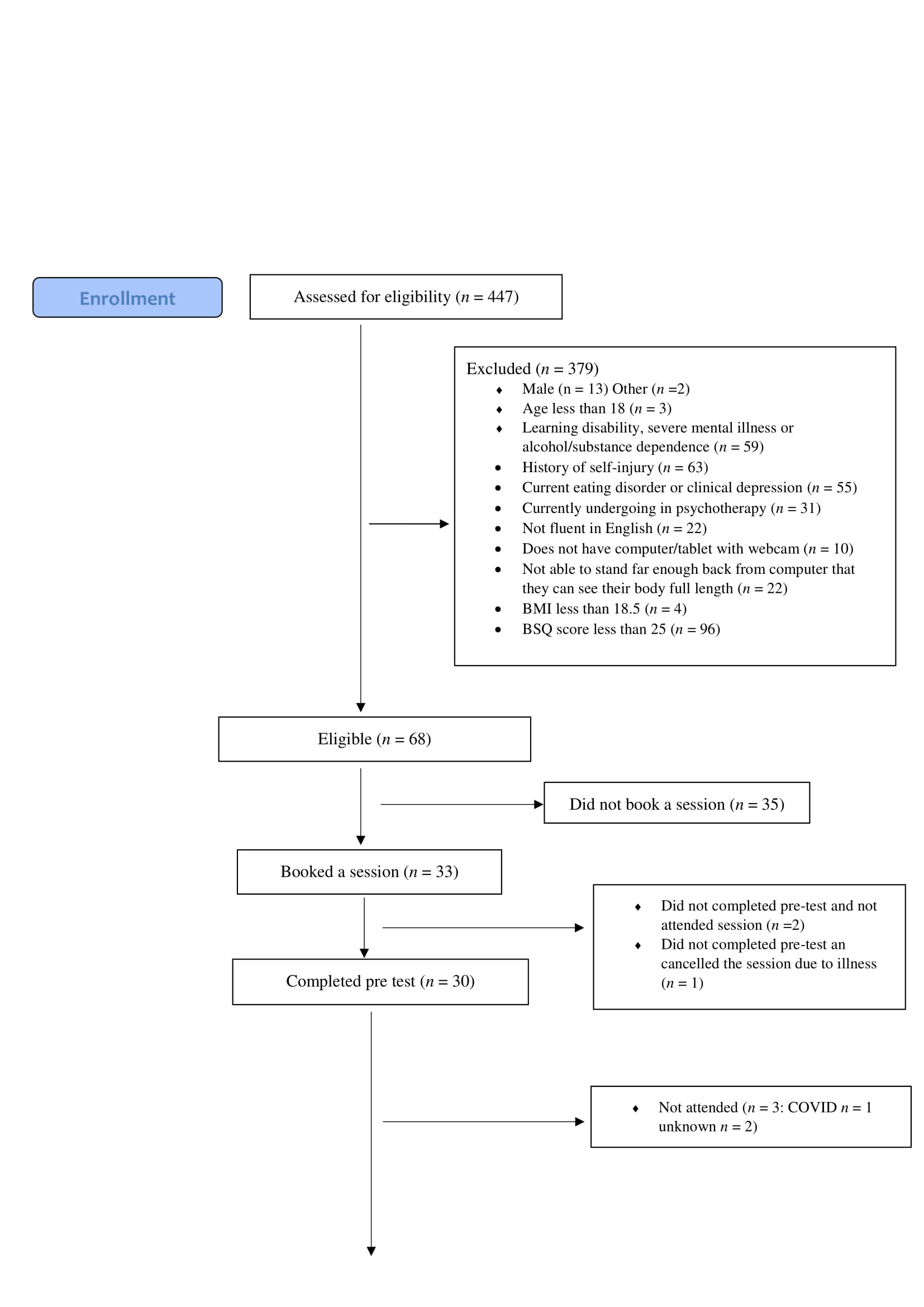
First, I did between-group comparisons on state measure.Mann-Whitney tests were used to examine differences between the two conditions at each time point. For within-subject comparisons, Friedman’s test was conducted to investigate whether levels of shame in the compassion condition showed any differences over time. In case of significant differences, post hoc analyses with Wilcoxon signed-rank tests were conducted to investigate when shame levels significantly changed between each pair of time points. Effect sizes were calculated for changes in the state body shame between Time 0 and Time 8 during the self-compassion intervention using the Rosenthal (1993) metric tau (τ = Z/√N) and compared with Cohen’s (1992) effect size parameters (small: ≥ .2, medium: ≥ .5, large: ≥ .8). For trait measures, Mann-Whitney tests were conducted to determine whether the self-compassion and body exposure groups differed at pre-test, post-test and follow-up**.** Friedman’s tests were conducted to assess whether the interventions had any effect on trait measures over the three time points.

### Results

#### Recruitment to the trial

Figure 5.1. summarises the number of individuals interested in participating and how this translated into the number of participants randomized. Of those who scanned for eligibility (*n* = 447), 15.22% were eligible (*n* = 68). Of those 68 who were eligible, only 48.52 % of them booked a session (*n* = 33). Of those who booked a session, 90.90 % completed the pre-test measures (*n* = 31). Of those who completed the pre-test, 87.1 % attended the session (*n* = 27). Overall, over two months of the trial recruitment period, 24 individuals received either intervention. Table 5.3. shows the demographics of the participants.

Fig 5.1. *Consort diagram showing recruitment and retention of participants*



Graphical user interface, application, Word

Description automatically generated

**Table 5.3.**

*Demographic information about participants*

|  |  |  |
| --- | --- | --- |
|  | Participants randomized to self-compassion  (*n* = 13) | Participants randomized to mirror exposure  (*n* = 14) |
| Mean age *(SD)* | 29.38 *(8.03)* | 25.69 *(6.8)* |
| Education  High School Graduate, Diploma/Equivalent  Bachelor degree  Master’s degree  Doctoral degree | 2 (15.4%)  3 (23.1%)  8 (61.5%)  0 | 5 (38.5%)  1 (7.7%)  6 (46.2%)  1 (7.7%) |
| Employment status  Employed  Homemaker  Student | 8 (61.5%)  1 (7.7%)  4 (30.8%) | 2 (15.4%)  1 (7.7%)  10 (76.9%) |
| Ethnicity  Black / African / Caribbean / Black British  Mixed / Multiple ethnic groups  White  Other ethnic group | 1 (7.7%)  0  12 (92.3%)  0 | 0  2 (15.4%)  10 (76.9%)  1 (7.7%) |
| Mean BMI *(SD)* | 27.65 *(7.44)* | 24.93*(3.96)* |

#### Feasibility and acceptability of the interventions

Recruiting 30 participants in 60 days was successfully achieved (*n* = 30 completed the initial measures), showing high feasibility, although a large number had to be screened to achieve that number. Completion rates showed high acceptability of the interventions (100 %).

Dropout rates indicated high to moderate acceptability of interventions. All of those who received the body exposure intervention (*n* = 11) completed the post-test and follow-up measures. Nine of the 11 who received the self-compassion intervention completed the post-test and follow-up measures. Therefore, exposure condition showed a high acceptability and compassion is moderate acceptability. In terms of suitability of using an online approach, of the 24 intervention sessions, internet connection was interrupted in only three sessions (12.5%), showing moderate feasibility.

Participants’ perceptions of the usefulness of the interventions are presented in the Table 5.4. Higher scores show higher acceptability of the intervention. The scores for each condition are very similar. The Mann-Whitney tests show that there were no significant differences between the groups in terms of expectation (U = 59.00, p = .46) usefulness (U = 47.50, p =.39), and compliance (U = 52.00, p = .54).

In the post intervention feedback form, participants in the self-compassion condition indicated some positive aspects of the intervention. For instance, they described the content of the meditations as ‘calming’, and they liked interacting with the facilitator. Participants in the body exposure condition mentioned that they found it difficult to talk about body parts they were not comfortable with. They also indicated that it was difficult to stand up for 40 minutes.

**Table 5.4.**

*Acceptability of the interventions*

|  |  |  |  |
| --- | --- | --- | --- |
|  | Self-compassion  M *(SD)* | Body exposure  M *(SD)* | Range |
| Participants' perceived expectation of the intervention | 5.69 *(1.44)* | 5.18 *(1.60)* | 0-10 |
| Participants’ compliance with the intervention | 3.90 *(0.70)* | 4.10 *(0.74)* | 1-5 |
| The usefulness of the intervention | 3.45 *(0.78)* | 3.20 *(0.99)* | 1-5 |

Preliminary evidence of effectiveness

##### Indication of the effectiveness of the interventions on state measure

**Between group comparisons.** Figure 5.2. illustrates how subjective units of body shame changed during the interventions. There were significant differences between self-compassion and body exposure conditions at: Time 0 [*U* (*N*com=13, *N*expo= 11) = 36.50, Z=-2.055, *p* <.05]; Time 1 [U= 31.50, Z = -2.336, *p* <.05]; Time 2 [U = 26.50, Z= -2.619, *p* < .05]; Time 3 [U = 24, Z = -2.780, *p* <.05]; Time 4 [U =21.50, Z= -2.911, *p* <.05]; Time 5 [U = 11, Z = -3.516, *p* < .001]; Time 6 [U = 14, Z = -3.342, *p* <.001]; Time 7 [U = 14.50, Z = -3.313, *p* <.001]; and Time 8 [U = 13.50, Z = -3.368, *p* <.001]. These findings indicate that the apparent divergence between the groups over time was a significant pattern, with the self-compassion condition showing greater reductions in state shame.

Fig 5.2. *Change in shame levels during compassion versus exposure*

*Note.* 0 min= Time 0, 4 min=Time 1, 8 min=Time 2, 15min =Time 3, 21min =Time 4, 28mins =Time 5, 33min =Time 6, 37min = Time 7; 40min= Time 8

###### Within group comparisons. There was a significant difference over time in shame during the compassion intervention (χ² (8) = 91.710, *p* <.001). Table 5.5. shows the post hoc analyses with Wilcoxon signed-rank tests for each time point, their Z value, and the significance level.

**Table 5.5.**

*Wilcoxon signed-rank tests all time pairs within the compassion condition*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Time 0-1  (Z= -1.873) | Time 1-2  (Z= -1.720) | Time 2-3  (Z= -2.032)\* | Time 3-4  (Z= -3.100)\* | Time 4-5  (Z= -1.838) | Time 5-6  (Z= -1.633) | Time 6-7  (Z= -2.401)\* | Time 7-8  (Z=1.465) |
| Time 0-2  (Z= -2.310)\* | Time 1-3  (Z= .003)\* | Time 2-4  (Z= -3.204)\*\* | Time 3-5  (Z= -3.074)\* | Time 4-6  (Z= -2.123)\* | Time 5-7  (Z= -2.546)\* | Time 6-8  (Z= -1.995)\* |  |
| Time 0-3  (Z= -2.823)\* | Time 1-4  (Z= -3.190)\*\* | Time 2-5  (Z= -3.200)\*\* | Time 3-6  (Z= -3.104)\* | Time 4-7  (Z= -2.677)\* | Time 5-8  (Z= -2.435)\* |  |  |
| Time 0-4  (Z=3.183)\*\* | Time 1-5  (Z= -3.192)\*\* | Time 2-6  (Z= -3.216)\*\* | Time 3-7  (Z= -3.076)\* | Time 4-8  (Z= -2.452)\* |  |  |  |
| Time 0-5  (Z=3.186)\*\* | Time 1-6  (Z= -3.192)\*\* | Time 2-7  (Z= -3.199)\*\* | Time 3-8  (Z= -2.988)\* |  |  |  |  |
| Time 0-6  (Z=3.189)\*\* | Time 1-7  (Z= -3.192)\*\* | Time 2-8  (Z= -3.187)\*\* |  |  |  |  |  |
| Time 0-7  (Z=3.183)\*\* | Time 1-8  (Z= -3.188)\*\* |  |  |  |  |  |  |
| Time 0-8  (Z=3.184)\*\* |  |  |  |  |  |  | |

*Note.* \* P < .05, \*\* P < .001

The pairwise results in Table 5.5. shows a progressive reduction over time in state body shame over the course of the self-compassion intervention. The difference between time 0 and time 8 showed an effect size of τ = .88. There was a significant difference over time in shame during body exposure (χ² (8) = 17.21, *p* <.028). Table 5.5. shows the post hoc analyses with Wilcoxon signed-rank tests for each Time pairs, their Z value, and the significance level.

**Table 5.6.**

*Wilcoxon signed-rank tests all time pairs within the exposure condition*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Time 0-1  (Z= -.368) | Time 1-2  (Z= -.682) | Time 2-3  (Z= -.679) | Time 3-4  (Z= -2.297)\* | Time 4-5  (Z= -1.338) | Time 5-6  (Z= -1.076) | Time 6-7  (Z= -1.105) | Time 7-8  (Z=-.137) |
| Time 0-2  (Z= -1.495) | Time 1-3  (Z= .000) | Time 2-4  (Z= -2.395)\* | Time 3-5  (Z= -.422) | Time 4-6  (Z= -.302) | Time 5-7  (Z= -1.011) | Time 6-8  (Z= -.991) |  |
| Time 0-3  (Z= -.844) | Time 1-4  (Z= -1.513) | Time 2-5  (Z= -.593) | Time 3-6  (Z= -1.829) | Time 4-7  (Z= -.497) | Time 5-8  (Z= -1.232) |  |  |
| Time 0-4  (Z= -.857) | Time 1-5  (Z= -.238) | Time 2-6  (Z= -2.019)\* | Time 3-7  (Z= -1.725) | Time 4-8  (Z= -.778) |  |  |  |
| Time 0-5  (Z= -.535) | Time 1-6  (Z= -1.572) | Time 2-7  (Z= -2.238)\* | Time 3-8  (Z= -2.025)\* |  |  |  |  |
| Time 0-6  (Z= -1.196) | Time 1-7  (Z= -1.662) | Time 2-8  (Z= -2.494)\* |  |  |  |  |  |
| Time 0-7  (Z= -1.249) | Time 1-8  (Z= -1.228) |  |  |  |  |  |  |
| Time 0-8  (Z= -.806) |  |  |  |  |  |  |  |

*Note.* \* p < .05

Overall, the pairwise results shows relatively little change over time and no consistent pattern in the body exposure condition (Table 5.6.). The only change was a slightly higher score at time 2. The overall difference from time 0 to time 8 did not approach significance, and the effect size was τ = .24.

Further, I examined whether those with lower initial body dissatisfaction scores showed a better response. I did a median split on the body dissatisfaction scores and then compared those high and low groups on the state body shame measure. Mann-Whitney U test showed that there was no pattern of differences between those with high and low groups on the state body shame scores at Time 0 [U = 43, Z = -1.673, p = .09]; Time 1 [U = 46, Z = -1.489, p = 14]; Time 2 [U = 50.50, Z = -1.222, p = .22]; Time 3 [U = 46.50, Z = -1.463 p =.14]; Time 4 [U = 46.50, Z = -1.456, p = .15]; Time 5 [U = 42.50, Z = -1.685, p = .09]; Time 6 [U = 42, Z = -1.715, p = .09]; Time 7 [U = 37.50, Z = -1.976, p = .05]; Time 8 [U = 43, Z = -1.65, p = .10].

Effectiveness of the interventions on trait measures

Table 5.7. reports the trait measure scores for the for the self-compassion and body exposure conditions at pre-test, post-test and follow-up. The scores were relatively similar over time, and between conditions.

**Table 5.7.**

*Mean scores (M) and standard deviations (SD) on trait measures by intervention and time point*

|  |  |  |  |
| --- | --- | --- | --- |
| **Measures**  Intervention | Time 1  M (SD) | Time 2  M (SD) | Time 3  M (SD) |
| **BAS-2**  Self-compassion  Body exposure | 28.31 (6.34)  27.27 (3.49) | 30.36 (3.35)  27.27 (5.79) | 30.72 (9.27)  27.45 (6.73) |
| **BSQ-8B**  Self-compassion  Body exposure | 33.08 (4.09)  34.27 (3.49) | 33.73 (5.27)  35.18 (6.14) | 32.27 (8.68)  34.09 (6.96) |
| **OAS-2**  Self-compassion  Body exposure | 11.00 (3.81)  13.72 (5.76) | 11.45 (5.20)  12.18 (7.46) | 9.09 (4.23)  11.27 (6.68) |
| **GAD-7**  Self-compassion  Body exposure | 8.69(4.35)  7.28 (4.02) | 8.64 (3.98)  7.72 (4.51) | 6.91 (4.11)  8.18 (5.53) |
| **EDEQS**  Self-compassion  Body exposure | 16.61 (5.22)  16.81 (5.09) | 15.36 (5.16)  17.27 (5.86) | 13.64 (5.33)  15.90 (6.31) |

*Note.* N pre, post and follow-up for compassion 13-11-11 and exposure: 11-11-9 AS-2: Body appreciation, BSQ-8B: Body dissatisfaction, OAS-2: Shame, GAD-7: Anxiety, EDEQS: Eating pathology Time 1: Pre-test, Time 2: Post-test, Time 3: Follow-up

###### Between group comparisons. Mann-Whitney tests show that there were no significant differences between the groups on any of the measures at any time point, and the effect sizes (eta2) were all very small (Table 5.8.). Therefore, the two interventions did not result in differences on the trait measures at any point.

**Table 5.8.**

*Independent-Samples Mann-Whitney tests comparing the participants in the two conditions at different time points*

|  |  |  |  |
| --- | --- | --- | --- |
| Variables | *U* test statistics (Z) | p value | Effect size *(η2 )* |
| Body appreciation  Pre  Post  Follow-up | 69.500 (-.116)  44.500 (-1.056)  50.000 (-.691) | .91  .30  .52 | 0.001  0.050  0.022 |
| Body dissatisfaction  Pre  Post  Follow-up | 55.500 (-.934)  44.500 (-1.055)  40.500 (-1.315) | .35  .30  .19 | 0.036  0.050  0.078 |
| Shame  Pre  Post  Follow-up | 49.500 (-1.282)  59.500 (-.066)  54.000 (-.428) | .20  .95  .70 | 0.068  0  0.008 |
| Anxiety  Pre  Post  Follow-up | 55.000 (-.961)  55.000 (-.363)  52.500 (.606) | .36  .75  .61 | 0.038  0.006  0.013 |
| Eating pathology  Pre  Post  Follow-up | 71.000 (-.029)  40.000 (-1.356)  46.500 (-.922) | .98  .19  .36 | 0  0.082  0.041 |

###### Within group comparisons. There were no significant differences between the time points in either condition (see Table 5.9.). Therefore, neither intervention resulted in change over time on the trait measures.

**Table 5.9.**

*Friedman’s within group analysis for exposure and compassion condition*

|  |  |  |  |
| --- | --- | --- | --- |
|  | Chi-square | Sig | Effect size (Kendall’s W) |
| Compassion |  |  |  |
| BAS | .765 | .68 | .042 |
| BSQ | 1.688 | .43 | .094 |
| OAS2 | 3.765 | .15 | .21 |
| GAD2 | 4.267 | .12 | .24 |
| EDEQS | .788 | .67 | .04 |
| Exposure | Chi-square | Sig | Effect size (Kendall’s W) |
| BAS | .047 | .98 | .002 |
| BSQ | 1.857 | .40 | .08 |
| OAS2 | 2.341 | .31 | .11 |
| GAD2 | .222 | .90 | .01 |
| EDEQS | 1.814 | .40 | .08 |

*Note.* Kendall’s uses the Cohen’s interpretation guidelines of 0.1 (small effect), 0.3 (moderate effect) and above 0.5 as a strong effect.

##### Sample size calculations for the following study

The large effect size indicated above for the state body shame measure (tau = .88) is equivalent to Cohen’s f = 0.44. As the following study will have three groups providing data at three time points, G\*Power indicated that for α of 5% and 80% power, a total sample of 67 would be needed (i.e., 23 per group).

### Discussion

This study was conducted to compare the feasibility, viability, and effectiveness of two brief online interventions for women with moderate to severe negative body dissatisfaction. This was done in order to determine whether a fully powered randomized controlled trial should be conducted. Preliminary evaluations of the effectiveness of such interventions showed that the self-compassion intervention significantly reduced individuals’ state body shame throughout the intervention period, although there was not significant improvement in trait outcome measures. Participants found the interventions as acceptable. While recruitment was successfully achieved as planned, the majority of potential participants interested in this study did not meet the eligibility criteria. The main reason for ineligibility was that individuals had low levels of body dissatisfaction. The viability of online delivery of the interventions was supported by the low internet disconnection rate.

Only the self-compassion intervention significantly reduced in-session SUBS ratings, but there was no change in nomothetic outcome measures. The results did not show any significant improvement in the trait nomothetic outcome measures. There were three particular time-points where the reduction SUBS ratings were significant - the two parts of the ‘compassionate body scan’ and ‘noticing practices’ were thereby identified as potentially active components for future study. However, it is unclear whether such an effect should be attributed to most recent component or to the cumulative effect of several consecutively applied components. Given the need for component analyses of compassion-based interventions to determine the active and redundant ingredients of effective ED treatment (Kirby, 2017), the findings of this study therefore indicate further use of dismantling methods to determine efficacious packages of treatment. Those shorter self-compassion exercises proven to contribute to state changes could be then used either as a prevention method (i.e., for women with less severe body image) or as a homework exercise nested within intensive treatments.

**Clinical implications**

A clinical implication of this study is that a potential benefit of repeated self-compassion meditations mitigating body shame. However, body exposure is unlikely to have such an effect. It should be acknowledged that the design in the present study might not have been a fair evaluation of the exposure condition. This is because mirror exposure, according to habituation theory, should produce an initial increase in distress/shame that then needs time to recede whilst maintaining the correct conditions. It was also a single session and therefore the intervention was not repeated to enable habituation. Due to the COVID-19 pandemic, the traditional mirror exposure was modified, using the computer screen to enable this intervention to take place online. However, future research should examine whether this approach has the same impact as exposure to a full-length mirror. Another limitation is that there was no adjustment for significance levels to control for type I errors due to multiple comparisons.

**Study critique**

Previous studies have indicated that the magnitude of state body image improvements is a predictor of greater pre- to post-intervention improvement in body image overall (Fuller-Tyszkiewicz et al., 2019). Therefore, the reduction in state body shame in this study might enable longer-term and sustained improvement in trait shame for example. However, it is not yet known whether the benefits shown here are long-lasting, so further study of longer-term benefits is needed. In the current study, subjective body shame (SUBS) was not measured at the follow-up. This is because SUBS have been traditionally used to access current experienced emotion within a specified change method (Kiyimba & O'Reilly, 2020). Therefore, any measured SUBS scores after the intervention could not be attributable to the effects of the intervention. Hence, the follow-up only contained measures of trait variables. This issue should be addressed in future work however as it is possible to take SUBS scores despite it being at follow-up. The SUBS could be made more ideographically accurate by focussing on particular body sites for example.

In the current study, across the participants, there was variability in the time between completion of the pre-intervention measures and attending the intervention. Such variability would affect the effectiveness of the trait measure. Therefore, pre-intervention measures could be completed just before the intervention to reduce such variance. The reliability of the body dissatisfaction scale at the pre-intervention was low, though it was acceptable post-intervention and at follow-up. Future research may consider using another scale to measure body dissatisfaction.

**Conclusion**

Despite these identified study limitations, the results overall suggest that a future fully powered trial evaluating the efficacy of brief self-compassion meditations on state body shame is possible. Based on these feasibility study findings; it can therefore be suggested that such research should: (a) use different body image scale (b) lower/remove the body dissatisfaction scores to screen eligibility (c) focus on state measurement and change (d) have lager sample size based on effect size (e) drop the exposure condition and finally (f) shorten the self-compassion intervention condition.

# Chapter 6

### Testing a low intensity single session self-compassion intervention for body shame in adult women: a dismantling randomized controlled trial

### Abstract

Body shame is a risk factor for eating disorders and self-compassion is emerging as a potentially effective treatment option. This study tested the efficacy of a brief (15-minute) self-compassion intervention in reducing state body shame. In a dismantling trial methodology, participants were randomly allocated to an active compassion condition (*n* = 23), inactive control compassion condition (*n* = 23) or an educational control condition (*n* = 23). Measures of state body image and state shame were collected pre-intervention, post-intervention and a day after the intervention. Subjective units of body shame (SUBS) were intensively measured during all interventions. Both self-compassion interventions were equally efficacious at protecting against deterioration of state body shame and were effective at reducing state shame compared to the educational control condition, with medium effect sizes (respectively - *np2* = .07 and *np2* = .08). Reductions in state shame were retained at one-day follow-up. There was no effect of any of the interventions on body image (*np2* = .04). The findings demonstrate the clinical promise of brief self-compassion interventions. Treatment implications are discussed, suggesting that brief self-compassion exercises hold particular promise as evidenced-based ‘homework’ exercises.

### Introduction

Given the importance of addressing body image issues and the need for accessible, efficient, and effective intervention options, it is important to identify the most parsimonious manner in which to deliver interventions (Franko et al., 2013). Low-intensity psychological approaches such as guided or guided self-help are designed with the parsimony principle in mind and so have been developed, tested, and then disseminated in routine services due to their ability to increase access to effective and brief therapies (Clark, 2018). The previous chapter showed that a brief (i.e., 40 minute) and low intensity self-compassion intervention was promising in reducing state body shame. In that study, there were three time points in the single session where reductions in the body shame level were significant versus exposure, so potentially indicating three active components of the intervention (Ahn & Wampold, 2001; Stevens et al., 2000). This therefore raised the possibility of isolating what appeared to be the active components into an even briefer (15-minute) intervention for reducing state body shame. Such a brief intervention would then be suitable as an in-session change method as part of a larger package or as a homework exercise to address immediate state body shame. Kirby (2017) emphasised the need to conduct component analyses for compassion-based intervention, to determine mechanisms of change, identify active and remove passive ingredients.

In the previous chapter, there was evidence for the effectiveness of the overall self-compassion intervention for state body shame. However, it is not clear whether such interventions are useful for other state constructs, such as state shame or state body image (as the previous chapter assessed them only as trait measures). Therefore, it is the aim of the current study to determine the impact of a self-compassion intervention on state shame and state body image, as well as state body shame. To summarise, two adaptations have been introduced in response to the outcome of the previous chapter. First, the ‘active’ elements of the self-compassion intervention have been isolated and then compared with elements that were ineffective. Second, a wider range of individuals were eligible for the intervention. In the previous trial, participants had to have moderate to severe body dissatisfaction. That meant that it was unclear whether women with less severe body dissatisfaction could benefit from the self-compassion intervention in the same way (i.e., also then potentially making the low intensity compassion intervention potentially useful as a prevention approach). Therefore, the current study used wider inclusion and exclusion criteria when assessing the efficacy of the brief self-compassion intervention.

This study therefore sought to compare the efficacy of a very brief single session self-compassion intervention for state body shame (Active self-compassion condition), against an inactive compassion component intervention (Inactive self-compassion condition). I wanted to compare both self-compassion conditions with a control condition to determine compassion conditions had an effect over and above an irrelevant task. To do this, I screened the open-source texts and selected the most neutral-sounding one. Such text was examined, and any identified emotional words were excluded from the text (e.g., disgust, warmth). Such a further control group (matched for duration) was then added, based on undertaking a time-matched education task (Educational control condition) to increase the internal validity of the design. This was also to ensure that the effect of the Active self-compassion condition could be determined with greater confidence in the 3-arm trial. Due to the brevity of the interventions, the credibility and expectancy of the interventions was checked, to examine whether intervention groups differed in perceived credibility. The possible moderating effects of trait body dissatisfaction were also tested, to determine whether the interventions worked differently according to participants initial level of body dissatisfaction.

#### Hypotheses

**1**. Active self-compassion condition will have a significantly larger impact on in-session state body shame compared to both the Inactive self-compassion condition and Educational control condition.

**2.** The differential effectiveness of Active self-compassion condition on state negative body image and state shame at end of intervention will not be maintained at follow-up.

**3.** Trait body dissatisfaction will moderate any effect of the interventions on state body shame, state shame and state body image.

### Method

#### Ethical considerations

This study received ethical approval from the Department of Psychology Research Ethics Committee at the University of Sheffield (no: 040360; see Appendix 5A).

#### Design

The design was a randomised controlled trial. The design was mixed, with three intervention types (Active self-compassion condition, Inactive self-compassion condition and Educational condition) x four time points during the intervention (0 minute, 5 minutes, 8 minutes and 13 minutes). Participants were allocated using a computer-generated 1-3 random number sequence. The study was pre-registered with ClinicalTrials.gov (ID: NCT04984252;

see Appendix 5B).

#### Sample Size

The power calculation was derived from the findings in the previous chapter. The large effect size indicated for the subjective units of body shame measure (tau = .88) is equivalent to Cohen’s *f* = 0.44. As this study has three groups, G\*Power indicated that for α of 5% and 80% power, a total sample of 67 would be needed (i.e., 23 completers per group).

#### Participants

Participants were recruited from PROLIFIC, receiving standard payment levels for the time taken. Eligible participants were self-identified women, aged ≥ 18 years, fluent in English, able to use a computer and able to access an Internet connection. Exclusion criteria were a Body Mass Index (BMI) <18.5, male, age <18, no access to a tablet or computer with an internet connection, or an insufficient knowledge of English. Individuals were first screened using the PROLIFIC pre-screen function for gender and language.

The participants were a sample of 72 women. They were randomly allocated to Active self-compassion condition (*n* = 24), the Inactive self-compassion condition (*n* = 25) and Educational control condition (*n* = 23). Therefore, the study was adequately powered. See Figure 6.1. for the relevant CONSORT diagram. The randomization sequence (1:1) was created using (=RANDBETWEEN) function in Excel 2007.

Graphical user interface

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**Figure 6.1.** *CONSORT diagram showing screening and group application*

Education levels were as follows: 42% bachelor’s degree; 31.9% high school graduate, diploma, or equivalent; 23.2% master’s degree; 1.4 % no schooling completed; and 1.4 % doctoral degree. Approximately half (53.6 %) were students, 30.4% were employed, 8.7% indicated as other, 5.8% were self-employed, and 1.4% were homemakers. 43.5% of the participants were white, 34.8% of them were black/African/Caribbean/Black British, 13% were from other ethnic groups, 4.3% of them were South Asian/Asian British, 2.9 % of them were of mixed/multiple ethnic groups, and 1.4% were East Asian/Asian British.

Measures(see Appendix 5C)

Primary Outcome Measure

Subjective units of body shame (SUBS) were the primary outcome measure of the study. This was scored 0 (no shame) to 100 (full of shame). It was taken at four points during the intervention: 0 minute, 5 minutes, 8 minutes, 13 minutes.

Secondary Measures

The following measureswere used before the intervention (pre-test), immediately after the intervention (post-test), and a day after the intervention (follow-up). The follow-up was short because of the nature of the state measures.

The Body Image States Scale. was used to assess transient feelings about the body and physical appearance (BISS; Cash et al., 2002). A 6-item scale measures current body-image experiences at a particular point in time or in a specific context. The BISS’s internal consistency was .77 for women (Cash et al., 2002). Cash et al. (2002) provide evidence for the BISS’s convergent validity, showing that the BISS was appropriately correlated with various trait measures of body image. In the current study, there was an administrative error in the options of the third question of the BISS, which presented "extremely satisfied" instead of “extremely dissatisfied”. Therefore, I removed that question and used the scores of the 5 items that were accurately presented. After removing that one item, the internal consistency of the scale was still at an acceptable level in this study (pre-test: α = .70, post-test: α = .81, and follow-up: α = .89).

The Shame subscale of the State Shame and Guilt Scale was used to test state shame (SSGS; Marschall et al., 1994). There are five items in this subscale. Cronbach’s alpha for the shame scale was .89 (Tangney & Dearing, 2002). It was reported that SSGS has good levels of predictive and convergent validity (Tangney & Dearing, 2002). Internal consistency for the present study was excellent (α = .81 at pre-test, α = .88 post-test, and α = .90 follow-up).

The Credibility/Expectancy Questionnaire (Devilly & Borkovec, 2000) is the most widely used measure of treatment credibility and expectancy in psychotherapy research. The questionnaire shows high internal consistency (α = .85) and construct validity (Devilly & Borkovec, 2000). This measure was administered after the intervention. The internal consistency for the present study was high for credibility (α =.90) and for expectancy (α = .92). Since correlation between credibility and expectancy was high (*r* = .85), only credibility was analysed, due to the aims of the study.

The Body Shape Questionnaire (BSQ-8C; Evan & Dolan, 1993) is an eight-item questionnaire that measures body dissatisfaction. This BSQ-8C was used in the present study due to the BSQ-8B having had reliability issues in the previous chapter. The BSQ-8C is highly sensitive to change in interventions (Pook et al., 2008). The BSQ-8C has good test-retest reliability, internal consistency (α = .93), and convergent validity (Welch et al., 2012). This measure was taken before the intervention. The internal consistency for the present study was .90.

Treatment Adherence Check

The following two questions were checked by the primary investigator after each session: “Did participants provide their level of shame four times?” and “Was the correct recording played (e.g., Active compassion vs Control compassion)?”.

#### Procedure

This study was conducted online, due to the COVID-19 pandemic. Before running the actual trial, each condition was piloted to make sure there were no potential issues. There was no modification made after the piloting. First, all applicants were screened for eligibility within the recruitment process. If they met the criteria, subjects were invited to book a session and sent the information sheet (see Appendix 5D). Then participants were sent the details to allow them to provide informed consent (see Appendix 5E). Participants were asked to complete the pre-intervention questionnaires at their scheduled time. They then joined the session. All interventions were conducted online with the facilitator monitoring on Blackboard platform. Interventions were implemented according to intervention protocols prepared for the study (see Table 6.1.). At the end of the intervention, participants were asked to complete the post-test. After delivering the intervention, the facilitator completed the adherence check questions. Participants received the follow-up survey the day after attending the intervention session. After completing the follow-up, a debrief was provided (see Appendix 5F). The recruitment process lasted from the 16th of August 2021 to the 5th of October 2021 until the minimum targeted sample size was achieved.

#### Interventions

All three interventions (Active self-compassion condition, Inactive self-compassion condition and Educational control condition) were audio files, voice recorded for the purpose by a psychology graduate who was not involved in the study. The self-compassion interventions are based on the previous chapter. The self-compassion intervention conditions consisted of several short self-compassion meditations. Each meditation was shortened and adapted from materials on the following website: <https://self-compassion.org/category/exercises/>. For example, in the “loving kindness meditation” exercise, participants were asked to focus on a certain body part that they were uncomfortable with, while the original exercise invited them to think about a difficult situation in their life.

**Table 6.1.**

*Intervention descriptions*

|  |  |  |
| --- | --- | --- |
| Active compassion | Inactive compassion | Educational control |
| Compassionate body scan (5 mins)  Compassionate body scan-2 (5 mins)  Short noticing meditation (5 mins) | Self-compassion break (5 mins)  Loving kindness meditation (5mins)  Affectionate breathing exercise (5 mins) | Participants were asked to listen to a text on language and creativity throughout the 15 minutes. |

*Note*. See the Appendix 5G, 5H and 5I for all scripts

#### Data Analysis

First, the missing data were handled by using casewise deletion. I then checked the assumptions for ANOVA.The subjective units of body shame were non-normally distributed. Therefore, a two-step approach used to transform the data (Templeton, 2011). In step 1, I transformed the SUBS scores into a percentile rank, which resulted in uniformly distributed probabilities. In the second step, I applied the inverse-normal transformation to the results of the first step to form SUBS consisting of normally distributed z-scores. I present the transformed values when reporting.

Several ANOVAs were conducted to examine whether there are any differences between intervention groups in terms their age, BMI, body dissatisfaction and intervention credibility. To test the main analysis, I then ran a 3 (intervention type) x 4 (time points) mixed ANOVA with the subjective unit of body shame as a dependent variable. A 3 (intervention type) x 3 (time points) mixed ANOVA was used to test whether interventions have an impact on the level of state body image (the Body Image States Scale) and the level of state shame (the Shame subscale of the State Shame and Guilt Scale). Significant interaction effects were checked using independent t-tests. Further, I checked the assumptions for ANCOVA. When data met the assumptions, I ran ANCOVA to investigate whether the effects of intervention on the subjective units of body shame, state body image and state shame would change after controlling for trait body dissatisfaction (The Body Shape Questionnaire).

### Results

#### Preliminary Analysis

Descriptive analyses are presented in Table 6.2. There were no significant initial differences between groups in terms of their age [*F* (2, 66) = 1.137, p = .26] or their BMI [*F* (2, 66) = 0.68. p = .51]. However, there was a significant difference in body dissatisfaction scores [*F* (2, 66) = 4.79, *p* < .05]. A Tukey post hoc test revealed that there was no significant difference between the Active compassion and Inactive compassion groups (p = .76). However, body dissatisfaction scores were significantly lower in the Active compassion than the Educational control group (*p* < .05). There was no significant difference between the Inactive compassion group and Education control group (p = .07).

**Table 6.2.**

*Descriptive Statistics Regarding Body Dissatisfaction and Treatment Credibility*

|  |  |  |  |
| --- | --- | --- | --- |
| Variables | Active compassion condition  M (*SD*) | Inactive compassion condition  M (*SD*) | Educational control condition  M (*SD*) |
| Age (years) | 24.17 *(3.8)* | 27.48 *(8.22)* | 25.83 *(6.79)* |
| BMI | 31.70 *(16.97)* | 29.90 *(20.29)* | 26.31 *(7.92)* |
| Body dissatisfaction | 20.09 *(10.01)* | 21.95 *(8.50)* | 28.00 *(8.58)* |
| Intervention credibility | 20.48 *(4.99)* | 22.43 *(3.72)* | 13.82 *(6. 35)* |

*Note*. *N* = 69 (*n* = 23 for each condition).

There was a significant difference between conditions in the credibility scores [*F* (2, 66) = 17.149, *p* < .001]. The pairwise comparison of the Active self-compassion condition with the Inactive self-compassion condition was non-significant (*p* = .63). However, the credibility scores were significantly higher in both the Active (*p* < .001) and Inactive self-compassion condition (*p* <.001) than the Educational control condition.

#### Primary outcome

Body dissatisfaction did not meet the assumptions of the homogeneity of the regression slope [*F* (2, 65) = 23.73, *p* < .001]. Therefore, I could not control for the effect of body dissatisfaction scores.

##### The effect of interventions on Subjective Units of Body Shame

Descriptive statistics are presented in Table 6.3., and the related ANOVA in Table 6.4. The main effect of time was not significant. However, there was a significant effect of condition. Both the Active (*M* = -.21, *SD* = .17) and Inactive self-compassion conditions (*M* = -.14, *SD* = .17) had significantly lower SUBS scores than Educational control condition (*M* = .44, *SD* = .17, *p* < .05). The pairwise comparison of the Active self-compassion condition with the Inactive self-compassion condition was non-significant (*M* = -.08, *SD* = .24, p = 94).

Critically, the interaction between the conditions and the time points was also significant (*p* < .04), indicating that changes in SUBS over time varied between conditions (see Figure 6.2.). Participants in the Active self-compassion condition group and in the Inactive self-compassion condition did not statistically differ on SUBS at times 1, 2, 3 or 4 (see Table 6.5). However, those in the Active self-compassion condition had significantly lower SUBS scores than the Educational control condition at Times 3 and 4, and those in Inactive self-compassion condition had significantly lower SUBS scores than the Educational control condition at Time 2, 3 and 4.

**Table 6.3.**

*Transformed Means (M) and Standard Deviations (SD) on the SUBS by Intervention Group and Time Point*

|  |  |  |  |
| --- | --- | --- | --- |
| Subjective units of body shame | Active compassion condition  M (SD) | Inactive compassion condition  M (SD) | Educational control condition  M (SD) |
| Time 1 | -.13 (1.12) | -.07 (.82) | .25 (.94) |
| Time 2 | -.11 (1.11) | -.18 (.85) | .43 (.85) |
| Time 3 | -.26 (.99) | -.13 (.82) | .46 (.79) |
| Time 4 | -.36 (.85) | -.17 (.74) | .64 (.79) |

Note. *Smaller values indicate less subjective units of body shame*

**Table 6.4.**

*Results for 3x4 way ANOVA of Main Effects and Interactions for the SUBS*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | *F* | *df* | *p* | *np2* |
| Time | 0.07 | 3 | .98 | .001 |
| Condition | 4.55 | 2 | .01 | .12 |
| Time x condition | 2.55 | 6 | .04 | .07 |

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**Fig.6.2.** Effect of interventions on the Subjective Units of Body Shame

The SUBS scores were compared over time within each condition. There was no significant effect of time in either the Active [*F* (1.81, 39.87) = 1.172, p = .33] or Inactive self-compassion condition [*F* (1.7, 37.38) = 0.3, p = .71]. While these SUBS scores did not change significantly over time, the scores in the Active self-compassion condition had a reducing trend. The SUBS scores of those in the Educational control condition increased significantly over time [*F* (3, 66) = 6.49, *p* < .05]. Thus, the Time x Condition interaction was driven by greater shame levels in the Educational Control condition.

To summarise, neither the Active nor the Control self-compassion interventions resulted in reductions in shame, but the Educational Control condition was followed by greater shame levels. Therefore, it is possible to conclude that the two Compassion conditions were associated with not experiencing a rise in state body shame, indicating the possibility of preventing a deterioration in state body shame.

**Table 6.5.**

*Independent T-test results comparing intervention groups on the subjective unit of body shame by the time points*

|  |  |  |  |
| --- | --- | --- | --- |
| Groups | *Df* | *t* | *p* |
| Active self-compassion condition vs Inactive self-compassion condition Time 1 | 44 | -.19 | .85 |
| Active self-compassion condition vs Inactive self-compassion condition Time 2 | 44 | .24 | .82 |
| Active self-compassion condition vs Inactive self-compassion condition Time 3 | 44 | -.46 | .62 |
| Active self-compassion condition vs Inactive self-compassion condition Time 4 | 44 | -.78 | .44 |
| Active self-compassion condition vs Educational control condition Time 1 | 44 | -1.29 | .20 |
| Active self-compassion condition vs Educational control condition Time 2 | 44 | -1.84 | .07 |
| Active self-compassion condition vs Educational control condition Time 3 | 44 | -2.70 | .01 |
| Active self-compassion condition vs Educational control condition Time 4 | 44 | -4.11 | .001 |
| Inactive self-compassion condition vs Educational control condition Time 1 | 44 | -1.31 | .20 |
| Inactive self-compassion condition vs Educational control condition Time 2 | 44 | -2.38 | .02 |
| Inactive self-compassion condition vs Educational control condition Time 3 | 44 | -2.44 | .02 |
| Inactive self-compassion condition vs Educational control condition Time 4 | 44 | -3.60 | .001 |

#### Secondary outcomes

##### The effect of interventions on state body image

Descriptive statistics are presented in Table 6.6. There was a significant main effect of time. There was a significant effect of the condition. However, the interaction effect was non-significant (Table 6.7.).

Considering the main effect of condition, there was no significant difference between the Active and Inactive self-compassion condition (p =.61). However, both the Active and Inactive self-compassion condition groups showed significantly higher state body image scores than the Educational control group. Post hoc pairwise comparisons of time showed state body image scores were significantly lower at pre-test than post-test or at the follow-up, showing that state body image improved after all interventions. There was no significant difference between post-test and follow-up.

**Table 6.6.**

*Mean Scores (M) and Standard Deviations (SD) on the State Body Image by Intervention Group and Time Points*

|  |  |  |  |
| --- | --- | --- | --- |
| State body image | Active self-compassion condition  M (SD) | Inactive self-compassion condition  M (SD) | Educational control condition  M (SD) |
| Pre-test | 21.74 (6.22) | 24.39 (6.07) | 27.30 (4.93) |
| Post-test | 16.43 (7.41) | 17.70 (6.02) | 24.22 (6.04) |
| FU | 16.78 (7.95) | 19.35 (6.03) | 23.70 (7.29) |

**Table 6.7.**

*Results for 3x3 Way ANOVA of Main Effects and Interactions for State Body Image and State Shame*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | *F* | *df* | *p* | *np2* |
| State body image |  |  |  |  |
| Time | 33.00 | 2 | .001 | .33 |
| Condition | 8.40 | 2 | .001 | .20 |
| Time x condition | 1.23 | 4 | .30 | .04 |
| State shame |  |  |  |  |
| Time | 21.17 | 2 | .001 | .24 |
| Condition | 4.77 | 2 | .01 | .13 |
| Time x Condition | 2.72 | 4 | .03 | .08 |

##### The effect of interventions on state shame

Descriptive statistics are presented in Table 6.8. There were significant main effects of time and condition (see Table 6.7.). The interaction between time and condition was also significant, showing that state shame changed differently over time across conditions (see Figure 6.4.).

Considering the condition effect, post hoc pairwise comparisons of intervention types showed that there were no significant differences between Active self-compassion condition and Inactive self-compassion condition. However, state shame scores were significantly higher in the Educational control condition than in those two groups. For the time effect, pairwise comparisons over time showed that pre-test scores were significantly higher across groups than the post-test and follow-up scores. However, scores did not differ between pre-test and post-test.

**Table 6.8.**

*Mean Scores (M) and Standard Deviations (SD) for State Shame by Intervention Group and Time Points*

|  |  |  |  |
| --- | --- | --- | --- |
| State shame | Active self-compassion condition  *M (SD)* | Inactive self-compassion condition  *M (SD)* | Educational control condition  *M (SD)* |
| Pre-test | 8.17 *(3.86)* | 8.65 *(3.47)* | 9.78 *(4.39)* |
| Post-test | 6.04 *(1.96)* | 5.83 *(1.56)* | 8.39 *(4.33)* |
| FU | 6.52 *(2.76)* | 5.70 *(1.55)* | 9.56 *(5.32)* |

To interpret the interaction effect (as shown in Figure 6.3.), independent t-tests were used (see Table 6.9.). Participants in the Active and Inactive self-compassion conditions did not differ on state shame scores at pre-test, post-test or follow-up. Those in the Active self-compassion condition and Inactive self-compassion condition had significantly lower SUBS scores than Educational control condition at post-test and follow-up, but not at pre-test. That is, both self-compassion groups had better outcomes than the Educational control condition.

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**Table 6.9.**

*Independent T-test Results Comparing Intervention Groups on State Shame at different Time Points*

|  |  |  |  |
| --- | --- | --- | --- |
| Groups | df | t | p |
| Active self-compassion condition vs Inactive self-compassion condition pre-test | 44 | -.44 | .66 |
| Active self-compassion condition vs Inactive self-compassion condition post-test | 44 | .42 | .68 |
| Active self-compassion condition vs Inactive self-compassion condition FU | 44 | 1.25 | .22 |
| Active self-compassion condition vs Educational control condition pre-test | 44 | -1.32 | .19 |
| Active self-compassion condition vs Educational control condition post-test | 30.67 | -2.37 | .03 |
| Active self-compassion condition vs Educational control condition FU | 44 | -2.44 | .02 |
| Inactive self-compassion condition vs Educational control condition pre-test | 44 | -.97 | .34 |
| Inactive self-compassion condition vs Educational control condition post-test | 27.58 | -2.67 | .02 |
| Inactive self-compassion condition vs Educational control condition FU | 25.72 | -3.35 | .002 |

*Note.* \*\**p* < .001; \**p* < .05.

#### Summary

Overall, there was a consistent pattern of outcomes for the state shame-based outcomes, but not for state body image more generally. Both the active and control compassion self-compassion conditions were effective in prevention a deterioration in state body shame and in reducing state shame levels over time, compared to the educational control group. Medium effect sizes were found in each case. The effect of intervention on state shame was maintained at follow-up.

### Discussion

This dismantling randomized controlled trial compared the efficacy of two brief and low intensity self-compassion interventions (i.e., the active and the inactive control compassion conditions) against an educational control group on state body shame, based on the outcomes of the previous chapter. The study also examined whether such brief interventions had an impact on state body image and state shame. It was hypothesized that the active self-compassion intervention would have the greater effect on state body shame, body image and shame. It was found however that both self-compassion interventions had similar effects on state shame and state body shame with medium effect sizes. Both compassion interventions outperformed the educational control. However, there was no effect on body image.

The findings of this study partially support the findings of the meta-analysis in Chapter 2, which indicated the effectiveness of self-compassion-based interventions for body image, though their impact was limited to body shame rather than body image more broadly. Some previous self-compassion interventions have reduced participants’ levels of trait body shame (Albertson et al., 2015; Cȃndea & Szentágotai-Tătar, 2018), but others have not (Toole & Craighead, 2016; Voelker et al., 2019). Although the evidence for self-compassion interventions for body shame is mixed, the present study is the first that has focused on in-the-moment body shame and shame. Focussing on state issues is important as it allows changes in ‘in the moment’ feelings that might be disabling broader therapeutic change.

While it was predicted that the active compassion condition might have a larger impact compared to the control compassion condition, this was found not to be the case. One possible explanation for this is that the effects found in the previous chapter were due to the cumulative effect of several consecutively applied components, rather than the immediately presented components. In addition, both self-compassion interventions were perceived as credible by the participants. Surprisingly, there was no interaction effect of condition x time on body image. It is possible that different aspects of body image (e.g., attractiveness, body weight) take longer to respond to self-compassion, perhaps requiring repeated engagement in the intervention, or an alternative focus. In contrast to my hypothesis, both self-compassion interventions were still effective in reducing shame at follow-up, indicating that brief interventions can have immediate impacts (though exactly how long those effects last remain unclear). Again, the follow-up was brief due to the nature of the outcome measures (i.e. a 3-months follow-up it would be difficult to assume that body shame state at that point in time had anything to do with the intervention).

These findings further support the previous studies which suggest that self-compassion might protect against body image concerns (Braun et al., 2016; Tylka & Kroon Van Diest, 2015) – particularly state body shame and state shame, in this case. This finding is in keeping with Halliwell’s (2015) theory. In accordance with the present results, the affect regulation framework proposes that being compassionate to one’s own body and embracing respect and appreciation for the body may help people to treat their bodies kindly, even if they face difficult emotions or body image-related threats (e.g., shame; Halliwell, 2015).

#### Implications, Limitations, and Future Directions

In clinical terms, these findings suggest that brief self-compassion interventions might offer immediate ‘state’ support whenever individuals feel ashamed about their bodies. Such interventions might be transformed into mobile apps, allowing individuals to utilize the treatment resources to alleviate body shame/shame, when necessary, in their daily lives (i.e., GG Apps, 2021). Such interventions could also be offered to individuals as homework as a part of larger therapy and also used as ‘in session’ change method for reducing state shame, particularly if it helps patients engage with other aspects of treatment. For example, using compassion as a precursor for an exposure-based approach. The approach needs to be tested with men experiencing body shame.

However, the work has some limitations, and more investigation is needed to recommend such interventions as a treatment approach. The sample in the present study was limited in its generalizability. Although the sample is more diverse than studies focusing on university students, further work is still needed to investigate whether self-compassion interventions are effective in the same way across social identities and particularly in clinical samples. In such samples, there may be less evidence of responsivity. Another limitation of is the erroneous omission of an item from the state body image scale, though that did not impair the measure’s internal consistency. Finally, as the body image data were not suitable for ANCOVA, it is not possible to determine whether these findings held good across individuals with higher and lower levels of body dissatisfaction.

Future studies should examine whether the use of these interventions (possibly at a more intensive dosage) promotes longer-term, sustained improvements in body image concerns. This could include consideration of whether the level of immediate symptom improvement predicts the level of any sustained body image improvements. Where these brief compassion interventions are integrated into larger treatment packages, then the acceptability with patients and clinicians needs to be understood and also outcomes compared with those packages that do not contain the compassion interventions (Sekhon et al., 2017).

If these self-compassion approaches do prove useful, given high treatment costs and low levels of treatment-seeking behaviours for eating and body image pathology, they should be considered as a possible prevention approach for people who are risk of developing eating and body image problems (Stice et al., 2007). The preventative efficacy needs to be further researched with the primary outcome numbers then accessing treatment. Such compassion exercises might reduce risk factors (i.e., state shame) in a way that precludes the subsequent development of eating and body image problems.

### Conclusion

This work contributes to knowledge of the effectiveness of self-compassion meditations protective against state body shame. Such brief interventions might be best conceived as adjunctive component to current treatments targeting specific symptoms (e.g., shame) across eating disorders/body image psychopathologies, rather than as pure, stand-alone treatments. Future research could utilise component analysis of theoretically identified elements of self-compassion (i.e., self-kindness, common humanity, and mindfulness). Future research might also benefit from adapting self-compassion interventions that have been developed for women to men and adolescents, since cultivating a compassionate stance to one’s body, and difficult emotions about one’s body might be helpful for a wider population. The nature of the interventions favours their use particularly as homework exercises, as they are brief and therefore easily repeated across various contexts.

# Chapter 7

## General Discussion

This chapter starts with a brief reminder of the aims of the thesis. Then, key findings from across the thesis are synthesised. The relationship with the key findings and existing literature is presented. Such findings are then addressed in relation to psychological theories. Following this, implications for both clinical and research are presented. Finally, this chapter ends by addressing the limitations of this thesis, outlining how future research can deal with these, and suggesting ways in which research in this area could be expanded.

### Aims of this thesis

The general aim of this thesis has been to understand the psychology of eating pathology and body image concerns in relation to self-compassion, and what effects self-compassion has on such issues. Several interconnected studies were conducted to address this overall aim.

The first aim was to gather the existing empirical evidence on the relationship between self-compassion and eating pathology and body image, to determine whether self-compassion has an impact on eating and body dissatisfaction. In order to assess the existing empirical evidence, a systematic review and meta-analysis was carried (Chapter 2).

As this review showed a clear link between self-compassion and eating pathology and body image concerns, the next studies aimed to explain the mechanism of self-compassion in that link. The cross-sectional study (Chapter 3) investigated the potential mediating role of perfectionism, self-criticism, rumination, and external shame in the relationship between self-compassion and eating pathology/body dissatisfaction among women and men. The following study (Chapter 4) was conducted to test that possible mediating relationship longitudinally over the six months among women, since they are identified as the key risk group for such problems.

Chapter 5 aimed to compare the feasibility and preliminary effectiveness of online self-compassion intervention and active control conditions for eating and body image issues, to inform subsequent full trials. Given the methodological issues and preliminary effectiveness in the feasibility study, I conducted a brief intervention study (Chapter 6) to examine whether shorter self-compassion interventions have an effect on reducing state body shame among women.

Given the studies completed to understand the pathology of eating disorders and body dissatisfaction in terms of self-compassion, the overall aim of the thesis has been achieved. It is possible to conclude that (a) self-compassion appears plays a role in eating and body image concerns and (b) self-compassion has potential as an intervention method for reducing the state shame aspect of eating pathology and body image concerns.

Key findings and relationship with the existing literature

Table 7.1. presents the key findings across the studies in this thesis. The present meta-analysis in Chapter 2 shows a similar patter to the previous literature. As found in other such analyses, a large positive association was found between self-compassion and well-being (Zessin et al., 2015), and negative relationships between self-compassion and psychopathology (MacBeth & Gumley, 2012) and between self-compassion and anxiety and depression among adolescents (Marsh et al., 2018). Such interventions improve a range of psychological outcomes (depression, anxiety, measures of eating behaviour, rumination, stress) with medium to large effect sizes (Ferrari et al., 2019; Kirby et al., 2017). The findings of my meta-analysis are also compatible with Braun et al. (2016), who showed a potential protective role of self-compassion against body image concerns and eating pathology (Braun et al., 2016).

**Table 7.1.**

Key findings across the studies

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Paper** | **Main finding 1** | **Main finding 2** | **Main finding 3** | **Main finding 4** | **Main finding 5** |
| **Systematic review and meta-analysis** | Greater self-compassion is associated with lower levels of eating pathology (r = −0.34) | Self-compassion-related interventions are effective in reducing eating pathology compared to controls (g = 0.58) | Higher self-compassion is associated with greater positive body image (r = 0.52) | Higher levels of body image concerns are related to lower levels of self-compassion (r = −0.45) | Self-compassion interventions are effective in enhancing healthy body image (g = 0.39) |
| **Study 1**  **(cross-sectional)** | External shame partially mediates the relationship with eating pathology and body image among women | External shame fully mediates those relationships for men |  |  |  |
| **Study 2 (longitudinal)** | External shame acts as a full mediator of the self-compassion-eating/body image relationship. | Discrepancy perfectionism also plays a mediating role in the link between self-compassion and body image dissatisfaction. |  |  |  |
| **Study 3 (feasibility)** | The target of recruiting 30 participants in 60 days was successfully achieved. | The measure completion rate (100%) was high,  Dropout rates (80-100%) showed moderate-to-high acceptability of the interventions. | Online delivery was moderately viable with a 12.5% session disconnection rate. | The self-compassion intervention significantly reduces participants’ level of shame ratings during the intervention. | Neither of the intervention impact on trait measures |
| **Study 4 (brief intervention)** | Active and Inactive compassion interventions protected against increasing body shame. | Active and Inactive self-compassion interventions are effective at reducing shame but not state body image | The effect of intervention on the state shame remains at follow-up. |  |  |

Study 1 and Study 2 addressed the lack of research on linking mechanisms between self-compassion and eating pathology/body dissatisfaction. In accordance with the results of Study 1, Johnson and O’Brien (2013) demonstrated that shame and rumination act as mediators of the association of self-compassion and depressive psychopathology (Johnson & O’Brien, 2013). However, Study 1 here is the first to show the mediating role of external shame in the relationship between self-compassion and eating pathology/body dissatisfaction. Fresnics et al., (2019) also reported a role for depressive rumination pathology, but. However, no evidence of a mediating role of rumination was found in Study 1 or 2. This might be because Fresnics et al. (2019) examined depressive rumination, whereas the rumination scale used in Studies 1 and 2 assesses rumination globally.

Study 2 is the first study to demonstrate the mediating role of external shame in the link between self-compassion and eating pathology and body dissatisfaction. Study 3 longitudinally replicated the findings of the Study 2 but added the role of mediating discrepancy perfectionism in self-compassion’s link to body image dissatisfaction.

Considering Studies 3 and 4, no previous studies have examined the feasibility of an online single session self-compassion intervention for eating pathology and body image. One feasibility study of 2-week self-compassionate letter writing concluded that such an intervention may be an acceptable and feasible approach for nontreatment seeking anorexia nervosa patients (Kelly &Waring, 2018). Another showed that a 7-week online self-compassion training program was found to be feasible (Krieger et al., 2016). Results are in line with earlier studies, which showed that brief, single-session self-compassion training interventions may be as effective as longer, multi-session programs (Melioli et al. 2016; Seekis et al. 2020). Although the previous studies have some relevant aspects that are comparable to my feasibility study, it is the first study to provide the feasibility of a single online session.

The results from Study 4 are in line with the previous research, which concluded that a 2-week self-compassion intervention reduced the level of state emotions (e.g., shame-proneness) following a lab-induced shame procedure (Cȃndea & Szentágotai-Tătar, 2018). Albertson et al. (2015) reported that a 3-week self-compassion meditation led to a significant reduction in trait body shame, with a medium effect size. In contrast, a one-week self-compassion meditation did not decrease the level of body shame (Toole & Craighead, 2016). Despite the mixed findings in the literature, Study 4 is the first study to focus on *state* body shame and *state* shame. Given the high attrition rates in the previous self-compassion meditation studies, such a brief method might be more useful (e.g., Albertson et al., 2015). It is consistent with the previous suggestion that brief self-compassion meditations can be useful “in the moment”, whenever individuals have difficult feelings (e.g., ashamed; Bluth et al., 2016; Voelker et al., 2019).

The findings from Study 4 are compatible with previous suggestions by Krygier et al. (2013), that compassion-based interventions activate parasympathetic systems to enhance better health. More particularly, self-compassion exercises such as compassionate breathing in Study 4 can activate such systems (affiliative processing systems) to calm and soothe the participants through improving heart rate variability (Kirby, 2017).

Although there was no difference between active and inactive compassion conditions in Study 4, it would be important to do component analyses to determine what are the mechanisms of change or active ingredients in micro-trial designs as suggested by Kirby (2017). A possible explanation for the results of Study 4 is that isolating the three time-points where reduction of body shame was significant in the feasibility study as active components may not be relevant. The effect found in the feasibility study may be attributed to the cumulative effect of several consecutively applied components.

### Theoretical contribution

This dissertation has expanded understanding of the causes and maintaining factors underlying eating pathology and body dissatisfaction in terms of the role played by self-compassion. As stated in Chapter 1, there is already some evidence for the potential role of self-compassion in relation to such cases, which Chapter 2 quantified. Studies 1 and 2 established new links between self-compassion and eating pathology/body dissatisfaction. The feasibility study and intervention study in the thesis examined the potential acceptability and effectiveness of self-compassion interventions. The section below discusses how the findings in the thesis fit into extant psychological theories.

The findings of this thesis might be explained by Neff’s conceptualization of self-compassion. The three components of self-compassion could be useful to understand how self-compassion reduces the feeling of body shame and subsequently eating and body image problems (Neff, 2003a). Self-kindness enables individuals to show kindness towards their body rather than judging their body as “not being thin enough”. Such an approach can eliminate feelings of shame about one’s body. Mindfulness allows observing and labelling uncomfortable thoughts and emotions related to the body in a more balanced way, rather than trying to avoid or overidentify such difficult emotions. Common humanity helps individuals to realise that everyone can feel bad about their body at times, rather than thinking that they are the only one whose body is imperfect. Knowing that everyone shares similar concerns can help individuals to regulate their feelings of shame.

Similarly, the findings of this thesis are consistent with Neff's theory when it argues that self-compassion can operate as an adaptive emotion regulation strategy to manage difficult emotions. Neff and Germer (2013) proposed that the ability to acknowledge and understand one’s own emotions as valid and important (rather than escaping or hiding from them) may help to generate positive emotions such as acceptance. For instance, during the compassionate meditations in Studies 3 and 4, participants are guided to name their difficult emotions in a soft and accepting way. Those participants were then asked to locate their emotions in the body so that they can soften that area and allow such difficult emotions to be there and then soothe themselves.

As stated in the introduction chapter, theoretical conceptualizations of self-compassion indicate how self-compassion may operate as predictor, mediator, or moderator within the eating and body image literature. Since the aim of my thesis is to clarify self-compassion’s link to eating pathology and body dissatisfaction, it is reasonable to treat self-compassion as a causal/predictor factor. However, Gilbert’s theory of compassion model suggests that self-compassion might operate as a mediator, resulting from positive early childhood experiences. External shame and drive for thinness have been tested previously, with external shame as the predictor (Ferreira et al., 2013). In contrast, in Studies 1 and 2 here, self-compassion was tested as a predictor and external shame was treated as a potential mediator. The rationale for this is that the early caregiving environment (e.g., parental warmth, emotional closeness) is likely to lead to related self-compassion being the earlier trait to develop, while shame is more likely to follow subsequent events. Therefore, these findings appear to be more compatible with Neff’s than Gilbert’s theory.

It is also possible that self-compassion might function as a potential moderator of factors predicting body image and eating psychopathology, as previously suggested (Braun et al., 2016). This could happen due to self-compassion changing the strength and/or direction of the relationship between a risk factor (e.g., thin- or fit-ideal internalization) and eating- and body-related outcome. For example, compassionate individuals might be less likely to experience negative body image when they engage in thin-ideal internalization (Tylka et al., 2015). Overall, self-compassion might act in different ways and through multiple pathways when it comes to eating and body image psychopathology.

There is also some potential support for self-compassion’s role as a causal/predictive factor within the objectification theory framework. Self-objectification refers to the psychological process by which women internalize the outside perspective and judge their own physical appearance based on the perception of observers (Fredrickson & Roberts, 1997). When one self-objectifies, they are more vulnerable to detrimental body-related outcomes such as body-shame or eating pathology (Calogero & Pina, 2011). Greater self-compassion might predict reduced levels of body shame and body surveillance (as objectification theory constructs). Mosewich et al. (2011) tested such a model and reported that self-compassion might be a potential resource for young women athletes to manage their shame and even prevent shame experiences in the first place.

In the feasibility study, the self-compassion intervention had an effect on state shame but not on trait variables. This is consistent with trait personality theory, which suggests that a trait change process involves long-lasting and likely irreversible changes of psychological traits (Geiser et al., 2016). State-level changes are unlikely to have such effects without sustained experience of the intervention (Zilcha-Mano, 2021).

### Limitations and future directions

There are limitations in this thesis which should be considered. Each study has limitations in its sample, which consisted of mainly young adult women in the community and so are open to the criticisms of both being too narrow and not being clinical samples. Only Study 2 had a male sample. Although samples in Studies 2, 3 and 4 were more diverse than typical university students, it is still necessary to examine whether self-compassion acts in the same way across individuals of different age, gender, socio-economic status, and ethnicity. The results of these studies cannot be assumed to be generalisable to clinical populations.

In Chapter 2, only included published papers in English in the review and meta-analysis. Similarly, the rest of the studies consisted of English speakers. Given that self-compassion may differ across cultures, the generalisability of these results to wider populations is limited (Neff et al., 2008). Another limitation regarding the samples, is that online recruitment was conducted for all studies (due in part to COVID restrictions). Such an approach might have unintentionally excluded individuals who were unable to access or use computer and internet technology.

Additionally, self-report questionnaires have some limitations. It is unclear how accurately such questionnaires capture and reflect one’s “real response”, given that social desirability and response bias might influence individuals’ responses. However, this approach has the possible benefit of reducing participants’ interpersonal discomfort when revealing sensitive and embarrassing aspects of themselves (Grilo et al., 2001).

Studies 1-3 measured general eating psychopathology. However, self-compassion might act differently on different aspects of eating pathology (e.g., dieting, purging, loss of control of eating). Since self-compassion has been proposed as an adaptive emotion regulation strategy, a further investigation of specific eating symptoms which are more related to emotions (e.g., loss of control of eating) might be warranted. Given the high heterogeneity in the eating disorders, a network analysis approach might be used to identify the unique relationships between self-compassion and specific eating disorder symptoms (Forbush et al., 2017). Network analysis proposes that symptoms generate the disorder itself through their relations with one another (e.g., restriction may cause hunger which leads binge eating, which then leads to purging), rather than being the observable indicators of underlying disorder (Levinson et al., 2018).

There might be other factors related to self-compassion and eating pathology and body dissatisfaction that are not considered in this thesis. For instance, the possible roles of fear of self-compassion (Dias et al., 2018; Oliveira et al., 2017) and body compassion (Altman et al., 2020) should be examined in the relationship between self-compassion and such problems. Testing models including such variables might increase the variance explained in eating pathology, since fears of self-compassion are related to body image shame (Dias et al., 2018).

Study 3 modified traditional mirror exposure to make it more suitable for an online approach due to the COVID pandemic. There was no effect of body exposure on either body shame or trait measures (e.g., body dissatisfaction, eating pathology). Therefore, such an online exposure approach (e.g., watching yourself on the computer screen) might be less effective than using a actual full-body size mirror. Alternatively, the lack of an effect might be because body exposure needs longer to have its effect.

Study 4 examined the component effects of self-compassion as identified in the feasibility study. Although the results showed no differences between active and inactive condition of self-compassion, future research might benefit from investigating component analysis based on Neff’s proposed elements (e.g., self-kindness, mindfulness, and common humanity).

Whilst Study 4 hypothesized that the effect of self-compassion on state shame could only be “in-the-moment”, such effects remained for a day. Given the promising evidence, future studies could build on this work to investigate exactly how long those effects last. The relationship between state shame change and trait shame change over treatment time is worthy of consideration.

This thesis has used several relevant but distinct shame-related constructs (i.e., external shame, state shame). There might be a possibility that these constructs could interact with each other in various ways outside of the scope of this thesis (e.g., increased external shame leads to body shame then to higher levels of body dissatisfaction and eating pathology). Given the wide range of conceptual definitions of shame related concepts, clarifying such terms theoretically and testing such models could be beneficial.

Finally, it is important to acknowledge that there is now a growing profit-driven business in terms of delivery of meditation practices - particularly mindfulness and self-compassion meditations. While providing promising evidence on using self-compassion on state body shame, individuals should be offered only evidence-based exercises. Individuals should be made aware of the variety of the available mediation practices and offered evidence-based ones. In publicly funded psychological healthcare, economic disadvantages should not be mirrored in terms of access to effective treatments.

### Research implications

The results of this thesis have a number of research implications. Shame and self-compassion are considered to be transdiagnostic constructs and suggested as relevant factors in many forms of psychopathology (e.g., borderline personality disorder, depressive mood; Diedrich et al., 2014; Warren, 2016). Therefore, testing the model in Studies 1 and 2 might contribute to improvement in the outcome of emotion regulation related psychopathologies.

Combining self-compassion and mirror exposure might enhance treatment outcomes. Preliminary evidence shows that self-compassionate self-talk in front of a mirror enhanced the protective effect against shame, compared to without a mirror (Petrocchi et al., 2017). Previous studies tested the effectiveness of mindfulness-based, non-judgmental, or cognitive dissonance-based approaches to mirror exposure (Luethcke al., 2011). No study to date examined a compassionate approach in front of a mirror. Therefore, future studies might consider compassionate mirror exposure to assess whether the combined condition is more effective at reducing eating pathology and body dissatisfaction than either approach alone.

As self-compassion might work as a prevention approach, experimental designs might test whether self-compassion exercises can prevent increases in body dissatisfaction after inducing body-related threats. For instance, a brief self-compassion exercise can be delivered to participants before exposing to appearance-ideal media images. Such designs can help us to understand whether self-compassion prevents detrimental effects of body-related threats before it occurs.

Since the intervention study showed effectiveness for the short self-compassion interventions, future research might change the format and try to replicate my findings while making it more accessible and easier to deliver. For example, developing software for delivering interventions and gathering body shame ratings could be valuable to test whether such apps could be as effective as delivering the interventions live.

### Clinical implications

This thesis provides promising evidence to suggest that self-compassion is related to eating psychopathology and body image problems. However, it is important to replicate the findings with the clinical samples prior to making conclusive suggestions to clinicians.

Successfully replicated results with eating disorder populations might indicate some potential clinical implications. Psychotherapists may gather information about levels of self-compassion, external shame, and body shame, shame (e.g., using a scale) from individuals with eating disorders or who are at risk for such problems during the assessment process. If individuals present, for example, high levels of body shame or external shame then self-compassion could be useful during the formulation process.

In terms of treatment, interventions that contain self-compassion components might be beneficial to individuals' eating and body image problems. For instance, Compassion Focused Therapy and Mindful Self-compassion Training might be particularly beneficial for individuals who are not compassionate towards themselves and who struggle with eating and body image problems.

Brief self-compassion meditations might be beneficial as an adjunctive approach or homework to target specific symptoms (e.g., body shame or shame), rather than delivering it as a complete treatment. Individuals can easily use it whenever they feel shame about their body. Such compassion-based elements might also be usefully added to other evidence-based interventions and prevention approaches.

On a large scale, raising awareness of potential benefits of self-compassion among individuals in educational settings and the general community might be helpful in preventing body image problems in the first place. Developing psycho-educational and self-help resources about self-compassion and its relationship with body image issues might offer a cost-effective and accessible prevention method for the general community.

## Conclusion

Overall, this thesis indicates that higher levels of self-compassion are associated with lower levels of eating pathology and body image problems. Such a relationship and the mechanisms shown are compatible with extant theory. Brief self-compassion-based meditations are protective against deterioration of in-the-moment body shame and effective at reducing state shame, which are prominent risk factors for eating pathology.

The findings across these studies provide robust evidence that self-compassion regulates shame to reduce eating pathology and body image concerns. This dissertation, therefore, has established self-compassion as a key factor in the understanding and prevention of body image problems and eating pathology. Research from this thesis needs to be expanded with other psychopathologies and with clinical samples.

On reflection, completing this thesis has taught me much. Conducting my literature review gave me skills to critically evaluate existing research and gain a deeper understanding of theoretical background of the field. Obtaining ethical approval and registering trials enabled me to thoroughly consider every small/single aspect of a research. Collecting data was one of the difficult tasks in the thesis, particularly in robustly testing interventions. In general, conducting research from start to end is a valuable experience.

# References

Abraham, S. F., Brown, T., Boyd, C., Luscombe, G., & Russell, J. (2006). Quality of life: Eating disorders. *Australian and New Zealand Journal of Psychiatry, 40*(2), 150–155. https://doi.org/10.1111/j.1440-1614.2006.01762.x

Ackard, D. M., Richter, S., Egan, A., Engel, S., & Cronemeyer, C. L. (2014). The meaning of (quality of) life in patients with eating disorders: A comparison of generic and disease-specific measures across diagnosis and outcome. *International Journal of Eating Disorders, 47*(3), 259–267. https://doi.org/10.1002/eat.22193

Adams, C. E., & Leary, M. R. (2007). Promoting self–compassionate attitudes toward eating among restrictive and guilty eaters. *Journal of Social and Clinical Psychology, 26*, 1120–1144. doi: 10.1521/jscp.2007.26.10.1120

Ahn, H., & Wampold, B.E. (2001). Where oh where are the specific ingredients? A meta-analysis of component studies in counselling and psychotherapy. *Journal of Counselling Psychology, 48*, 251-257. doi:10.1037/0022-0167.48.3.251

Albertson, E. R., Neff, K. D., & Dill-Shackleford, K. E. (2015). Self-compassion and body dissatisfaction in women: a randomized controlled trial of a brief meditation intervention. *Mindfulness, 6*, 444–454. doi: 10.1007/s12671-014-0277-3

Allan, S., & Gilbert, P. (1995). A social comparison scale: Psychometric properties and relationship to psychopathology*. Personality and Individual Differences, 19*(3), 293-299. https://doi.org/10.1016/0191-8869(95)00086-L

Allan, S., & Gilbert, P. (1997). Submissive behaviour and psychopathology. *British Journal of Clinical Psychology, 36*(4), 467-488. https://doi.org/10.1111/j.2044-8260.1997.tb01255.x

Allen, A. B., & Leary, M. R. (2010). Self‐Compassion, stress, and coping. *Social and Personality Psychology Compass, 4*(2), 107-118. https://doi.org/10.1111/j.1751-9004.2009.00246.x

Alleva, J. M., Sheeran, P., Webb, T. L., Martijn, C., & Miles, E. (2015). A meta-analytic review of stand-alone interventions to improve body image. *PLoS One, 10*(9), e0139177. doi: 10.1371/journal.pone.0139177

Altman, J. K., Linfield, K., Salmon, P. G., & Beacham, A. O. (2020). The body compassion scale: Development and initial validation. *Journal of Health Psychology*, *25*(4), 439-449. doi: 10.1177/1359105317718924

American Psychiatric Association (2013). *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.). American Psychiatric Publishing.

Andrew, R., Tiggemann, M., & Clark, L. (2016). Predicting body appreciation in young women: An integrated model of positive body image. *Body Image*, *18*, 34-42. doi: 10.1016/j.bodyim.2016.04.003

Avalos, L., Tylka, T. L., & Wood-Barcalow, N. (2005). The Body Appreciation Scale: Development and psychometric evaluation. *Body Image*, *2*, 285-297. doi: 10.1016/j.bodyim.2005.06.002

Bamford, B., & Sly, R. (2010). Exploring quality of life in the eating disorders. *European Eating Disorders Review, 18*(2), 147–153. https://doi.org/10.1002/erv.975

Bardone-Cone, A. M., Wonderlich, S. A., Frost, R. O., Bulik, C. M., Mitchell, J. E., Uppala, S., & Simonich, H. (2007). Perfectionism and eating disorders: Current status and future directions. *Clinical Psychology Review, 27*(3), 384-405. https://doi.org/ 10.1016/j.cpr.2006.12.005

Barnett, M. D., & Sharp, K. J. (2016). Maladaptive perfectionism, body image satisfaction, and disordered eating behaviors among US college women: The mediating role of self-compassion. *Personality and Individual Differences, 99*, 225-234. https://doi.org/10.1016/j.paid.2016.05.004

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*(6), 1173–1182. https://doi.org/10.1037/0022-3514.51.6.1173

Bearman, S. K., Presnell, K., Martinez, E., & Stice, E. (2006). The skinny on body dissatisfaction: A longitudinal study of adolescent girls and boys. *Journal of Youth and Adolescence, 35*(2), 217-229. doi: 10.1007/s10964-005-9010-9.

Beasley, T. M. (2014). Tests of mediation: Paradoxical decline in statistical power as a function of mediator collinearity. *The Journal of Experimental Education, 82*(3), 283-306. https://doi.org/10.1080/00220973.2013.813360

Bell, L., & Rushforth, J. (2008). *Overcoming body image disturbance: A programme for people with eating disorders.* Routledge. https://doi.org/10.4324/9780203931998

Berg, K. C., Peterson, C. B., Frazier, P., & Crow, S. J. (2012). Psychometric evaluation of the eating disorder examination and eating disorder examination-questionnaire: A systematic review of the literature. *International Journal of Eating Disorders, 45*(3), 428-438. https://doi.org/10.1002/eat.20931

Berking, M., & Whitley, B. (2014). *Affect regulation training: A practitioner's manual*. Springer Science. https://doi.org/10.1007/978-1-4939-1022-9

Birnie, K., Speca, M., & Carlson, L. E. (2010). Exploring self-compassion and empathy in the context of mindfulness-based stress reduction (MBSR). *Stress and Health, 26*(5), 359–371. https://doi.org/10.1002/smi.1305

Blomquist, K. K., Roberto, C. A., Barnes, R. D., White, M. A., Masheb, R. M., & Grilo, C. M. (2014). Development and validation of the Eating Loss of Control Scale. *Psychological Assessment, 26,* 77-89. doi: 10.1037/a0034729

Bluth, K., Gaylord, S. A., Campo, R. A., Mullarkey, M. C., & Hobbs, L. (2016). Making friends with yourself: A mixed methods pilot study of a mindful self-compassion program for adolescents. *Mindfulness*, *7*(2), 479-492.  https://doi.org/10.1007/s12671-015-0476-6

Braun, T. D., Park, C. L., & Gorin, A. (2016). Self-compassion, body image, and disordered eating: A review of the literature. *Body Image, 17*, 117-131. doi: 10.1016/j.bodyim.2016.03.003.

Breines, J., Toole, A., Tu, C., & Chen, S. (2014). Self-compassion, body image, and self-reported disordered eating. *Self and Identity, 13*, 432-448. doi: 10.1080/15298868.2013.838992

Brinker, J. K., & Dozois, D. J. (2009). Ruminative thought style and depressed mood*. Journal of Clinical Psychology, 65*(1), 1-19. https://doi.org/10.1002/jclp.20542

Burnette, C. B., & Mazzeo, S. E. (2020). An uncontrolled pilot feasibility trial of an intuitive eating intervention for college women with disordered eating delivered through group and guided self‐help modalities. *International Journal of Eating Disorders*, *53*(9), 1405-1417. doi: 10.1002/eat.23319

Butler, R. M., & Heimberg, R. G. (2020). Exposure therapy for eating disorders: A systematic review. *Clinical Psychology Review*, *78*, 101851. doi: 10.1016/j.cpr.2020.101851

Calogero, R. M., & Pina, A. (2011). Body guilt: Preliminary evidence for a further subjective experience of self-objectification. *Psychology of Women Quarterly, 35*(3), 428–440. https://doi.org/10.1177/0361684311408564

Cȃndea, D. M., & Szentágotai-Tătar, A. (2018). The impact of self-compassion on shame-proneness in social anxiety. *Mindfulness*, *9*(6), 1816-1824.https://doi.org/10.1007/s12671-018-0924-1

Cash, T. F., & Szymanski, M. L. (1995). The development and validation of the Body-Image Ideals Questionnaire. *Journal of Personality Assessment, 64*(3), 466–477. https://doi.org/10.1207/s15327752jpa6403\_6

Cash, T. F., Fleming, E. C., Alindogan, J., Steadman, L., & Whitehead, A. (2002). Beyond body image as a trait: The development and validation of the Body Image States Scale. *Eating Disorders*, *10*(2), 103-113. doi: 10.1080/10640260290081678

Cho, M. J., Kim, J. K., Jeon, H. J., Suh, T., Chung, I. W., Hong, J. P., ... & Lee, C. K. (2007). Lifetime and 12-month prevalence of DSM-IV psychiatric disorders among Korean adults. *The Journal of Nervous and Mental Disease, 195*, 203-210. doi: 10.1097/01.nmd.0000243826.40732.45

Clark, D. M. (2018). Realizing the mass public benefit of evidence-based psychological therapies: the IAPT program. *Annual Review of Clinical Psychology*, *14*, 159-183. doi:10.1146/annurev-clinpsy-050817-084833

Clark, S., & Coker, S. (2009). Perfectionism, self-criticism and maternal criticism: A study of mothers and their children. *Personality and Individual Differences*, *47*(4), 321-325. doi: 10.1016/j.paid.2009.03.020

Cohen, D. L., & Petrie, T. A. (2005). An examination of psychosocial correlates of disordered eating among undergraduate women. *Sex Roles: A Journal of Research, 52*(1-2), 29–42. https://doi.org/10.1007/s11199-005-1191-x

Cohen, J. (1992). A power primer. *Psychological Bulletin, 112*(1), 155–159. doi: 10.1037/0033-2909.112.1.155

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2013). *Applied multiple regression/correlation analysis for the behavioral sciences.* Routledge.

Cooper, Z., & Fairburn, C. G. (2011). The evolution of “enhanced” cognitive behavior therapy for eating disorders: Learning from treatment nonresponse. *Cognitive and Behavioral Practice, 18*(3), 394-402. https://doi.org/10.1016/j.cbpra.2010.07.007

Couturier, J., Kimber, M., & Szatmari, P. (2013). Efficacy of family-based treatment for adolescents with eating disorders: A systematic review and meta-analysis. *International Journal of Eating Disorders, 46*, 3-11. doi: 10.1002/eat.22042

Craig, P., Dieppe, P., Macintyre, S., Michie, S., Nazareth, I., & Petticrew, M. (2008). Developing and evaluating complex interventions: the new Medical Research Council guidance. *Bmj*, *337*.  https://doi.org/10.1136/bmj.a1655

Cuijpers, P., Weitz, E., Cristea, I. A., & Twisk, J. (2017). Pre-post effect sizes should be avoided in meta-analyses. *Epidemiology and Psychiatric Sciences, 26*, 364-368. doi: 10.1017/S2045796016000809

Culbert, K. M., Racine, S. E., & Klump, K. L. (2015). Research Review: What we have learned about the causes of eating disorders–a synthesis of sociocultural, psychological, and biological research. *Journal of Child Psychology and Psychiatry, 56*(11), 1141-1164. doi: 10.1111/jcpp.12441

Cunningham, J. A., Kypri, K., & McCambridge, J. (2013). Exploratory randomized controlled trial evaluating the impact of a waiting list control design. *BMC Medical Research Methodology, 13*, 150. doi: 10.1186/1471-2288-13-150

Daye, C. A., Webb, J. B., & Jafari, N. (2014). Exploring self-compassion as a refuge against recalling the body-related shaming of caregiver eating messages on dimensions of objectified body consciousness in college women. *Body Image, 11*, 547–556. doi: 10.1016/j.bodyim.2014.08.001

De Carvalho Barreto, M., Ferreira, C., Marta-Simões, J., & Mendes, A. L. (2018). Exploring the paths between self-compassionate attributes and actions, body compassion and disordered eating. *Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity, 25*(2), 291-297. https://doi.org/10.1007/s40519-018-0581-3

Delinsky, S. S., & Wilson, G. T. (2006). Mirror exposure for the treatment of body image disturbance. *International Journal of Eating Disorders, 39*(2), 108-116. doi: 10.1002/eat.20207

Devilly, G. J., & Borkovec, T. D. (2000). Psychometric properties of the credibility/expectancy questionnaire. *Journal of Behavior Therapy and Experimental Psychiatry*, *31*(2), 73-86. <https://doi.org/10.1016/S0005-7916(00)00012-4>

Dias, B. S., Ferreira, C., & Trindade, I. A. (2020). Influence of fears of compassion on body image shame and disordered eating. *Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity*, *25*(1), 99-106. https://doi.org/10.1007/s40519-018-0523-0

Diedrich, A., Grant, M., Hofmann, S. G., Hiller, W., & Berking, M. (2014). Self-compassion as an emotion regulation strategy in major depressive disorder. *Behaviour Research and Therapy, 58*, 43-51. https://doi.org/10.1016/j.brat.2014.05.006

Dingemans, A., Danner, U., & Parks, M. (2017). Emotion regulation in binge eating disorder: A review. *Nutrients, 9*(11), 1274. https://doi.org/10.3390/nu9111274

Duarte, C., Ferreira, C., Trindade, I. A., & Pinto-Gouveia, J. (2015). Body image and college women’s quality of life: The importance of being self-compassionate. *Journal of Health Psychology, 20,* 754–764. doi: 10.1177/1359105315573438

Duarte, C., Pinto-Gouveia, J., & Stubbs, R. J. (2017). Compassionate Attention and Regulation of Eating Behaviour: A pilot study of a brief low-intensity intervention for binge eating. *Clinical Psychology & Psychotherapy, 24*, O1437–O1447. doi: 10.1002/cpp.2094

Duval, S., & Tweedie, R. (2000). Trim and fill: a simple funnel‐plot–based method of testing and adjusting for publication bias in meta‐analysis. *Biometrics*, *56*, 455-463. doi: 10.1111/j.0006-341x.2000.00455.x

El Ansari, W., Dibba, E., & Stock, C. (2014). Body image concerns: Levels, correlates and gender differences among students in the United Kingdom. *Central European Journal of Public Health, 22*(2), 106-117. https://doi.org/10.21101/cejph.a3944

Engel, S. G., Adair, C. E., Hayas, C. L., & Abraham, S. (2009). Health-related quality of life and eating disorders: A review and update. *International Journal of Eating Disorders, 42*(2), 179–187. https://doi.org/10.1002/eat.20602

Engel, S. G., Wonderlich, S. A., Crosby, R. D., Mitchell, J. E., Crow, S., Peterson, C. B., ... & Gordon, K. H. (2013). The role of affect in the maintenance of anorexia nervosa: Evidence from a naturalistic assessment of momentary behaviors and emotion. *Journal of Abnormal Psychology, 122*, 709-719. doi: 10.1037/a0034010

Evans, C., & Dolan, B. (1993). Body Shape Questionnaire: Derivation of shortened “Alternate forms”. *International Journal of Eating Disorders*, *13*(3), 315-321. doi: 10.1002/1098-108X(199304)13:3<315::AID EAT2260130310>3.0.CO;2-3

Fairburn, C. G., & Beglin, S. J. (1994). Assessment of eating disorders: Interview or self‐report questionnaire? *International Journal of Eating Disorders*, *16*(4), 363-370.doi: 10.1002/1098-108X(199412)16:4<363::AID-EAT2260160405>3.0.CO;2-%23

Fairburn, C. G., & Beglin, S. J. (2008). Eating disorder examination questionnaire (EDE-Q 6.0). In C. G. Fairburn (Ed.), *Cognitive Behavior Therapy and Eating Disorders* (pp. 309–313). New York, NY: Guilford.

Fairburn, C. G., Bailey-Straebler, S., Basden, S., Doll, H. A., Jones, R., Murphy, R., ... & Cooper, Z. (2015). A transdiagnostic comparison of enhanced cognitive behaviour therapy (CBT-E) and interpersonal psychotherapy in the treatment of eating disorders. *Behaviour Research and Therapy, 70*, 64-71. doi: 10.1016/j.brat.2015.04.010

Fairburn, C. G., Cooper, Z., & Shafran, R. (2003). Cognitive behaviour therapy for eating disorders: A “transdiagnostic” theory and treatment. *Behaviour Research and Therapy, 41*(5), 509-528. DOI: 10.1016/s0005-7967(02)00088-8

Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G\* Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, *39*(2), 175-191. doi: 10.3758/bf03193146

Feliu-Soler, A., Pascual, J. C., Elices, M., Martín‐Blanco, A., Carmona, C., Cebolla, A., ... & Soler, J. (2017). Fostering self-compassion and loving-kindness in patients with borderline personality disorder: A randomized pilot study. *Clinical Psychology and Psychotherapy, 24*(1), 278-286. https://doi.org/10.1002/cpp.2000

Fennig, S., Hadas, A., Itzhaky, L., Roe, D., Apter, A., & Shahar, G. (2008). Self-criticism is a key predictor of eating disorder dimensions among inpatient adolescent females. *International Journal of Eating Disorders, 41*(8), 762-765. https://doi.org/10.1002/eat.20573

Ferrari, M., Hunt, C., Harrysunker, A., Abbott, M. J., Beath, A. P., & Einstein, D. A. (2019). Self-compassion interventions and psychosocial outcomes: A meta-analysis of RCTs. *Mindfulness, 10*, 1455–1473. doi: 10.1007/s12671-019-01134-6

Ferreira, C., Matos, M., Duarte, C., & Pinto-Gouveia, J. (2014). Shame memories and eating psychopathology: The buffering effect of self-compassion. *European Eating Disorders Review, 22*, 487-494. doi: 10.1002/erv.2322

Ferreira, C., Oliveira, S., & Mendes, A. L. (2017). Kindness toward one’s self and body: exploring mediational pathways between early memories and disordered eating. *Spanish Journal of Psychology, 23*, 1–8. doi: 10.1017/sjp.2017.50

Ferreira, C., Pinto-Gouveia, J., & Duarte, C. (2013). Self-compassion in the face of shame and body image dissatisfaction: Implications for eating disorders. *Eating Behaviors, 14*(2), 207-210. DOI: 10.1016/j.eatbeh.2013.01.005

Field, A. (2009). *Discovering statistics using SPSS: (and sex and drugs and rock'n'roll)*. Sage.

Finlay-Jones, A. L., Rees, C. S., & Kane, R. T. (2015). Self-compassion, emotion regulation and stress among Australian psychologists: Testing an emotion regulation model of self-compassion using structural equation modelling. *PloS One, 10*, 1-19. doi: 10.1371/journal.pone.0133481

Forbush, K. T., Hagan, K. E., Kite, B. A., Chapa, D. A., Bohrer, B. K., & Gould, S. R. (2017). Understanding eating disorders within internalizing psychopathology: A novel transdiagnostic, hierarchical-dimensional model. *Comprehensive Psychiatry*, *79*, 40-52. https://doi.org/10.1016/j.comppsych.2017.06.009

Fox, J. R. E., Federici, A., & Power, M. J. (2012) Emotions and eating disorders: Treatment implications. In J. R. E. Fox & K. P. Goss (Eds), *Eating and its Disorders* (pp.315-337). Wiley.

Franzoi, S. L., & Shields, S. A. (1984). The Body Esteem Scale: Multidimensional structure and sex differences in a college population. *Journal of Personality Assessment*, *48*, 173-178. doi: 10.1207/s15327752jpa4802\_12

Fredrickson, B. L., & Roberts, T. A. (1997). Objectification theory: Toward understanding women's lived experiences and mental health risks. *Psychology of Women Quarterly*, *21*(2), 173-206. https://doi.org/10.1111/j.1471-6402.1997.tb00108.x

Fresnics, A. A., Wang, S. B., & Borders, A. (2019). The unique associations between self-compassion and eating disorder psychopathology and the mediating role of rumination. *Psychiatry Research, 274,* 91-97. https://doi.org/10.1016/j.psychres.2019.02.019

Fu, R., Gartlehner, G., Grant, M., Shamliyan, T., Sedrakyan, A., Wilt, T. J., ... & Santaguida, P. (2011). Conducting quantitative synthesis when comparing medical interventions: AHRQ and the Effective Health Care Program. *Journal of Clinical Epidemiology, 64*, 1187-1197. doi: 10.1016/j.jclinepi.2010.08.010

Gale, C., Gilbert, P., Read, N., & Goss, K. (2014). An evaluation of the impact of introducing compassion focused therapy to a standard treatment programme for people with eating disorders. *Clinical Psychology and Psychotherapy, 21*, 1–12. doi: 10.1017/sjp.2017.50

Garner, D. M., Olmsted, M. P., Bohr, Y., & Garfinkel, P. E. (1982). The Eating Attitudes Test: psychometric features and clinical correlates. *Psychological Medicine*, *12*, 871-878. doi: 10.1017/s0033291700049163

Gee, A., & Troop, N. A. (2003). Shame, depressive symptoms and eating, weight and shape concerns in a non-clinical sample. *Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity, 8*(1), 72-75. https://doi.org/10.1007/BF03324992

Germer, C. K., & Neff, K. D. (2013). Self‐compassion in clinical practice. *Journal of Clinical Psychology, 69*(8), 856-867. https://doi.org/10.1002/jclp.22021

Gianini, L. M., White, M. A., & Masheb, R. M. (2013). Eating pathology, emotion regulation, and emotional overeating in obese adults with binge eating disorder. *Eating Behaviors, 14*(3), 309-313. https://doi.org/10.1016/j.eatbeh.2013.05.008

Gideon, N., Hawkes, N., Mond, J., Saunders, R., Tchanturia, K., & Serpell, L. (2016). Development and psychometric validation of the EDE-QS, a 12 item short form of the Eating Disorder Examination Questionnaire (EDE-Q). *PLoS One*, *11*(5), e0152744. doi: 10.1371/journal.pone.0152744

Gilbert, P. (2005). *Compassion: Conceptualisations, research and use in psychotherapy*. Routledge.

Gilbert, P. (2007). The evolution of shame as a marker for relationship security: A biopsychosocial approach. In J. L. Tracy, R. W. Robins, & J. P. Tangney (Eds.), *The self-conscious emotions: Theory and research* (p. 283–309). Guilford.

Gilbert, P. (2009). *The compassionate mind: A new approach to life's challenges*. Oakland, CA: New Harbinger.

Gilbert, P. (2010). *Compassion focused therapy: Distinctive features.* Routledge.

Gilbert, P. (2014). The origins and nature of compassion focused therapy. *British Journal of Clinical Psychology, 53*(1), 6–41. https://doi.org/10.1111/bjc.12043

Gilbert, P. (2019). Psychotherapy for the 21st Century: An integrative, evolutionary, contextual, biopsychosocial approach. *Psychology and Psychotherapy: Theory, Research and Practice, 92*, 164-189. doi: 10.1111/papt.12226

Gordon, K. H., Holm-Denoma, J. M., Troop-Gordon, W., & Sand, E. (2012). Rumination and body dissatisfaction interact to predict concurrent binge eating. *Body Image, 9*(3)*,* 352-357. https://doi.org/10.1016/j.bodyim.2012.04.001

Goss, K., & Allan, S. (2014). The development and application of compassion-focused therapy for eating disorders (CFT-E). *British Journal of Clinical Psychology, 53*, 62-77. doi: 10.1111/bjc.12039

Goss, K., & Gilbert, P. (2002). Eating disorders, shame and pride. Body shame: Conceptualisation, research and treatment. In P. Gilbert & J. Miles (Eds.), *Eating disorders, shame and pride: a cognitive–behavioural functional analysis* (pp. 219-256). Brunner-Routledge.

Goss, K., Gilbert, P., & Allan, S. (1994). An exploration of shame measures-I: The Other as Shamer scale. *Personality and Individual Differences, 17*(5), 713-717. https://doi.org/10.1016/0191-8869(94)90149-X

Gouveia, M. J., Canavarro, M. C., & Moreira, H. (2018). Is mindful parenting associated with adolescents’ emotional eating? The mediating role of adolescents’ self-compassion and body shame. *Frontiers in Psychology, 9.* doi: 10.3389/fpsyg.2018.02004

Gouveia, M. J., Canavarro, M. C., & Moreira, H. (2019). Associations between mindfulness, self-compassion, difficulties in emotion regulation, and emotional eating among adolescents with overweight/obesity. *Journal of Child and Family Studies, 28*, 273–285. doi: 10.1007/s10826-018-1239-5

Grabe, S., Ward, L. M., & Hyde, J. S. (2008). The role of the media in body image concerns among women: A meta-analysis of experimental and correlational studies. *Psychological Bulletin, 134*(3), 460–476. https://doi.org/10.1037/0033-2909.134.3.460

Gratz, K. L., Rosenthal, M. Z., Tull, M. T., Lejuez, C. W., & Gunderson, J. G. (2010). An experimental investigation of emotional reactivity and delayed emotional recovery in borderline personality disorder: The role of shame. *Comprehensive Psychiatry, 51*(3), 275-285. https://doi.org/10.1016/j.comppsych.2009.08.005

Griffen, T. C., Naumann, E., & Hildebrandt, T. (2018). Mirror exposure therapy for body image disturbances and eating disorders: a review. *Clinical Psychology Review*, *65*, 163-174. doi: 10.1016/j.cpr.2018.08.006

Grilo, C. M., Masheb, R. M., & Wilson, G. T. (2001). A comparison of different methods for assessing the features of eating disorders in patients with binge eating disorder. *Journal of Consulting and Clinical Psychology, 69*(2), 317–322. https://doi.org/10.1037/0022-006X.69.2.317

Groesz, L. M., Levine, M. P., & Murnen, S. K. (2002). The effect of experimental presentation of thin media images on body satisfaction: A meta‐analytic review. *International Journal of Eating Disorders, 31*(1), 1-16. doi: 10.1002/eat.10005

Grogan, S. (2007). *Body image: Understanding body dissatisfaction in men, women and children*. Routledge.

Halliwell, E. (2015). Future directions for positive body image research. *Body Image*, *14*, 177-189. <https://doi.org/10.1016/j.bodyim.2015.03.003>

Haynos, A. F., & Fruzzetti, A. E. (2011). Anorexia nervosa as a disorder of emotion dysregulation: Evidence and treatment implications. *Clinical Psychology: Science and Practice, 18*(3), 183–202. https://doi.org/10.1111/j.1468-2850.2011.01250.x

Heatherton, T. F., & Baumeister, R. F. (1991). Binge eating as escape from self-awareness. *Psychological Bulletin, 110*(1), 86–108. https://doi.org/10.1037/0033-2909.110.1.86

Hedges, L. V., & Olkin, I. (1985). *Statistical methods for meta-analysis*. Academic Press.

Hewitt, P. L., & Flett, G. L. (1991). Perfectionism in the self and social contexts: Conceptualization, assessment, and association with psychopathology. *Journal of Personality and Social Psychology, 60*(3), 456–470. doi: 10.1037/0022-3514.60.3.456

Higgins, J. P., Thompson, S. G., Deeks, J. J., & Altman, D. G. (2003). Measuring inconsistency in meta-analyses. *British Medical Journal*, *327*, 557-560. doi: 10.1136/bmj.327.7414.557

Hofmann, S. G., Grossman, P., & Hinton, D. E. (2011). Loving-kindness and compassion meditation: Potential for psychological interventions. *Clinical Psychology Review, 31*(7), 1126-1132. https://doi.org/10.1016/j.cpr.2011.07.003

Holm-Denoma, J. M., & Hankin, B. L. (2010). Perceived physical appearance mediates the rumination and bulimic symptom link in adolescent girls. *Journal of Clinical Child & Adolescent Psychology, 39*(4), 537-544. https://doi.org/10.1080/15374416.2010.486324

Homan, K. J., & Tylka, T. L. (2015). Self-compassion moderates body comparison and appearance self-worth's inverse relationships with body appreciation. *Body Image, 15*, 1–7. https://doi.org/10.1016/j.bodyim.2015.04.007

Inwood, E., & Ferrari, M. (2018). Mechanisms of change in the relationship between self‐compassion, emotion regulation, and mental health: A systematic review. *Applied Psychology: Health and Well‐Being, 10*(2), 215-235. doi: 10.1111/aphw.12127

Johnson, E. A., & O'Brien, K. A. (2013). Self-compassion soothes the savage ego-threat system: Effects on negative affect, shame, rumination, and depressive symptoms. *Journal of Social and Clinical Psychology, 32*(9), 939–963. https://doi.org/10.1521/jscp.2013.32.9.939. doi: 10.1521/jscp.2013.32.9.939

Johnston, R., Jones, K., & Manley, D. (2018). Confounding and collinearity in regression analysis: a cautionary tale and an alternative procedure, illustrated by studies of British voting behaviour. *Quality & Quantity, 52*(4), 1957-1976. https://doi.org/10.1007/s11135-017-0584-6

Jones, J. M., Bennett, S., Olmsted, M. P., Lawson, M. L., & Rodin, G. (2001). Disordered eating attitudes and behaviours in teenaged girls: A school-based study*. Canadian Medical Association Journal, 165(5)*, 547–552.

Kazdin, A. E. (2007) Mediators and mechanisms of change in psychotherapy research. *Annual Review of Clinical Psychology*, *3*, 1-27. doi: 10.1146/annurev.clinpsy.3.022806.091432

Kelly, A. C., & Carter, J. C. (2014). Eating disorder subtypes differ in their rates of psychosocial improvement over treatment. *Journal of Eating Disorders, 2*, 1–10. doi: 10.1186/2050-2974-2-2

Kelly, A. C., & Carter, J. C. (2015). Self‐compassion training for binge eating disorder: A pilot randomized controlled trial*. Psychology and Psychotherapy: Theory, Research and Practice, 88*(3), 285-303. https://doi.org/10.1111/papt.12044

Kelly, A. C., Carter, J. C., & Borairi, S. (2014). Are improvements in shame and self‐compassion early in eating disorders treatment associated with better patient outcomes?. *International Journal of Eating Disorders, 47*(1), 54-64. https://doi.org/10.1002/eat.22196

Kelly, A. C., Carter, J. C., Zuroff, D. C., & Borairi, S. (2013). Self-compassion and fear of self-compassion interact to predict response to eating disorders treatment: A preliminary investigation. *Psychotherapy Research, 23*, 252–264. doi 10.1080/10503307.2012.717310

Kelly, A. C., & Dupasquier, J. (2016). Social safeness mediates the relationship between recalled parental warmth and the capacity for self-compassion and receiving compassion. *Personality and Individual Differences*, *89*, 157-161. doi: 10.1016/j.paid.2015.10.017

Kelly, A. C., Miller, K. E., & Stephen, E. (2016). The benefits of being self-compassionate on days when interactions with body-focused others are frequent. *Body Image*, *19*, 195-203. doi: 10.1016/j.bodyim.2016.10.005

Kelly, A. C., & Stephen, E. (2016). A daily diary study of self-compassion, body image, and eating behavior in female college students. *Body Image, 17*, 152–160. doi: 10.1016/j.bodyim.2016.03.006

Kelly, A. C., & Tasca, G. A. (2016). Within-persons predictors of change during eating disorders treatment: An examination of self-compassion, self-criticism, shame, and eating disorder symptoms. *International Journal of Eating Disorders, 49*(7), 716-722. https://doi.org/10.1002/eat.22527

Kelly, A. C., Vimalakanthan, K., & Miller, K. E. (2014). Self-compassion moderates the relationship between body mass index and both eating disorder pathology and body image flexibility. *Body Image, 11*, 446–453. doi: 10.1016/j.bodyim.2014.07.005

Kelly, A. C., & Waring, S. V. (2018). A feasibility study of a 2-week self-compassionate letter-writing intervention for nontreatment seeking individuals with typical and atypical anorexia nervosa. *International Journal of Eating Disorders, 51*, 1005–1009. doi: 10.1002/eat.22930

Kelly, A. C., Wisniewski, L., Martin‐Wagar, C., & Hoffman, E. (2017). Group‐based compassion‐focused therapy as an adjunct to outpatient treatment for eating disorders: A pilot randomized controlled trial. *Clinical Psychology & Psychotherapy*, *24*, 475-487. doi: 10.1002/cpp.2018

Keski-Rahkonen, A., & Mustelin, L. (2016). Epidemiology of eating disorders in Europe: Prevalence, incidence, comorbidity, course, consequences, and risk factors. *Current Opinion in Psychiatry, 29*(6)*,* 340–345. https://doi.org/10.1097/YCO.0000000000000278

Kilpela, L. S., Blomquist, K., Verzijl, C., Wilfred, S., Beyl, R., & Becker, C. B. (2016). The body project 4 all: A pilot randomized controlled trial of a mixed‐gender dissonance‐based body image program. *International Journal of Eating Disorders*, *49*(6), 591-602. doi: 10.1002/eat.22562

Kirby, J. N., Tellegen, C. L., & Steindl, S. R. (2017). A meta-analysis of compassion-based interventions: Current state of knowledge and future directions. *Behavior Therapy, 48*(6), 778-792. https://doi.org/10.1016/j.beth.2017.06.003

Kirby, J. N. (2017). Compassion interventions: The programmes, the evidence, and implications for research and practice. *Psychology and Psychotherapy: Theory, Research and Practice*, *90*(3), 432-455. https://doi.org/10.1111/papt.12104

Klimecki, O. M., Leiberg, S., Ricard, M., & Singer, T. (2014). Differential pattern of functional brain plasticity after compassion and empathy training. *Social Cognitive and Affective Neuroscience*, *9*, 873-879. doi: 10.1093/scan/nst060

Kramer, R., & Cuccolo, K. (2019). Yoga practice in a college sample: associated changes in eating disorder, body image, and related factors over time. *Eating Disorders*, 1-19. doi: 10.1080/10640266.2019.1688007

Krieger, T., Martig, D. S., van den Brink, E., & Berger, T. (2016). Working on self-compassion online: A proof of concept and feasibility study. *Internet Interventions*, *6*, 64-70. https://doi.org/10.1016/j.invent.2016.10.001

Krygier, J. R., Heathers, J. A., Shahrestani, S., Abbott, M., Gross, J. J., & Kemp, A. H. (2013). Mindfulness meditation, well-being, and heart rate variability: a preliminary investigation into the impact of intensive Vipassana meditation. *International Journal of Psychophysiology*, *89*(3), 305-313. doi: 10.1016/j.ijpsycho.2013.06.017

Kukk, K., & Akkermann, K. (2020). Emotion regulation difficulties and dietary restraint independently predict binge eating among men. *Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity*, *25*(6), 1553-156. https://doi.org/10.1007/s40519-019-00791-9

Lavender, J. M., Wonderlich, S. A., Engel, S. G., Gordon, K. H., Kaye, W. H., & Mitchell, J. E. (2015). Dimensions of emotion dysregulation in anorexia nervosa and bulimia nervosa: A conceptual review of the empirical literature. *Clinical Psychology Review, 40*, 111-122. doi: 10.1016/j.cpr.2015.05.010

Lavender, J. M., Wonderlich, S. A., Peterson, C. B., Crosby, R. D., Engel, S. G., Mitchell, J. E., ... & Berg, K. C. (2014). Dimensions of emotion dysregulation in bulimia nervosa. *European Eating Disorders Review*, *22*, 212-216. doi: 10.1002/erv.2288.

Leary, M. R., Tate, E. B., Adams, C. E., Allen, A. B., & Hancock, J. (2007). Self-compassion and reactions to unpleasant self-relevant events: The implications of treating oneself kindly. *Journal of Personality and Social Psychology, 92*(5), 887–904. https://doi.org/10.1037/0022-3514.92.5.887

Leehr, E. J., Krohmer, K., Schag, K., Dresler, T., Zipfel, S., & Giel, K. E. (2015). Emotion regulation model in binge eating disorder and obesity-a systematic review. *Neuroscience & Biobehavioral Reviews, 49*, 125-134. DOI: 10.1016/j.neubiorev.2014.12.008

Levinson, C. A., Vanzhula, I. A., Brosof, L. C., & Forbush, K. (2018). Network analysis as an alternative approach to conceptualizing eating disorders: Implications for research and treatment. *Current Psychiatry Reports*, *20*(9), 1-15. https://doi.org/10.1007/s11920-018-0930-y

Lilenfeld, L. R., Wonderlich, S., Riso, L. P., Crosby, R., & Mitchell, J. (2006). Eating disorders and personality: A methodological and empirical review. *Clinical Psychology Review, 26*(3), 299-320. https://doi.org/10.1016/j.cpr.2005.10.003

Limbers, C. A., Cohen, L. A., & Gray, B. A. (2018). Eating disorders in adolescent and young adult males: prevalence, diagnosis, and treatment strategies. *Adolescent Health, Medicine and Therapeutics, 9*, 111-116. doi: 10.2147/AHMT.S147480

Linardon, J., Wade, T. D., de la Piedad Garcia, X., & Brennan, L. (2017). The efficacy of cognitive-behavioral therapy for eating disorders: A systematic review and meta-analysis. *Journal of Consulting and Clinical Psychology, 85*(11), 1080-1094. https://doi.org/10.1037/ccp0000245

Linnett, R. J., & Kibowski, F. (2019) A multidimensional approach to perfectionism and self-compassion. *Self Identity*, 1-27. doi: 10.1080/15298868.2019.1669695

Lonergan, A. R., Bussey, K., Mond, J., Brown, O., Giffiths, S., Muray, S. B., & Mitchison, D. (2019). Me, my selfie, and I: The relationship between editing and posting selfies and body dissatisfaction in men and women. *Body Image, 28*, 39-43. doi: 10.1016/j.bodyim.2018.12.001

Luethcke, C. A., McDaniel, L., & Becker, C. B. (2011). A comparison of mindfulness, nonjudgmental, and cognitive dissonance-based approaches to mirror exposure. *Body Image*, *8*(3), 251-258. https://doi.org/10.1016/j.bodyim.2011.03.006

Luoma, J. B., & Platt, M. G. (2015). Shame, self-criticism, self-stigma, and compassion in Acceptance and Commitment Therapy*. Current Opinion in Psychology, 2*, 97-101. https://doi.org/ 10.1016/j.copsyc.2014.12.016

Luoma, J. B., Kohlenberg, B. S., Hayes, S. C., & Fletcher, L. (2012). Slow and steady wins the race: A randomized clinical trial of acceptance and commitment therapy targeting shame in substance use disorders. *Journal of Consulting and Clinical Psychology, 80*(1), 43-53. https://doi.org/10.1037/a0026070

MacBeth, A., & Gumley, A. (2012). Exploring compassion: a meta-analysis of the association between self-compassion and psychopathology. *Clinical Psychology Review, 32*, 545-552. doi: 10.1016/j.cpr.2012.06.003

Marschall, D. E., Saftner, J., & Tangney, J. P. (1994). The state guilt and shame scale. *George Mason University*.

Marsh, I. C., Chan, S. W., & MacBeth, A. (2018). Self-compassion and psychological distress in adolescents-a meta-analysis. *Mindfulness, 9*, 1011-1027. doi: 10.1007/s12671-017-0850-7

Marta-Simões, J., & Ferreira, C. (2018). Self-to-others and self-to-self relationships: paths to understanding the valence of body image and eating attitudes in emerging adult women. *Eating and Weight Disorders, 0*, 1-8. doi: 10.1007/s40519-018-0612-0

Marta-Simões, J., Ferreira, C., & Mendes, A. L. (2016). Exploring the effect of external shame on body appreciation among Portuguese young adults: The role of self-compassion*. Eating Behaviors, 23*, 174-179. doi: 10.1016/j.eatbeh.2016.10.006

Matos, M., Carvalho, S. A., Cunha, M., Galhardo, A., & Sepodes, C. (2017). Psychological flexibility and self-compassion in gay and heterosexual men: How they relate to childhood memories, shame, and depressive symptoms. *Journal of LGBT Issues in Counseling, 11*(2), 88-105. https://doi.org/10.1080/15538605.2017.1310007

Matos, M., Pinto-Gouveia, J., Gilbert, P., Duarte, C., & Figueiredo, C. (2015). The Other As Shamer Scale–2: Development and validation of a short version of a measure of external shame. *Personality and Individual Differences*, *74*, 6-11. doi: 10.1016/j.paid.2014.09.037

Maxwell, S. E., Cole, D. A., & Mitchell, M. A. (2011). Bias in cross-sectional analyses of longitudinal mediation: Partial and complete mediation under an autoregressive model. *Multivariate Behavioral Research*, *46*(5), 816-841. doi: 10.1080/00273171.2011.606716

McCarthy, M. (1990). The thin ideal, depression and eating disorders in women. *Behaviour Research and Therapy*, *28*, 205-214. doi: 10.1016/0005-7967(90)90003-2

McKinley, N. M., & Hyde, J. S. (1996). The objectified body consciousness scale: Development and validation. *Psychology of Women Quarterly*, *20*, 181-215. doi: 10.1111/j.1471-6402.1996.tb00467.x

McManus, F., & Waller, G. (1995). A functional analysis of binge-eating. *Clinical Psychology Review, 15*(8), 845–863. https://doi.org/10.1016/0272-7358(95)00042-9

Melioli, T., Bauer, S., Franko, D. L., Moessner, M., Ozer, F., Chabrol, H., & Rodgers, R. F. (2016). Reducing eating disorder symptoms and risk factors using the internet: A meta‐analytic review. *International Journal of Eating Disorders*, *49*(1), 19-31. https://doi.org/10.1002/eat.22477

Meyer, C., McPartlan, L., Sines, J., & Waller, G. (2009). Accuracy of self‐reported weight and height: Relationship with eating psychopathology among young women. *International Journal of Eating Disorders*, *42*(4), 379-381. doi: 10.1002/eat.20618

Modica, C. (2019). Facebook, body esteem, and body surveillance in adult women: The moderating role of self-compassion and appearance-contingent self-worth. *Body Image, 29*, 17–30. doi: 10.1016/j.bodyim.2019.02.002

Moffitt, R. L., Neumann, D. L., & Williamson, S. P. (2018). Comparing the efficacy of a brief self-esteem and self-compassion intervention for state body dissatisfaction and self-improvement motivation. *Body Image, 27,* 67–76. doi: 10.1016/j.bodyim.2018.08.008

Mond, J. M., Hay, P. J., Rodgers, B., & Owen, C. (2006). Eating Disorder Examination Questionnaire (EDE-Q): norms for young adult women. *Behaviour Research and Therapy, 44*(1)*,* 53-62. https://doi.org/10.1016/j.brat.2004.12.003

Mosewich, A. D., Kowalski, K. C., Sabiston, C. M., Sedgwick, W. A., & Tracy, J. L. (2011). Self-compassion: a potential resource for young women athletes. *Journal of Sport & Exercise Psychology, 33*, 103-123. doi: 10.1123/jsep.33.1.103

Muris, P., & Petrocchi, N. (2017). Protection or vulnerability? A meta-analysis of the relations between the positive and negative components of self-compassion and psychopathology*. Clinical Psychology & Psychotherapy, 24*, 373-383. doi: 10.1002/cpp.2005

Mustapic, J., Marcinko, D., & Vargek, P. (2015). Eating behaviours in adolescent girls: the role of body shame and body dissatisfaction. *Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity, 20*(3), 329-335. https://doi.org/10.1007/s40519-015-0183-2

National Institute for Health and Care Excellence (2017). *Eating disorders: Recognition and treatment.* National Institute for Health and Care Excellence.

Neff, K. (2003a). Self-compassion: An alternative conceptualization of a healthy attitude toward oneself. *Self and Identity, 2*(2), 85-101. https://doi.org/10.1080/15298860309032

Neff, K. D. (2003b). The development and validation of a scale to measure self-compassion. *Self and Identity*, *2*(3), 223-250. doi: 10.1080/15298860390209035

Neff, K. D. (2011). Self‐compassion, self‐esteem, and well‐being. *Social and Personality Psychology Compass, 5*(1), 1-12. https://doi.org/10.1111/j.1751-9004.2010.00330.x

Neff, K. D., & Dahm, K. A. (2015). Self-compassion: What it is, what it does, and how it relates to mindfulness. In B. D. Ostafin, M. D. Robinson, & B. P. Meier (Eds.), *Handbook of mindfulness and self-regulation* (pp. 121–137). Springer Science + Business Media. https://doi.org/10.1007/978-1-4939-2263-5\_10

Neff, K. D., & McGehee P. (2010). Self-compassion and psychological resilience among adolescents and young adults, *Self and Identity, 9*(3), 225-240. https://doi.org/ 10.1080/15298860902979307

Neff, K. D., Hsieh, Y. P., & Dejitterat, K. (2005). Self-compassion, achievement goals, and coping with academic failure. *Self and Identity, 4*(3), 263-287. DOI: 10.1080/13576500444000317

Neff, K. D., Kirkpatrick, K. L., & Rude, S. S. (2007). Self-compassion and adaptive psychological functioning. *Journal of Research in Personality, 41*(1), 139–154. https://doi.org/10.1016/j.jrp.2006.03.004

Neff, K. D., Pisitsungkagarn, K., & Hsieh, Y.-P. (2008). Self-compassion and self-construal in the United States, Thailand, and Taiwan. *Journal of Cross-Cultural Psychology, 39*(3), 267–285. https://doi.org/10.1177/0022022108314544

Nolen-Hoeksema, S. (1991). Responses to depression and their effects on the duration of depressive episodes. *Journal of Abnormal Psychology, 100*(4), 569. https://doi.org/ 10.1037//0021-843x.100.4.569

Nolen-Hoeksema, S., Wisco, B. E., & Lyubomirsky, S. (2008). Rethinking rumination. *Perspectives on Psychological Science, 3(*5), 400-424. https://doi.org/10.1111/j.1745-6924.2008.00088.x

Ogden, P., Minton, K., & Pain, C. (2006). *Trauma and the body: A sensorimotor approach to psychotherapy (Norton series on interpersonal neurobiology).* WW Norton & Company.

Oliveira, V., Ferreira, C., Mendes, A. L., & Marta-Simões, J. (2017). Shame and eating psychopathology in Portuguese women: Exploring the roles of self-judgment and fears of receiving compassion*. Appetite*, 110, 80–85. doi: 10.1016/j.appet.2016.12.012.

Padierna, A., Quintana, J. M., Arostegui, I., Gonzalez, N., & Horcajo, M. J. (2000). The health-related quality of life in eating disorders. *Quality of Life Research, 9*(6), 667–674. https://doi.org/10.1023/A:1008973106611

Palmeira, L., Cunha, M., & Pinto-Gouveia, J. (2017). Processes of change in quality of life, weight self-stigma, body mass index and emotional eating after an acceptance-, mindfulness- and compassion-based group intervention (Kg-Free) for women with overweight and obesity. *Journal of Health Psychology, 24,* 1056-1069.doi: 10.1177/1359105316686668

Petrocchi, N., Ottaviani, C., & Couyoumdjian, A. (2017). Compassion at the mirror: Exposure to a mirror increases the efficacy of a self-compassion manipulation in enhancing soothing positive affect and heart rate variability. *The Journal of Positive Psychology*, *12*(6), 525-536. https://doi.org/10.1080/17439760.2016.1209544

Pinto-Gouveia, J., Carvalho, S. A., Palmeira, L., Castilho, P., Duarte, C., Ferreira, C., … Costa, J. (2017). BEfree: A new psychological program for binge eating that integrates psychoeducation, mindfulness, and compassion. *Clinical Psychology and Psychotherapy, 24*, 1090–1098. doi: 10.1002/cpp.2072

Pinto-Gouveia, J., Carvalho, S. A., Palmeira, L., Castilho, P., Duarte, C., Ferreira, C., ... & Costa, J. (2019). Incorporating psychoeducation, mindfulness and self-compassion in a new programme for binge eating (BEfree): Exploring processes of change. *Journal of Health Psychology, 24*, 466-479. doi: 10.1177/1359105316676628

Pinto-Gouveia, J., Ferreira, C., & Duarte, C. (2014). Thinness in the pursuit for social safeness: an integrative model of social rank mentality to explain eating psychopathology. *Clinical Psychology & Psychotherapy, 21*, 154–165. doi: 10.1002/cpp.1820

Pisitsungkagarn, K., Taephant, N., & Attasaranya, P. (2014). Body image satisfaction and self-esteem in Thai female adolescents: the moderating role of self-compassion. *International Journal of Adolescent Medicine and Health, 26*, 333-338. doi: 10.1515/ijamh-2013-0307

Polivy, J., & Herman, C. P. (2002). Causes of eating disorders. *Annual Review of Psychology, 53*(1), 187-213. https://doi.org/10.1146/annurev.psych.53.100901.135103

Pook, M., Tuschen-Caffier, B., & Brähler, E. (2008). Evaluation and comparison of different versions of the Body Shape Questionnaire. *Psychiatry Research*, *158*(1), 67-73. https://doi.org/10.1016/j.psychres.2006.08.002

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, *40*(3), 879–891. https://doi.org/10.3758/BRM.40.3.879

Pritchard, M. (2008). Disordered eating in undergraduates: Does gender role orientation influence men and women the same way? *Sex Roles*, *59*, 282-289. doi: 10.1007/s11199-008-9449-8

Pullmer, R., Coelho, J. S., & Zaitsoff, S. L. (2019). Kindness begins with yourself: The role of self‐compassion in adolescent body satisfaction and eating pathology. *International Journal of Eating Disorders, 52*(7), 809-816. https://doi.org/10.1002/eat.23081

Pullmer, R., Zaitsoff, S. L., & Coelho, J. S. (2019). Self-compassion and eating pathology in female adolescents with eating disorders: the mediating role of psychological distress. *Mindfulness, 10*, 2716-2723. doi: 10.1007/s12671-019-01254-z

Raes, F., Pommier, E., Neff, K. D., & Van Gucht, D. (2011). Construction and factorial validation of a short form of the Self-Compassion Scale. *Clinical Psychology & Psychotherapy*, *18*, 250-255. doi: 10.1002/cpp.702

Raque-Bogdan, T. L., Piontkowski, S., Hui, K., Ziemer, K. S., & Garriott, P. O. (2016). Self-compassion as a mediator between attachment anxiety and body appreciation: An exploratory model. *Body Image, 19,* 28-36. doi: 10.1016/j.bodyim.2016.08.001

Rice, K. G., & Preusser, K. J. (2002). The adaptive/maladaptive perfectionism scale. *Measurement and evaluation in Counseling and Development*, *34*(4), 210-222. doi: 10.1080/07481756.2002.12069038

Rice, K. G., Richardson, C. M., & Tueller, S. (2014). The short form of the revised almost perfect scale. *Journal of Personality Assessment, 96*(3), 368-379. https://doi.org/10.1080/00223891.2013.838172

Rodgers, R. F., Donovan, E., Cousineau, T., Yates, K., McGowan, K., Cook, E., … Franko, D. L. (2018). BodiMojo: efficacy of a mobile-based intervention in improving body image and self-compassion among adolescents. *Journal of Youth and Adolescence, 47*, 1363–1372. doi: 10.1007/s10964-017-0804-3

Rose, J. S., Vaewsorn, A., Rosselli-Navarra, F., Wilson, G. T., & Weissman, R. S. (2013). Test-retest reliability of the eating disorder examination-questionnaire (EDE-Q) in a college sample. *Journal of Eating Disorders, 1*(1), 42. https://doi.org/10.1186/2050-2974-1-42

Rosen, J. C., Jones, A., Ramirez, E., & Waxman, S. (1996). Body Shape Questionnaire: Studies of validity and reliability. *International Journal of Eating Disorders, 20*(3), 315-319. https://doi.org/10.1002/(SICI)1098-108X(199611)20:3<315::AID-EAT11>3.0.CO;2-Z

Rosenthal, R. (1993). *Meta-analytic procedures for social research*. Newbury Park, CA: Sage

Schaefer, L. M., Smith, K. E., Leonard, R., Wetterneck, C., Smith, B., Farrell, N., ... & Anderson, D. A. (2018). Identifying a male clinical cutoff on the Eating Disorder Examination-Questionnaire (EDE‐Q). *International Journal of Eating Disorders, 51*(12), 1357-1360. https://doi.org/10.1002/eat.22972

Schmidt, C. K., Raque-Bogdan, T. L., & Hollern, E. A. (2019). Self-compassion, affect, and body image in college women. *Journal of College Counseling, 22*, 152-163. doi: 10.1002/jocc.12127

Schmidt, U., & Treasure, J. (2006). Anorexia nervosa: Valued and visible. A cognitive‐interpersonal maintenance model and its implications for research and practice. *British Journal of Clinical Psychology, 45*(3), 343-366. doi: 10.1348/014466505x53902

Schoenefeld, S. J., & Webb, J. B. (2013). Self-compassion and intuitive eating in college women: Examining the contributions of distress tolerance and body image acceptance and action. *Eating Behaviors, 14*, 493–496. doi: 10.1016/j.eatbeh.2013.09.001

Seekis, V., Bradley, G. L., & Duffy, A. (2017). The effectiveness of self-compassion and self-esteem writing tasks in reducing body image concerns. *Body Image, 23*, 206–213. doi: 10.1016/j.bodyim.2017.09.003

Seekis, V., Bradley, G. L., & Duffy, A. L. (2020). Does a Facebook-enhanced mindful self-compassion intervention improve body image? An evaluation study. *Body Image*, *34*, 259-269. https://doi.org/10.1016/j.bodyim.2020.07.006

Sekhon, M., Cartwright, M., & Francis, J. J. (2017). Acceptability of healthcare interventions: an overview of reviews and development of a theoretical framework. *BMC Health Services Research*, *17*(1), 1-13. https://doi.org/10.1186/s12913-017-2031-8

Simpson, C. C., Burnette, C. B., & Mazzeo, S. E. (2020). Integrating eating disorder and weight gain prevention: A pilot and feasibility trial of INSPIRE. *Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity*, *25*(3), 761-775. doi: 10.1007/s40519-019-00685-w

Skivington, K., Matthews, L., Simpson, S. A., Craig, P., Baird, J., Blazeby, J. M., ... & Moore, L. (2021). A new framework for developing and evaluating complex interventions: update of Medical Research Council guidance. *bmj*, *374*. https://doi.org/10.1136/bmj.n2061

Slaney, R. B., Rice, K. G., Mobley, M., Trippi, J., & Ashby, J. S. (2001). The revised almost perfect scale. *Measurement and Evaluation in Counseling and Development*, *34*(3), 130-145. doi: 10.1080/07481756.2002.12069030

Slevec, J., & Tiggemann, M. (2011). Media exposure, body dissatisfaction, and disordered eating in middle-aged women: A test of the sociocultural model of disordered eating. *Psychology of Women Quarterly, 35*(4), 617–627. https://doi.org/10.1177/0361684311420249

Smink, F. R. E., Van Hoeken, D., & Hoek, H. W. (2012). Epidemiology of eating disorders: Incidence, prevalence and mortality rates. *Current Psychiatry Reports, 14*(4), 406–414. https://doi.org/10.1007/s11920-012-0282-y

Smith, K. E., Mason, T. B., & Lavender, J. M. (2018). Rumination and eating disorder psychopathology: A meta-analysis. *Clinical Psychology Review*, *61*, 9-23. doi: 10.1016/j.cpr.2018.03.004

Smith, K. E., Mason, T. B., Johnson, J. S., Lavender, J. M., & Wonderlich, S. A. (2018). A systematic review of reviews of neurocognitive functioning in eating disorders: The state-of-the-literature and future directions. *International Journal of Eating Disorders, 51*(8), 798–821. https://doi.org/10.1002/eat.22929

Smyth, J. M., Wonderlich, S. A., Heron, K. E., Sliwinski, M. J., Crosby, R. D., Mitchell, J. E., & Engel, S. G. (2007). Daily and momentary mood and stress are associated with binge eating and vomiting in bulimia nervosa patients in the natural environment*. Journal of Consulting and Clinical Psychology, 75*, 629-638. doi: 10.1037/0022-006X.75.4.629

Solmi, F., Hatch, S. L., Hotopf, M., Treasure, J., & Micali, N. (2014). Prevalence and correlates of disordered eating in a general population sample: The South East London Community Health (SELCoH) study. *Social Psychiatry and Psychiatric Epidemiology, 49*(8), 1335–1346. https://doi.org/10.1007/s00127-014-0822-3

Solmi, F., Hotopf, M., Hatch, S. L., Treasure, J., & Micali, N. (2016). Eating disorders in a multi-ethnic inner-city UK sample: prevalence, comorbidity and service use. *Social Psychiatry and Psychiatric Epidemiology*, *51*, 369-381. doi: 10.1007/s00127-015-1146-7

Spitzer, R. L., Kroenke, K., Williams, J. B., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: the GAD-7. *Archives of Internal Medicine*, *166*(10), 1092-1097. doi:10.1001/archinte.166.10.1092

Stapleton, P., Crighton, G. J., Carter, B., & Pidgeon, A. (2017). Self-esteem and body image in females: The mediating role of self-compassion and appearance contingent self-worth. *The Humanistic Psychologist, 45*(3), 238–257. https://doi.org/10.1037/hum0000059

Stern, N. G., & Engeln, R. (2018). Self-compassionate writing exercises increase college women’s body satisfaction. *Psychology of Women Quarterly, 42*, 326-341. Doi: 10.1177/0361684318773356

Stevens, S.E., Hynan, M.T., & Allen, M. (2000). A meta-analysis of common factors and specific treatment effects across the outcome domains of the phase model of psychotherapy. *Clinical Psychology: Science and Practice, 7*, 273-290. doi:10.1093/clipsy.7.3.273

Stice E, Marti CN, Rohde P (2013) Prevalence, incidence, impairment, and course of the proposed DSM-5 eating disorder diagnoses in an 8-year prospective community study of young women. *Journal of Abnormal Psychology, 122*(2), 445–457. doi:10.1037/a0030679

Stice, E. (2001). A prospective test of the dual-pathway model of bulimic pathology: mediating effects of dieting and negative affect. *Journal of Abnormal Psychology, 110*(1), 124-35. doi: 10.1037//0021-843x.110.1.124

Stice, E. (2002). Risk and maintenance factors for eating pathology: A meta-analytic review. *Psychological Bulletin, 128*(5), 825. https://doi.org/10.1037/0033-2909.128.5.825

Stice, E., Marti, C. N., & Rohde, P. (2013). Prevalence, incidence, impairment, and course of the proposed DSM-5 eating disorder diagnoses in an 8-year prospective community study of young women. *Journal of Abnormal Psychology*, *122*, 445-457. doi: 10.1037/a0030679

Stice, E., Rohde, P., Shaw, H., & Marti, C. N. (2012). Efficacy trial of a selective prevention program targeting both eating disorder symptoms and unhealthy weight gain among female college students. *Journal of Consulting and Clinical Psychology*, *80*(1), 164. doi: 10.1037/a0026484

Stice, E., & Shaw, H. E. (2002). Role of body dissatisfaction in the onset and maintenance of eating pathology: A synthesis of research findings. *Journal of Psychosomatic Research, 53*(5), 985-993. doi: 10.1016/s0022-3999(02)00488-9

Stoeber, J., Lalova, A. V., & Lumley, E. J. (2020). Perfectionism, (self-) compassion, and subjective well-being: A mediation model. *Personality and Individual Differences, 154*, 109708. https://doi.org/10.1016/j.paid.2019.109708

Striegel-Moore, R. H., & Bulik, C. M. (2007). Risk factors for eating disorders. *American Psychologist, 62*(3), 181–198. https://doi.org/10.1037/0003-066X.62.3.181

Stutts, L. A., & Blomquist, K. K. (2018). The moderating role of self‐compassion on weight and shape concerns and eating pathology: A longitudinal study. *International Journal of Eating Disorders, 51*, 879-889. doi: 10.1002/eat.22880

Suurmond, R., van Rhee, H., & Hak, T. (2017). Introduction, comparison, and validation of Meta‐Essentials: A free and simple tool for meta‐analysis. *Research Synthesis Methods*, *8*, 537-553. doi: 10.1002/jrsm.1260

Svaldi, J., Griepenstroh, J., Tuschen-Caffier, B., & Ehring, T. (2012). Emotion regulation deficits in eating disorders: A marker of eating pathology or general psychopathology? *Psychiatry Research, 197*(1), 103-111. https://doi.org/10.1016/j.psychres.2011.11.009

Tangney, J. P., & Dearing, R. L. (2002). Gender differences in morality. In R. F. Bornstein & J. M. Masling (Eds.), *The psychodynamics of gender and gender role* (pp. 251–269). American Psychological Association. [https://doi.org/10.1037/10450-007](https://psycnet.apa.org/doi/10.1037/10450-007)

Tangney, J. P., Wagner, P., Fletcher, C., & Gramzow, R. (1992). Shamed into anger? The relation of shame and guilt to anger and self-reported aggression. *Journal of Personality and Social Psychology, 62*(4)*,* 669–675. https://doi.org/10.1037/0022-3514.62.4.669

Taylor, M. B., Daiss, S., & Krietsch, K. (2015). Associations among self-compassion, mindful eating, eating disorder symptomatology, and body mass index in college students*. Translational Issues in Psychological Science, 1*, 229–238. doi: 10.1037/tps0000035

Templeton, Gary F. (2011). A two-step approach for transforming continuous variables to normal: implications and recommendations for IS research." *Communications of the Association for Information Systems*, *28*(1), 41-58. doi:10.17705/1CAIS.02804

Thomas, B. H., Ciliska, D., Dobbins, M., & Micucci, S. (2004). A process for systematically reviewing the literature: Providing the research evidence for public health nursing interventions. *Worldviews on Evidence-Based Nursing, 1*, 176-184. doi: 10.1111/j.1524-475X.2004.04006.x

Thompson, J. K., Heinberg, L. J., Altabe, M., & Tantleff-Dunn, S. (1999). *Exacting beauty: Theory, assessment, and treatment of body image disturbance*. Washington, DC: American Psychological Association.

Thompson, R., & Zuroff, D. C. (2004). The Levels of Self-Criticism Scale: comparative self-criticism and internalized self-criticism. *Personality and Individual Differences*, *36*(2), 419-430. https://doi.org/10.1016/S0191-8869(03)00106-5

Toole, A. M., & Craighead, L. W. (2016). Brief self-compassion meditation training for body image distress in young adult women. *Body Image, 19*, 104-112. <https://doi.org/10.1016/j.bodyim.2016.09.001>

Turk, F., & Waller, G. (2020). Is self-compassion relevant to the pathology and treatment of eating and body image concerns? A systematic review and meta-analysis. *Clinical Psychology Review*, *79*, 101856*.* doi: 10.1016/j.cpr.2020.101856

Turk, F., Kellett, S., & Waller, G. (2021a). Determining the potential links of self-compassion with eating pathology and body image among women and men: A cross-sectional mediational study. *Body Image*, *37*, 28-37. doi: 10.1016/j.bodyim.2021.01.007

Turk, F., Kellett, S., & Waller, G. (2021b). Determining the potential link of self-compassion with eating pathology and body image among women: a longitudinal mediational study. *Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity*, *26*(8), 2683-2691. https://doi.org/10.1007/s40519-021-01144-1

Tylka, T. L., & Kroon Van Diest, A. M. (2015). You looking at her “hot” body may not be “cool” for me: Integrating male partners’ pornography use into objectification theory for women. *Psychology of Women Quarterly*, *39*(1), 67-84. [https://doi.org/10.1177/0361684314521784](https://doi.org/10.1177%2F0361684314521784)

Tylka, T. L., Russell, H. L., & Neal, A. A. (2015). Self-compassion as a moderator of thinness-related pressures’ associations with thin-ideal internalization and disordered eating*. Eating Behaviors, 17*, 23–26. doi: 10.1016/j.eatbeh.2014.12.009

Tylka, T. L., & Wood-Barcalow, N. L. (2015). What is and what is not positive body image? Conceptual foundations and construct definition. *Body Image*, *14*, 118-129. doi: 10.1016/j.bodyim.2015.04.001

Van de Mortel, T. F. (2008). Faking it: social desirability response bias in self-report research. *Australian Journal of Advanced Nursing,* *25*, 40-48.

Van Strien, T., Frijters, J. E., Bergers, G. P., & Defares, P. B. (1986). The Dutch Eating Behavior Questionnaire (DEBQ) for assessment of restrained, emotional, and external eating behavior. *International Journal of Eating Disorders*, *5*, 295-315. doi.org: 10.1002/1098-108X(198602)5:2<295::AID-EAT2260050209>3.0.CO;2-T

Voelker, D. K., Petrie, T. A., Huang, Q., & Chandran, A. (2019). Bodies in Motion: An empirical evaluation of a program to support positive body image in female collegiate athletes. *Body Image*, *28*, 149-158. <https://doi.org/10.1016/j.bodyim.2019.01.008>

Waller, G., & Raykos, B. (2019). Behavioral interventions in the treatment of eating disorders. *Psychiatric Clinics*, *42*(2), 181-191. doi :10.1016/j.psc.2019.01.002

Wang, S. B., & Borders, A. (2018). The unique effects of angry and depressive rumination on eating-disorder psychopathology and the mediating role of impulsivity. *Eating Behaviors, 29,* 41-47. https://doi.org/10.1016/j.eatbeh.2018.02.004

Warren, C. S., Cepeda‐Benito, A., Gleaves, D. H., Moreno, S., Rodriguez, S., Fernandez, M. C., ... & Pearson, C. A. (2008). English and Spanish versions of the Body Shape Questionnaire: Measurement equivalence across ethnicity and clinical status. *International Journal of Eating Disorders*, *41*(3), 265-272.  https://doi.org/10.1002/eat.20492

Warren, R., Smeets, E., & Neff, K. (2016). Self-criticism and self-compassion: Risk and resilience: Being compassionate to oneself is associated with emotional resilience and psychological well-being. *Current Psychiatry, 15*(12), 18-28.

Wasylkiw, L., MacKinnon, A. L., & MacLellan, A. M. (2012). Exploring the link between self-compassion and body image in university women. *Body Image, 9*, 236–245. doi: 10.1016/j.bodyim.2012.01.007

Webb, J. B., Fiery, M. F., & Jafari, N. (2016). “You better not leave me shaming!”: Conditional indirect effect analyses of anti-fat attitudes, body shame, and fat talk as a function of self-compassion in college women. *Body Image, 18*, 5–13. doi: 10.1016/j.bodyim.2016.04.009

Webb, J. B., & Forman, M. J. (2013). Evaluating the indirect effect of self-compassion on binge eating severity through cognitive–affective self-regulatory pathways. *Eating Behaviors, 14*(2), 224-228. https://doi.org/10.1016/j.eatbeh.2012.12.005

Webb, J. B., & Hardin, A. S. (2016). An integrative affect regulation process model of internalized weight bias and intuitive eating in college women. *Appetite, 102*, 60–69. doi: 10.1016/j.appet.2016.02.024

Welch, E., Lagerström, M., & Ghaderi, A. (2012). Body Shape Questionnaire: Psychometric properties of the short version (BSQ-8C) and norms from the general Swedish population. *Body Image*, *9*(4), 547-550.<https://doi.org/10.1016/j.bodyim.2012.04.009>

Williams, M. O., Tsivos, Z., Brown, S., Whitelock, N. S., & Sampson, M. (2017). Compassion-focused therapy for bulimia nervosa and bulimic presentations: a preliminary case series. *Behaviour Change, 34*, 199–207. doi: 10.1017/bec.2017.13

Windgassen, S., Goldsmith, K., Moss-Morris, R., & Chalder, T. (2016). Establishing how psychological therapies work: the importance of mediation analysis. *Journal of Mental Health, 25,* 93-9. https://doi.org/10.3109/09638237.2015.1124400

Wonderlich, S. A., Engel, S. G., Peterson, C. B., Robinson, M. D., Crosby, R. D., Mitchell, J. E., ... & Strauman, T. J. (2008). Examining the conceptual model of integrative cognitive‐affective therapy for BN: Two assessment studies. *International Journal of Eating Disorders, 41,* 748-754. doi: 10.1002/eat.20551

Yarnell, L. M., Neff, K. D., Davidson, O. A., & Mullarkey, M. (2019). Gender differences in self-compassion: Examining the role of gender role orientation. *Mindfulness, 10*(6), 1136-1152. https://doi.org/10.1007/s12671-018-1066-17

Zessin, U., Dickhäuser, O., & Garbade, S. (2015). The relationship between self-compassion and well-being: A meta-analysis. *Applied Psychology: Health and Well-Being, 7*(3), 340–364. https://doi.org/10.1111/aphw.12051

Ziemer, K. S., Lamphere, B. R., Raque-Bogdan, T. L., & Schmidt, C. K. (2019). A randomized controlled study of writing interventions on college women’s positive body image. *Mindfulness, 10*, 66–77. doi: 10.1007%2Fs12671-018-0947-7

Zilcha-Mano, S. (2021). Toward personalized psychotherapy: The importance of the trait-like/state-like distinction for understanding therapeutic change. *American Psychologist, 76*(3), 516–528. https://doi.org/10.1037/amp0000629

# Appendices

## Appendix 1A. Effective Public Health Practice Project (EPHPP) Quality Assessment Tool

Table

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## ****Appendix 2A. Study 1 and 2 ethical approvals****

Graphical user interface, application, Word

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## ****Appendix 2B. Study 1 Pre-registration Form****

Graphical user interface, application, Word

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## ****Appendix 2C****. Study 1 and 2 Questionnaires

**Other as Shamer Scale (OAS)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Never** | **Seldom** | **Sometime** | **Frequently** | **Almost always** |
| I feel other people see me as not good enough. | 0 | 1 | 2 | 3 | 4 |
| I think that other people look down on me | 0 | 1 | 2 | 3 | 4 |
| Other people put me down a lot | 0 | 1 | 2 | 3 | 4 |
| I feel insecure about others opinions of me | 0 | 1 | 2 | 3 | 4 |
| Other people see me as not measuring up to them | 0 | 1 | 2 | 3 | 4 |
| Other people see me as small and insignificant | 0 | 1 | 2 | 3 | 4 |
| Other people see me as somehow defective as a person | 0 | 1 | 2 | 3 | 4 |
| People see me as unimportant compared to others | 0 | 1 | 2 | 3 | 4 |
| Other people look for my faults | 0 | 1 | 2 | 3 | 4 |
| People see me as striving for perfection but being unable to reach my own standards | 0 | 1 | 2 | 3 | 4 |
| I think others are able to see my defects | 0 | 1 | 2 | 3 | 4 |
| Others are critical or punishing when I make a mistake | 0 | 1 | 2 | 3 | 4 |
| People distance themselves from me when I make mistakes | 0 | 1 | 2 | 3 | 4 |
| Other people always remember my mistakes | 0 | 1 | 2 | 3 | 4 |
| Others see me as fragile | 0 | 1 | 2 | 3 | 4 |
| Others see me as empty and unfulfilled | 0 | 1 | 2 | 3 | 4 |
| Others think there is something missing in me | 0 | 1 | 2 | 3 | 4 |
| Other people think I have lost control over my body and feelings | 0 | 1 | 2 | 3 | 4 |

**Self-compassion Scale (SCS)**

Please read each statement carefully before answering. Indicate how often you behave in the stated manner, using the following scale:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Almost never |  |  |  | Almost Always |
| I’m disapproving and judgmental about my own flaws and inadequacies. | 0 | 1 | 2 | 3 | 4 |
| When I’m feeling down I tend to obsess and fixate on everything that’s wrong. | 0 | 1 | 2 | 3 | 4 |
| When things are going badly for me, I see the difficulties as part of life that everyone goes through. | 0 | 1 | 2 | 3 | 4 |
| When I think about my inadequacies, it tends to make me feel more separate and cut off from the rest of the world. | 0 | 1 | 2 | 3 | 4 |
| I try to be loving towards myself when I’m feeling emotional pain. | 0 | 1 | 2 | 3 | 4 |
| When I fail at something important to me I become consumed by feelings of inadequacy. | 0 | 1 | 2 | 3 | 4 |
| When I'm down and out, I remind myself that there are lots of other people in the world feeling like I am | 0 | 1 | 2 | 3 | 4 |
| When times are really difficult, I tend to be tough on myself. | 0 | 1 | 2 | 3 | 4 |
| When something upsets me I try to keep my emotions in balance. | 0 | 1 | 2 | 3 | 4 |
| When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people. | 0 | 1 | 2 | 3 | 4 |
| I’m intolerant and impatient towards those aspects of my personality I don't like. | 0 | 1 | 2 | 3 | 4 |
| When I’m going through a very hard time, I give myself the caring and tenderness I need. | 0 | 1 | 2 | 3 | 4 |
| When I’m feeling down, I tend to feel like most other people are probably happier  than I am. | 0 | 1 | 2 | 3 | 4 |
| When something painful happens I try to take a balanced view of the situation. | 0 | 1 | 2 | 3 | 4 |
| I try to see my failings as part of the human condition. | 0 | 1 | 2 | 3 | 4 |
| When I see aspects of myself that I don’t like, I get down on myself. | 0 | 1 | 2 | 3 | 4 |
| When I fail at something important to me I try to keep things in perspective. | 0 | 1 | 2 | 3 | 4 |
| When I’m really struggling, I tend to feel like other people must be having an easier time of it. | 0 | 1 | 2 | 3 | 4 |
| I’m kind to myself when I’m experiencing suffering. | 0 | 1 | 2 | 3 | 4 |
| When something upsets me I get carried away with my feelings. | 0 | 1 | 2 | 3 | 4 |
| I can be a bit cold-hearted towards myself when I'm experiencing suffering. | 0 | 1 | 2 | 3 | 4 |
| When I'm feeling down I try to approach my feelings with curiosity and openness. | 0 | 1 | 2 | 3 | 4 |
| I’m tolerant of my own flaws and inadequacies | 0 | 1 | 2 | 3 | 4 |
| When something painful happens I tend to blow the incident out of proportion. | 0 | 1 | 2 | 3 | 4 |
| When I fail at something that's important to me, I tend to feel alone in my failure. | 0 | 1 | 2 | 3 | 4 |
| I try to be understanding and patient towards those aspects of my personality I don't  like. | 0 | 1 | 2 | 3 | 4 |

**Short Almost Perfect Scale (SAPS)**

The following items are designed to measure certain attitudes people have toward themselves, their performance, and toward others. It is important that your answers be true and accurate for you. In the space next to the statement, please enter a number from "1" (strongly disagree) to "7" (strongly agree) to describe your degree of agreement with each item.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Strongly  Disagree | Disagree | Slightly  Disagree | Neutral | Slightly  Agree | Agree | Strongly  Agree |
| I have high expectations for myself. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Doing my best never seems to be enough. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I set very high standards for myself. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I often feel disappointment after completing a task because I know I could have done better. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I have a strong need to strive for excellence. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| My performance rarely measures up to my standards. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I expect the best from myself. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I am hardly ever satisfied with my performance. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

**[The Levels of Self-Criticism Scale (LOSC)](https://www.sciencedirect.com/science/article/abs/pii/S0191886903001065)**

This questionnaire has a number of sentences that describe how different people feel about themselves.  Read each sentence and decide how much each one is true for you by choosing one of the options beside the sentence.  Please remember that there are no right or wrong answers and everyone will be choosing something different.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Strongly Disagree | | | Unsure | | Strongly Agree | | |
| 1. I am very irritable when I have failed. | 1 | 2 | 3 | 4 | 5 | | 6 | 7 |
| 2. I have a nagging sense of inferiority. | 1 | 2 | 3 | 4 | 5 | | 6 | 7 |
| 3. I am very frustrated with myself when I don't meet the standards I have for myself. | 1 | 2 | 3 | 4 | 5 | | 6 | 7 |
| 4. I am usually uncomfortable in social situations where I don't know what to expect. | 1 | 2 | 3 | 4 | 5 | | 6 | 7 |
| 5. I often get very angry with myself when I fail. | 1 | 2 | 3 | 4 | 5 | | 6 | 7 |
| 6. I don't spend much time worrying about what other people will think of me. | 1 | 2 | 3 | 4 | 5 | | 6 | 7 |
| 7.I get very upset when I fail. | 1 | 2 | 3 | 4 | 5 | | 6 | 7 |
| 8.If you are open with other people about your weaknesses, they are likely to still respect you. | 1 | 2 | 3 | 4 | 5 | | 6 | 7 |
| 9. Failure is a very painful experience for me. | 1 | 2 | 3 | 4 | 5 | | 6 | 7 |
| 10.I often worry that other people will find out what I'm really like and be upset with me. | 1 | 2 | 3 | 4 | 5 | | 6 | 7 |
| 11. I don't often worry about the possibility of failure. | 1 | 2 | 3 | 4 | 5 | | 6 | 7 |
| 12. I am confident that most of the people I care about will accept me for who I am. | 1 | 2 | 3 | 4 | 5 | | 6 | 7 |
| 13. When I don't succeed, I find myself wondering how worthwhile I am. | 1 | 2 | 3 | 4 | 5 | | 6 | 7 |
| 14. If you give people the benefit of the doubt, they are likely to take advantage of you. | 1 | 2 | 3 | 4 | 5 | | 6 | 7 |
| 15. I feel like a failure when I don't do as well as I would like. | 1 | 2 | 3 | 4 | 5 | | 6 | 7 |
| 16. I am usually comfortable with people asking me about myself. | 1 | 2 | 3 | 4 | 5 | | 6 | 7 |
| 17. If I fail in one area, it reflects poorly on me as a person. | 1 | 2 | 3 | 4 | 5 | | 6 | 7 |
| 18. I fear that if people get to know me too well, they will not respect me. | 1 | 2 | 3 | 4 | 5 | | 6 | 7 |
| 19. I frequently compare myself with my goals and ideals. | 1 | 2 | 3 | 4 | 5 | | 6 | 7 |
| 20. I seldom feel ashamed of myself. | 1 | 2 | 3 | 4 | 5 | | 6 | 7 |
| 21. Being open and honest is usually the best way to keep others' respect. | 1 | 2 | 3 | 4 | 5 | | 6 | 7 |
| 22. There are times that it is necessary to be somewhat dishonest in order to get what you want. | 1 | 2 | 3 | 4 | 5 | | 6 | 7 |

**Ruminative Thought Style Questionnaire (RTS)**

For each of the items below, please rate how well the item describes you.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Not at all |  |  |  |  |  | Very well |
| I find that my mind often goes over things again and again | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| When I have a problem, it will gnaw on my mind for a long time | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I find that some thoughts come to mind over and over throughout the day | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I can’t stop thinking about some things | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| When I am anticipating an interaction, I will imagine every possible scenario and conversation | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I tend to replay past events as I would have liked them to happen | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I find myself daydreaming about things I wish I had done. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| When I feel I have had a bad interaction with someone, I tend to imagine various scenarios where I would have acted differently. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| When trying to solve a complicated problem, I find that I just keep coming back to the beginning without ever finding a solution | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| If there is an important event coming up, I think about it so much that I work myself up | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I have never been able to distract myself from unwanted thoughts | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Even if I think about a problem for hours, I still have a hard time coming to a clear understanding | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| It is very difficult for me to come to a clear conclusion about some problems, no matter how much I think about it | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Sometimes I realize I have been sitting and thinking about something for hours | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| When I am trying to work out a problem, it is like I have a long debate in my mind where I keep going over different points | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I like to sit and reminisce about pleasant events from the past | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| When I am looking forward to an exciting event, thoughts of it interfere with what I am working on | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Sometimes even during a conversation, I find unrelated thoughts popping into my head | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| When I have an important conversation coming up, I tend to go over it in my mind again and again | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| If I have an important event coming up, I can’t stop thinking about it. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

**Eating Disorder Examination Questionnaire (EDE-Q 6.0)**

The following questions are concerned with the past four weeks (28 days) only. Please read each question carefully.  Please answer all the questions. Thank you.

Questions 1 to 12: Please circle the appropriate number on the right. Remember that the  questions only refer to the past four weeks (28 days) only.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| On how many of the past 28 days… | No  days | 1-5  days | 6-12  days | 13-15  days | 16-22  days | 23-27  days | Every  day |
| Have you been deliberately trying to limit the amount of food you eat to influence your shape or weight (whether or not you have succeeded)? | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Have you gone for long periods of time (8 waking hours or more) without eating anything at all in order to influence your shape or weight? | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Have you tried to exclude from your diet any foods that you like in order to influence your shape or weight (whether or not you have succeeded)? | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Have you tried to follow definite rules regarding your eating (for example, a calorie limit) in order to influence your shape or weight (whether or not you have succeeded)? | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Have you had a definite desire to have any empty stomach with the aim of influencing your shape or weight? | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Have you had a definite desire to have a totally flat stomach? | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Has thinking about food, eating, or calories made it very difficult to concentrate on things  you are interested in (for example, working, following a conversation, or reading)? | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Has thinking about shape or weight made it very difficult to  concentrate on things you are  interested in (for example, working, following a conversation, or reading)? | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Have you had a definite fear of losing control over eating? | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Have you had a definite fear that you might gain weight? | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Have you felt fat? | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Have you had a strong desire to lose weight? | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Over the past 28 days, on how many days have you eaten in secret (ie, furtively)? … Do not count episodes of binge eating. | 0 | 1 | 2 | 3 | 4 | 5 | 6 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | None of the times | A few of the times | Less than half | Half of the times | More than half | Most of the times | Every time |
| On what proportion of the times that you have eaten have you felt guilty (felt that you’ve done wrong) because of its effect on your shape or weight? … Do not count episodes of binge eating. | 0 | 1 | 2 | 3 | 4 | 5 | 6 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Not at all |  |  |  |  |  | Markedly |
| On what proportion of the times that you have eaten have you felt guilty (felt that you’ve done wrong) because of its effect on your shape or weight? … Do not count episodes of binge eating. | 0 | 1 | 2 | 3 | 4 | 5 | 6 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | No  days | 1-5  days | 6-12  days | 13-15  days | 16-22  days | 23-27  days | Every  day |
| Over the past 28 days, how concerned have you been about other people seeing you eat? … Do not count episodes of binge eating. | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Has your weight influenced how you think about (judge) yourself as a person? | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| Has your shape influenced how you think about (judge) yourself as a person? | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| How much would it have upset you if you had been asked to weigh yourself once a week (no more, or less, often) for the next four weeks? | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| How dissatisfied have you been with your weight? | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| How dissatisfied have you been with your shape? | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| How uncomfortable have you felt seeing your body (for example, seeing your shape in the mirror, in a shop window reflection, while undressing or taking a bath or shower)? | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| How uncomfortable have you felt about others seeing your shape or figure (for example, in communal changing rooms, when swimming, or wearing tight clothes)? | 0 | 1 | 2 | 3 | 4 | 5 | 6 |

**Body Shape Questionnaire (BSQ)**

**We should like to know how you have been feeling about your appearance over the PAST FOUR WEEKS. Please read each question and choose the appropriate option.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Never** | **Rarely** | **Sometimes** | **Often** | **Very often** | **Always** |
| Has feeling bored made you brood about your shape? | **1** | **2** | **3** | **4** | **5** | **6** |
| Have you thought that your thighs, hips or bottom are too large for the rest of you? | **1** | **2** | **3** | **4** | **5** | **6** |
| Have you worried about your flesh being not firm enough? | **1** | **2** | **3** | **4** | **5** | **6** |
| Have you felt so bad about your shape that you have cried? | **1** | **2** | **3** | **4** | **5** | **6** |
| Have you avoided running because your flesh might wobble? | **1** | **2** | **3** | **4** | **5** | **6** |
| Has being with thin person made you feel self-conscious about your shape? | **1** | **2** | **3** | **4** | **5** | **6** |
| Have you worried about your thighs spreading out when sitting down? | **1** | **2** | **3** | **4** | **5** | **6** |
| Has eating even a small amount of food made you feel fat? | **1** | **2** | **3** | **4** | **5** | **6** |
| Have you avoided wearing clothes which make you particularly aware of the shape of your body? | **1** | **2** | **3** | **4** | **5** | **6** |
| Has eating sweets, cakes, or other high calorie food made you feel fat? | **1** | **2** | **3** | **4** | **5** | **6** |
| Have you felt ashamed of your body? | **1** | **2** | **3** | **4** | **5** | **6** |
| Has worry about your shape made you diet? | **1** | **2** | **3** | **4** | **5** | **6** |
| Have you felt happiest about your shape when your stomach has been empty (e.g. in the morning)? | **1** | **2** | **3** | **4** | **5** | **6** |
| Have you felt that it is not fair that other people are thinner than you? | **1** | **2** | **3** | **4** | **5** | **6** |
| Have you worried about your flesh being dimply? | **1** | **2** | **3** | **4** | **5** | **6** |
| Has worry about your shape made you feel you ought to exercise? | **1** | **2** | **3** | **4** | **5** | **6** |

## ****Appendix 2D. Study 1 Participant Information Sheet****

**Exploring the link between self-compassion and eating concerns**

Thank you for considering taking part in this study. Your time is greatly appreciated. Before you decide whether you would like to take part, it is important for you to understand why the research is being conducted and what it will involve. Please take time to read the below information carefully and discuss it with others if you wish, or contact the researcher on the details provided, should you have any questions. Take time to decide whether or not you wish to take part. Thank you for reading this.

**1.         What is the project’s purpose?**

The aim of this study is to explore how being kind to yourself (self-compassion) might be related to eating concerns.

**2.         Do I have to take part?**

No, you do not have to participate. Participation is on a voluntary basis. If you do decide to take part, you can print off or save this information sheet, and you can still withdraw at any time. This may be done by closing the window in your browser.

**3.         What will happen to me if I take part? What do I have to do?**

If you agree to take part by indicating that you give consent, then you will be asked to complete some questionnaires now. It will take approximately 20 minutes. If you are willing and eligible, three months later you will be contacted by the researcher to complete a second, smaller set of questionnaires. Three months after that, you will receive another small set of questionnaires to complete. You can still withdraw data at any time by emailing me up to the final data collection.

**4.         Will I receive any payment for taking part in this study?**

No, you will not be paid for participation. However, you will be eligible to enter a prize draw where you will get the chance to win one of the Amazon vouchers (a £25 and a £50). If you would like to enter this draw, you will be asked to provide your email address end of the survey.  Only the email addresses of the prize draw winner will be stored for 7 years in case of an audit. All other emails will be destroyed as soon as possible after participation.

**5.         What are the possible disadvantages and risks of taking part?**

The risks involved in participating are minimal. However, if you experience any discomfort and feel that you can no longer continue, you can withdraw. You might find it helpful to visit the BEAT website (www.b-eat.co.uk). Alternatively, you could look at the NHS website to understand eating problems and treatment (www.nhs.uk).

**6.         Will my taking part in this project be kept confidential?**

We will ask you to provide your email, if you are eligible and willing to take part in the follow-ups. This will only be used for keeping in touch with you. This will be securely protected. At the end of the third data collection, your email will be removed from our files.

**7.         What is the legal basis for processing my personal data?**

According to data protection legislation, we are required to inform you that the legal basis we are applying in order to process your personal data is that ‘processing is necessary for the performance of a task carried out in the public interest’ (Article 6(1)(e)). Further information can be found in the University’s Privacy Notice https://www.sheffield.ac.uk/govern/data-protection/privacy/general.

**8.         Who is organising and funding the research?**

This research organized by the University of Sheffield and funded by the Turkish Government.

**9.         Who is the Data Controller?**

The University of Sheffield will act as the Data Controller for this study. This means that University of Sheffield is responsible for looking after your information and using it properly.

**10.       What will happen to the data collected, and the results of the research project?**

The researchers will have sole access to the data provided. If the research is published, you will not be identifiable. Your data will be stored anonymously once the study is over.

**11.       Who has ethically reviewed the project?**

Ethical approval was obtained from the University of Sheffield, Department of Psychology Ethics Committee.

**12.       What if something goes wrong and I wish to complain about the research?**

If you have any concerns or complaints about the study, you may contact me (Fidan Turk, fturk1@sheffield.ac.uk) directly. Alternatively, you can contact the supervisors of this research: Professor Glenn Waller (g.waller@sheffield.ac.uk) and Dr Stephen Kellett (s.kellett@sheffield.ac.uk) or the Department Manager (a.n.butler@sheffield.ac.uk).

**Contact for further information:**

If you have any questions regarding this study, please feel free to contact Fidan Turk. Alternatively, you can contact the supervisors of this research (details provided above).

**Thank you for taking part in this study!**

## ****Appendix 2E****. Study 1 Consent Form

* I have read and understood the project information sheet.
* I have been given the opportunity to ask questions about the project.
* I agree to take part in the project. I understand that taking part in the project will include completing questionnaires.
* I understand that my taking part is voluntary and that I can withdraw from the study at any time; I do not have to give any reasons for why I no longer want to take part and there will be no adverse consequences if I choose to withdraw.
* I understand my personal details such as email address will not be revealed to people outside the project.
* I understand and agree that other authorised researchers will have access to this data only if they agree to preserve the confidentiality of the information as requested in this form.
* I understand and agree that other authorised researchers may use my data in publications, reports, web pages, and other research outputs, only if they agree to preserve the confidentiality of the information as requested in this form.
* I give permission for the questionnaire responses that I provide to be deposited in the University’s data store so it can be used for future research and learning.
* I agree to assign the copyright I hold in any materials generated as part of this project to The University of Sheffield.

## ****Appendix 2F.**** Study 1 Debrief

**Thank you for taking part in this study.**

This study examines the risk factors for eating pathology. We are interested in whether people who are kind to themselves are less likely to develop eating concerns. We are also interested in why. Therefore, in this study, we looked at the link between self-compassion and eating concerns, and whether some personal characteristics explain that link (e.g., perfectionism).

Your participation will assist in developing possible prevention programmes to reduce eating concerns.

If you want to learn more about eating concerns, you might find the following resource useful: BEAT (www.b-eat.co.uk).

If you have any further questions about this research study, please do not hesitate to contact us at using the following address:

fturk1@sheffield.ac.uk

Alternatively, please contact my research supervisors:

Professor Glenn Waller g.waller@sheffield.ac.uk

Dr Stephen Kellett s.kellett@sheffield.ac.uk

**Thank you again for your participation!**

## Appendix 3A. Study 2 Pre-registration Form

Graphical user interface, application, Word

Description automatically generated

## Appendix 4A. Study 3 Ethics approval

Graphical user interface, application, Word

Description automatically generated

## Appendix 4B. Study 3 Pre-registration Form

Graphical user interface, application, Word

Description automatically generated

## Appendix 4C. Study 3 Questionnaires

**Body Appreciation Scale-2 (BAS-2)**

Please seek permission if any item is modified. For each item, the following response scale should be used:1 =, 2 =, 3 =, 4 =, 5 =.

Directions for participants: Please indicate whether the question is true about you never, seldom, sometimes, often, or always.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Never** | **Seldom** | **Sometimes** | **Often** | **Always** |
| I respect my body. | 1 | 2 | 3 | 4 | 5 |
| I feel good about my body. | 1 | 2 | 3 | 4 | 5 |
| I feel that my body has at least some good qualities. | 1 | 2 | 3 | 4 | 5 |
| I take a positive attitude towards my body. | 1 | 2 | 3 | 4 | 5 |
| I am attentive to my body’s needs. | 1 | 2 | 3 | 4 | 5 |
| I feel love for my body. | 1 | 2 | 3 | 4 | 5 |
| I appreciate the different and unique characteristics of my body. | 1 | 2 | 3 | 4 | 5 |
| My behavior reveals my positive attitude toward my body; for example, I hold my head high and smile. | 1 | 2 | 3 | 4 | 5 |
| I am comfortable in my body. | 1 | 2 | 3 | 4 | 5 |
| I feel like I am beautiful even if I am different from media images of attractive people (e.g., models, actresses/actors). | 1 | 2 | 3 | 4 | 5 |

**Body Shape Questionnaire (BSQ-8)**

We should like to know how you have been feeling about your appearance over the PAST FOUR WEEKS. Please read each question and choose the appropriate option.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Never | Rarely | Sometimes | Often | Very  Often | Always |
| Have you been worried about your flesh not being firm enough? | 1 | 2 | 3 | 4 | 5 | 6 |
| Has eating even a small amount of food made you feel fat? | 1 | 2 | 3 | 4 | 5 | 6 |
| Have you avoided wearing clothes which make you particularly aware of the shape of your body? | 1 | 2 | 3 | 4 | 5 | 6 |
| Have you felt ashamed of your body? | 1 | 2 | 3 | 4 | 5 | 6 |
| Has worry about your shape made you diet? | 1 | 2 | 3 | 4 | 5 | 6 |
| Have you felt happiest about your shape when your stomach has been empty (e.g., in the morning)? | 1 | 2 | 3 | 4 | 5 | 6 |
| Have you felt that it is not fair that other women are thinner than you? | 1 | 2 | 3 | 4 | 5 | 6 |
| Have you been worried about your flesh being dimply? | 1 | 2 | 3 | 4 | 5 | 6 |

**The Other as Shamer Scale-2 (OAS-2)**

Read each statement carefully and circle the number to the right of the item that indicates the frequency with which you find yourself feeling or experiencing what is described in the statement.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Never | Seldom | Sometimes | Frequently | Almost  Always |
| I feel other people see me as not good enough . | 1 | 2 | 3 | 4 | 5 |
| I think that other people look down on me. | 1 | 2 | 3 | 4 | 5 |
| I feel insecure about others opinions of me. | 1 | 2 | 3 | 4 | 5 |
| Other people see me as not measuring up to them. | 1 | 2 | 3 | 4 | 5 |
| Other people see me as small and insignificant. | 1 | 2 | 3 | 4 | 5 |
| Other people see me as somehow defective as a person. | 1 | 2 | 3 | 4 | 5 |
| People see me as unimportant compared to others. | 1 | 2 | 3 | 4 | 5 |
| Others think there is something missing in me. | 1 | 2 | 3 | 4 | 5 |

**Generalized Anxiety Disorder Scale (GAD-7)**

Over the last 2 weeks, how often have you been bothered by the following problems?

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Not at all** | **Several days** | **Over half the days** | **Nearly**  **Everyday** |
| Feeling nervous, anxious, or on edge | 1 | 2 | 3 | 4 |
| Not being able to stop or control worrying | 1 | 2 | 3 | 4 |
| Worrying too much about different things | 1 | 2 | 3 | 4 |
| Trouble relaxing | 1 | 2 | 3 | 4 |
| Being so restless that it's hard to sit still | 1 | 2 | 3 | 4 |
| Becoming easily annoyed or irritable | 1 | 2 | 3 | 4 |
| Feeling afraid as if something awful might happen | 1 | 2 | 3 | 4 |

**Eating Disorder Examination – Questionnaire Short (EDE-QS)**

**ON HOW MANY OF         0             1-2               3-5 6-7**

**THE PAST 7 DAYS….                days               days             days            days**

1. Have you been deliberately trying to limit the

amount of food you eat to influence your weight or          0     1           2               3

shape (whether or not you have succeeded)? 

1. Have you gone for long periods of time

(e.g., 8 or more waking hours) without eating anything      0   1               2               3

at all in order to influence your weight or shape? 

1. Has thinking about food, eating or calories

made it very difficult to concentrate on things you         0   1     2               3

are interested in (such as working, following

a conversation or reading)?

1. Has thinking about your weight or shape made

it very difficult to concentrate on things you are         0   1                 2               3

interested in (such as working, following a

conversation or reading)?

1. Have you had a definite fear that you might         0   1   2               3

gain weight?

1. Have you had a strong desire to lose weight?        0   1   2               3
2. Have you tried to control your weight or shape

by making yourself sick (vomit) or taking laxatives?        0 1   2               3

1. Have you exercised in a driven or compulsive

way as a means of controlling your weight, shape         0     1                 2                        3

or body fat, or to burn off calories?

1. Have you had a sense of having lost control         0     1                 2             3

over your eating (at the time that you were eating)?

1. On how many of these days *(i.e. days on which*

*you had a sense of having lost control over your*             0     1 2         3

*eating*) did you eat what other people would

regard as an unusually large amount of food in one go?

**OVER THE PAST 7 DAYS**

**Not at all           Slightly         Moderately      Markedly**

1. Has your weight or shape influenced how you   0   1 2                   3

think about (judge) yourself as a person?

1. How dissatisfied have you been with your weight    0 1   2                    3

or shape?

## Appendix 4D. Study 3 Participant Information Sheet

**An intervention for eating and body image concerns among young adult women**

Thank you for considering taking part in this study. Your time is greatly appreciated. Before you decide whether you would like to take part, it is important for you to understand why the research is being conducted and what it will involve. Please take time to read the below information carefully and discuss it with others if you wish or contact the researcher using the details provided should you have any questions. Please take time to decide whether or not you wish to take part. Thank you for reading this.

**1.     What is the project’s purpose?**

This study is investigating interventions for people who would like to improve their body image. This study is part of a doctoral research project.

This is a small-scale study, which will be used to prepare for a larger study, and to develop the way future studies in this area are conducted.

**2.     Do I have to take part?**

No, you do not have to participate. Participation is on a voluntary basis. If you do decide to take part, you can print off or save this information sheet, and you can still withdraw at any time up to the final data collection. If you decide to withdraw, please contact me. I will delete your previous responses.

**3.     What will happen to me if I take part? What do I have to do?**

If you are interested in taking part, the first thing you will be asked to sign the consent form.  Then, you will asked to complete a short questionnaire about your body image and some questions about you. The purpose is to determine whether this intervention would be helpful for you. Your answers will be scored and, based on this, we will decide whether this study is suitable for you.

If this study is suitable for you and you would like to take part, you will be allocated one of two intervention groups. Prior to the intervention, you will be asked to complete some questionnaires. Then you will be asked to do some body-related tasks. Finally, you will complete the questionnaires again.  This should take approximately 60 minutes of your time. You will be contacted by email to complete those questionnaires, two weeks after attending the online session.

If the session is interrupted in any way (e.g.  Someone walks in through the door), the call will end. You will be sent an email to reschedule the meeting.

**4.     What are the interventions?**

You will be undertaking one of the following interventions that have been shown to improve body image. Both interventions will be done online.

The first is a self-compassion focused intervention. This helps us to develop kindness to ourselves.  Being self-compassionate means having the qualities of kindness, warmth, and non-judgement and directing them towards yourself. This intervention will improve your body image. If you are allocated to this condition, you will do activities such as gentle breathing and meditation with the aid of a facilitator.

The second intervention is a technique that focuses individuals on viewing their bodies, with the aim of reducing anxiety about your appearance. If you are allocated to this condition, you will be asked to wear fitted clothes during the intervention. You will be asked to look at your body on your computer screen.

**5.     Will I receive any payment for taking part in this study?**

No, you will not be paid for participation. However, you will be eligible to enter a prize draw upon completion of the study. You will get the chance to win one of two Amazon vouchers (a £25 and a £50). Alternatively, if you are an undergraduate psychology student, you can choose to get course research credits.

**6.     What are the possible disadvantages and risks of taking part?**

The risks involved in participating are minimal. It is possible (though unlikely) that you might feel a bit distressed. If you are distressed and decide not to continue, you can stop at any point. In that case, you can contact BEAT (www.b-eat.co.uk). Alternatively, you could look at the NHS website to understand eating problems, body image and treatment (www.nhs.uk).

**7.     Will my taking part in this project be kept confidential?**

All information relating to your participating in this study will be securely stored on a password-protected computer. The only people who will have access to your data from the study will be the primary researcher and the two supervisors. The email addresses of the prize draw winners will be stored for finance purposes for 7 years. Other email addresses will be deleted as soon as possible. Other emails will be destroyed as soon as possible.

**8.**      **What is the legal basis for processing my personal data?**

According to data protection legislation, we are required to inform you that the legal basis we are applying in order to process your personal data is that ‘processing is necessary for the performance of a task carried out in the public interest’ (Article 6(1)(e)). Further information can be found in the University’s Privacy Notice https://www.sheffield.ac.uk/govern/data-protection/privacy/general.

**9.**      **Who is organising and funding the research?**

This research is organized by the University of Sheffield and funded by the Turkish Government.

**10.**      **Who is the Data Controller?**

The University of Sheffield will act as the Data Controller for this study. This means that University of Sheffield is responsible for looking after your information and using it properly.

**11.**      **What will happen to the data collected, and the results of the research project?**

The researchers will have sole access to the data provided. If the research is published, you will not be identifiable. Your data will be stored anonymously once the study is over.

**12.**      **Who has ethically reviewed the project?**

Ethical approval was obtained from the University of Sheffield, Department of Psychology Ethics Committee.

**13.**      **What if something goes wrong and I wish to complain about the research?**

If you have any concerns or complaints about the study, you may contact me (Fidan Turk, fturk1@sheffield.ac.uk) directly. Alternatively, you can contact the supervisors of this research: Professor Glenn Waller (g.waller@sheffield.ac.uk) and Dr Stephen Kellett (s.kellett@sheffield.ac.uk) or the Department Manager (a.n.butler@sheffield.ac.uk).

**Contact for further information:**

If you have any questions regarding this study, please feel free to contact Fidan Turk. Alternatively, you can contact the supervisors of this research (details provided above).

Thank you for taking part in this study.

## Appendix 4E. Study 3 Consent form

* I have read and understood the project information sheet.
* I have been given the opportunity to ask questions about the project.
* I understand that my taking part is voluntary and that I can withdraw from the study at any time; I do not have to give any reasons for why I no longer want to take part and there will be no adverse consequences if I choose to withdraw.
* I understand my personal details such as my email address will not be revealed to people outside the project.
* I understand and agree that other authorised researchers will have access to this data only if they agree to preserve the confidentiality of the information as requested in this form.
* I understand and agree that other authorised researchers may use my data in publications, reports, web pages, and other research outputs, only if they agree to preserve the confidentiality of the information as requested in this form.
* I give permission for the questionnaire responses that I provide to be deposited in the University’s data store so it can be used for future research and learning.
* So that the information you provide can be used legally by the researchers
* I agree to assign the copyright I hold in any materials generated as part of this project to The University of Sheffield.
* I agee to take part in the project.  I understand that taking part in the project will include completing questionnaires and attending an online session.
* I agree to be contacted again for the following part of the study if appropriate.

## Appendix 4F. Study 3 Debrief

Thank you for taking part in this study.

This study examines the effect of two different interventions for negative body image, to determine whether one is more effective than the other, and whether different interventions suit different people. The two interventions are evidence-based - exposure therapy and self-compassion.

Body image concerns have negative effects on the individual’s life. People who have those concerns are more likely to develop eating problems. Your participation will assist in enhancing treatment programmes to reduce body image and eating concerns.

If you have experienced any distress completing this survey or if you want to learn more about eating concerns, you might find the following resource useful: BEAT (www.b-eat.co.uk).

If you have any further questions about this research study, please do not hesitate to contact us at using the following address:

fturk1@sheffield.ac.uk

Alternatively, please contact my research supervisors:

Professor Glenn Waller g.waller@sheffield.ac.uk

Dr Stephen Kellett s.kellett@sheffield.ac.uk

Thank you again for your participation

## Appendix 4G. Study 3 Self-compassion Protocol

|  |  |  |
| --- | --- | --- |
| **Time** | **Aim** | **Explanation** |
|  | Participants’ position  Rationale  Procedure | Hello, I am FT. Thank you for taking part in this study. Your time is greatly appreciated. I am going to explain what we are going to do today.  Before we start, I would like to be sure that your screen is on.  Please settle into a comfortable position. You may want to sit on a chair with your back upright yet relaxed.  Before we start, please make sure that your laptop or computer that you using is fully charged or plugged in.  I would like to make sure that you are in a quiet place. If this session is interrupted in any way (e.g. Someone walks in through the door), I am going to end the session by saying “ I can see that you are busy at the moment, we can arrange another time to meet.” Then I will email you to schedule another meeting.  The aim of this study is to examine interventions for people who would like to improve their body image.  In this session, we are going to use a technique called ‘self-compassionate meditation’. This approach focuses on achieving self-compassion for one’s body. Being self-compassionate means embodying the qualities of kindness, warmth, and non-judgmental and directing them towards yourself. You will do activities such as gentle breathing and meditation with my guidance, and it will take 40 minutes. Compassion is an evidenced based approach for improving body image.  A particular issue is that people can feel ashamed of their body. So I will be asking you to take up a more compassionate stance towards your body and to see if your body shame reduces as a result.  I will ask you to rate your body shame every as we go along, rating it on a 0-100 scale every 5 minutes. When I ask about body shame, I would like you to rate your whole body, from no shame at all, which is 0, to totally ashamed, which is 100.  While doing this self-compassion meditation, please remember the following:  (1) There is no right or wrong way to undertake these exercises. Just try to follow the instructions and try to take up a compassionate stance (i.e. be patient with yourself and non critical) .  (2) If your mind is wandering, try to bring it back to the meditation practice.  It is important for you to know that If you are uncomfortable at any time and decide not to continue, you can stop at any point. Please let me know. |
|  | Participants’ Expectation | Before we start, how likely do you think it is that any body shame that you might feel will be reduced by this approach? Please rate your prediction on a scale of 1 to 10, where 1= not at all, and 10 = totally ashamed . |
| 1. min | Shame level (1) | Please rate your level of shame about your whole body before we start, on that 0 to 100 scale. Remember that 0 = no shame and 100= totally ashamed |
|  | Instructions  211  Building warmth through touch exercise | Each meditation should take about 5 minutes.  So before getting started, decide how you'd like to position yourself.  You may want to close your eyes gently.  Once you get yourself settled, we'll begin.  Start by first getting in touch with your body, how it feels right here in the present moment. Pay attention to your posture and see if you can feel how your body presses into the seat.  This practice is called ‘supportive touch’. Touch activates the care system and the parasympathetic nervous system to help us calm down and feel safe. It may feel embarrassing at first, but that awkward feeling will subside.  Our skin is an incredibly sensitive organ. Research shows that physical touch releases oxytocin, provides a sense of security, soothes distressing emotions, and calms cardiovascular stress.  Take 2-3 deep, satisfying breaths.  Gently place your hand over your heart, feeling the gentle pressure and warmth of your hand. If you wish, place both hands on your chest, noticing the difference between one and two hands.  Feel the touch of your hand on your chest. Now please, make small circles with your hand on your chest.  Feel the natural rising and falling of your chest as you breathe in and as you breathe out.  Linger with the feeling. |
|  | 2. Shame level | Please rate your level of shame about your whole body, on that 0 to 100 scale. Remember that 0 = no shame and 100= a lot of shame. |
|  | Self compassion break  348 | For this practice, I invite you to focus on a certain part of your body that you do not like or you are uncomfortable with.  Maybe you are feeling stress or you are worried about that part of your body, or you are worried about how it looks.  What is going on, how do you feel about it?  Really bring that feeling forward in your mind and focus on it.  Then I am going to be saying 3 phrases that are designed to help you develop kindness towards yourself and let go of those uncomfortable feelings about your body.  So the first phrase: “the uncomfortable feeling about your body is *in the present moment”.*  Acknowledge that you are experiencing the uncomfortable feeling *in the present moment.*  And I'd invite you to put words to those feelings.  Something like “I am really struggling with these feelings about my body *right now*” or “I am acknowledging that I have these uncomfortable feelings *right now*”.  The second phrase is: “having these uncomfortable feelings is a part of life”.  Ok, we are reminding ourselves of our common humanity.  It is okay to feel this way. It is a feeling experienced by most people.  It is not abnormal to feel this way.  The degree of this feeling would be different for everyone.  Maybe some people cope with these feelings better than others do.  You might find coping with these feeling easy or difficult.  However, it is a part of life, and part of being human.  And then the third phrase is: “I am allowed to be kind to myself”.  Use any language that supports that sense of kindness.  Perhaps language you would use with a good friend you cared about who was going through a very similar situation.  Maybe something like “it is okay to feel this way, everyone can feel this way, It is going to be OK.”  Then let go of the practice and noticing how your body feels right now.  Allow any sensations to be just as they are.  Allow yourself to be just as you are in this moment. |
|  | 3. Shame level | Could you rate your levels of shame about your whole body on that 0 to 100 scale right now? 0 = no shame and 100= totally ashamed |
|  | Compassionate body scan  381 | This kind of meditation is called the compassionate body scan.  So what we're going to be doing is moving our attention and awareness to different parts of the body.  And as we go through different parts, giving ourselves compassion for any pain or tension that we may feel there.  Or perhaps for any shame or feelings of inadequacy we have about certain body parts.  So, starting with the crown of your head.  Just notice what sensations are there.  See if you can tune in to that.  Is there any tingling or sensation there? If so, just notice it, if not, that is fine, too.  Then become aware of your facial muscles.  You have hundreds of muscles in your face. They work very hard for us, expressing our emotions, some of which are quite painful.  If you feel any tension or stress in any of your face or facial muscles, try relaxing.    Then become aware the back of your head.  Any sensations there?  If you are not feeling as well as you would like to be, or if you have any sort of headache or pain, just become aware of it and let it go.  This is a way of being kind towards yourself.  Now, become aware of how your neck feels.  Again, any tension, burning or tightness.  Well, first of all, it holds up a heavy head.  And it holds a lot of attention, especially if we sit at a computer all day.  If you are experiencing any discomfort, just relax the neck muscles.  Dropping down into your shoulders.  A lot of emotional tension, fear and stress is held in our shoulders.  We might feel some sort of pain and tension there.  So first, just notice what you feel, what the sensation is like  Hot, cold, tight, stabbing, dull.  Take a moment to have compassion towards yourself.  And just soothing, comforting any feelings of pain or discomfort you may have.  Then dropping down so that you're aware of your upper back, your shoulder blade.  Are you feeling any tension there? Any discomfort?  Allow it to be as it is. Hot, cold, sharp, soft.  Use your awareness to acknowledge any pain and soothe that area of your body.  Mentally, imagine getting a little bit of a massage there in your shoulder blades. |
|  | 4. Shame level | Could you rate your levels of shame about your whole body on that 0 to 100 scale right now? 0 = no shame and 100= totally ashamed |
|  | Compassionate body scan-2  392 | Then we continue with the chest area  The seat of our heart.  Our emotions are often felt in this area. Felt very intensely, including difficult ones like grief. Disappointment.  Try to notice how the physical sensations of your chest are manifesting.  Is there a sensation, moving, pulsing? Is it tight?  Simply notice what is there. Relax around it.  If you feel any pain, then relax it.  Then focus your attention on your stomach area.  Your belly.  A lot of difficult emotions get stored here, including fear.  We may have some judgments about our stomach.  Maybe it is not quite as flat as we would like it to be.  First, just focus on the actual sensations of your stomach.  Is there any movement, maybe you are digesting food?  Any tension? Any physical discomfort?  Are there any feelings of inadequacy?  You may not like that area  Whatever arises, try to take a very calm, comforting, and loving stance towards this part of our body that we often have such difficulty with.  Maybe even feeling some appreciation for our belly, without which we could not be alive.  Then dropping your attention down to your pelvic area.  You might feel tension here.  We do not normally pay attention to this part of our body.  Just notice what feelings are there.  If there is any discomfort or tension, try to relax.  Then move your attention down to your buttocks, feel the pressure of yourself on the chair cushion.  Finally, focus on your right foot.  A surprising amount of tension and stress gets stored in our feet.  A lot of pressure is put on them.  Then, focus on your left foot.  Take a moment to appreciate your feet. They allow you to walk, run, and dance.  And if any emotional reactions come up of non-acceptance of a certain part of your body, rather than judging yourself, try to allow yourself to be kind for that.  It is hard to be in this human body with its limitations.  We can be kind to ourselves in this moment.  Just realise that we are imperfect human beings.  And try to accept that with an open heart.  Recognising how hard it is to be in our competitive culture.  Finally, come to rest on an awareness of this magnificent body you have.  With compassion for its pains and appreciation for its wonder. |
|  | 5. Shame level | Could you rate your levels of shame about your whole body on that 0 to 100 scale right now? 0 = no shame and 100= totally ashamed |
|  | Loving kindness meditation  536 | This guided meditation is called loving kindness practice.  Now, I would like you to bring to mind some aspect of your body that has been bothering you lately.  Something that perhaps you have been criticizing yourself for, or that has made you feel inadequate in some way.  Whatever this is, try to get in touch with your feelings about it.  What does it make you feel? Sad, frightened, isolated, inadequate?  How have you felt when you thought about that feeling)?  See if you can locate the sensations of that emotion in your body.  Perhaps it is a tightness in your throat, a heaviness in your heart, tension in the shoulders.  What emotions do you feel when you think about this inadequacy?  And where are those emotions felt in the body?  Actually allow them to be there instead of resisting these feelings that arise when we judge ourselves.  Just notice them. “What am I feeling? Where are the emotions in my body?” Get in touch with how much uncomfortable feeling is caused by judgment.  Our fears of not being good enough.  We might have a belief that somehow we should be perfect. That belief makes us feel inadequate.  You try your best, but no one, no one on this planet is perfect.  We are all inadequate in some way.  We all make mistakes. This is a human experience. It is okay.  And so what we'll do now is repeat some phrases, loving kindness, designed to help you feel compassion for the fact that you're an imperfect being.  I will say a few sets of phrases aloud, and then you can repeat them silently.  I am allowing myself to be safe.  I am allowing myself to be peaceful.  It is ok to be kind to myself.  I am allowing myself to accept myself as I am.  I am allowing myself to be safe.  I am allowing myself to be peaceful.  It is ok to be kind to myself.  I am allowing myself to accept myself as I am.  Give yourself the same kindness and support, as you would give to a good friend who is feeling bad about themselves.  Remember that everyone is in the same boat.  Everyone feels inadequate in some way. Everyone makes mistakes.  Everyone fails. This is a human condition. This is normal. This is something we all share. It is okay.  And remember that all your fellow humans struggle with self judgment, the way you do.    Repeat the phrases silently to yourself, and comfort yourself with the difficulties of living a human life.  Feel your caring for yourself, your concern for yourself, your tenderness for yourself, as you are struggling like so many others.  Now see if you can feel what the compassion itself feels like.  Maybe your heart is tingling or feels warm, if not that is fine too.    It might be vibrant in some way, the good qualities of an open heart that is filled with compassion, the beautiful feelings of tenderness, care, kindness.  Noticing the joy of compassion, connectedness of an open heart.  This also is part of the human experience.  Thank yourself for being a supportive of yourself. It will be all be well and safe, happy, and free. |
|  | 6. Shame level | Could you rate your levels of shame about your whole body on that 0 to 100 scale right now? 0 = no shame and 100= totally ashamed |
|  | Affectionate breathing exercise  347 | This meditation is called affectionate breathing  Just get in touch with what you are feeling right now.  Now take three deep breaths to let out any tension from the day.  Let your breathing return to normal.  See if you can notice where you feel the breath most strongly.  Your breath may enter and exit your nostrils.  Perhaps it enters and exits your chest.  Does your abdomen rise and fall?  No one sensation is better than another, just notice where you feel your breath most strongly. OK, not trying to control the breath.  Your body knows how to breathe itself.  Just try to relax and let your breathing be natural.  So now, adopt a little half smile. Very, very tiny, just so the corners of your mouth curl up just a little bit. It should not be strained or forced.  Just let your mouth adopt the position of a little bit of a smile with your mouth closed.  Notice how that makes you feel when your face adopts a position of contentment and peace, happiness with the present moment.  Now, as you breathe in and out, notice how each inhalation feels, how each exhalation feels.  Try to let your breath be infused with affection for yourself and others.  With kindness for yourself and others.  Affection and kindness for the world, for others in the world who may have some struggles just as you have.  Your mind will naturally wander, is it does this? It is very normal, very human.  Feeling some appreciation for your breath itself.  Without breath, we could not stay alive.  Notice each breath as it enters and exits.  Hold an affection for yourself and for others — kindness for yourself and for others.  Remember your little half smile.  If your mind is wandering, bring it gently and tenderly back to the breath.  Notice the feelings of affection generated by your half smile.  Kindness being breathed in and out.  Return your breath if your mind has wandered.  Focus on your breath.  Focus on kindness for yourself and others.  Focus on affection for all human beings, including ourselves. |
|  | 7. shame | Could you rate your levels of shame about your whole body on that 0 to 100 scale right now? 0 = no shame and 100= totally ashamed |
|  | 6.Short noticing meditation  395  8. Shame  Self compassion break  348 | This is a noticing practice.  So make sure your eyes are gently closed.  And to begin, just get in touch with your body as it is right now, the feeling of your feet, and your shoulders.  What does your body feel like right now? Try to notice whole your body  Then take three deep breaths to release as much tension as you can.  So three deep breaths in and out.  Then let your breath return to normal.  First, pay attention to your breath.  So notice where you feel the breath most strongly. The nostrils. The lungs. The abdomen.  Just track the sensation of breathing in and breathing out, very simple.  Now, let your tensions settle on any sounds that you hear.  Just notice if there some creaks or maybe birds tweeting, or wind blowing.  What sounds do you hear?  Again, try not to think too much about the source of the sound, just notice them.  Wind blowing, birds tweeting. Door creaking.  Now, see if you can notice any physical sensations.  Maybe an itching, tingling or tightness.  Some part of your body may feel relaxed.  Just gently notice whatever it is you feel physically.  Not telling yourself an elaborate story about it, but making a soft mental note and then letting go of the sensation and seeing what sensation draws you in next.  Tightness. Itching.  Heat. And so on.  What is going on for you right now?  Just note whatever comes up.  Sound, physical sensation and emotion, a thought, a smell, whatever arises.  Just notice them and then let it go.  And check in with your mood right now.  Are you interested? Bored? Spacy?  Whatever you are feeling right now, whatever your mood state is, just notice it, label it and let it go.  What is arising in your field of awareness right now?  How it changes, shifts. It is constantly different.  Getting a taste of the freedom of not latching on to any thought or emotion or feeling, just letting it be there as it is.  Shaking its hand and letting it pass.  Then for the very end of this meditation, come back to your breathing, the sensation of your breathing.  Just notice the quality of the breath. Is it silky smooth? Maybe it is rough.  Fast, slow, whatever it is, just rest your awareness fully in your breath, as you breathe in and out.  Could you rate your levels of shame about your whole body on that 0 to 100 scale right now? 0 = no shame and 100= a lot of shame  For this practice, I invite you to focus on a certain part of your body that you do not like or you are uncomfortable with.  Maybe you are feeling stress or you are worried about that part of your body, or you are worried about how it looks.  What is going on, how do you feel about it?  Really bring that feeling forward in your mind and focus on it.  Then I am going to be saying 3 phrases that are designed to help you develop kindness towards yourself and let go of those uncomfortable feelings about your body.  So the first phrase: “the uncomfortable feeling about your body is *in the present moment”.*  Acknowledge that you are experiencing the uncomfortable feeling *in the present moment.*  And I'd invite you to put words to those feelings.  Something like “I am really struggling with these feelings about my body *right now*” or “I am acknowledging that I have these uncomfortable feelings *right now*”.  The second phrase is: “having these uncomfortable feelings is a part of life”.  Ok, we are reminding ourselves of our common humanity.  It is okay to feel this way. It is a feeling experienced by most people.  It is not abnormal to feel this way.  The degree of this feeling would be different for everyone.  Maybe some people cope with these feelings better than others do.  You might find coping with these feeling easy or difficult.  However, it is a part of life, and part of being human.  And then the third phrase is: “I am allowed to be kind to myself”.  Use any language that supports that sense of kindness.  Perhaps language you would use with a good friend you cared about who was going through a very similar situation.  Maybe something like “it is okay to feel this way, everyone can feel this way, It is going to be OK.”  Then let go of the practice and noticing how your body feels right now.  Allow any sensations to be just as they are.  Allow yourself to be just as you are in this moment. |
|  | 9. shame | Could you rate your levels of shame about your whole body on that 0 to 100 scale right now? 0 = no shame and 100= totally shamed |
| 40 mins | End/ Closure | This is end of the intervention. Thank you again. You will find the post-intervention survey in your e-mail. Could you please have a look at it and complete it? It will only take 10 minutes.  I will also send another survey in two weeks, so that I can see if any changes are maintained. It is very important that you complete that follow-up so that I can decide whether this intervention is helpful over time and not just today.  If you have any question, you can email me anytime. |

## Appendix 4H. Study 3 Self-compassion Adherence check

1. Did I ask about shame 9 times?
2. Did I do the setting up?
3. Where the conditions for self-compassion introduced?
4. Did I ask about the participants’ expectations at the beginning of the intervention?
5. Did I talk too fast or too slow? (Did I finish each meditation in roughly 5 mins?)
6. Did I do the meditations in the same order for everyone?
7. Did I take 40 minutes or less/more?
8. Did I phrase shame questions consistently?

## Appendix 4I. Body Image Exposure Protocol

|  |  |  |
| --- | --- | --- |
| **Time** | **Aim** | **Explanation** |
|  | Participants’ position  Use these phrases to adjust participants’ position  Rationale  Procedure | Hello, I am FT. Thank you for taking part of this study. Your time is greatly appreciated.  Before we start, I would like you to set up your screen.  If you go to your little picture in the right corner of the screen, could you click the pin so that you can see yourself better?  Before we start, please make sure that your laptop or computer that you using is fully charged or plugged in. If the connection loss, I will wait you here 15 minutes.  I would like to make sure that you are in a quiet place. If this session is interrupted in any way (e.g. Someone walks in through the door), I am going to end the session by saying “ I can see that you are busy at the moment, we can arrange another time to meet.” Then I will email you to schedule another meeting.  if you are ready, could you stand so that you can see your whole body – far enough back.  Stand away from screen, Stand further back, Come forward little bit, Move half way, Screen down a bit.    Can you hear me okay if you are standing there?  The aim of this study is to examine interventions for people who would like to improve their body image.  In this session, I am going to use a technique called ‘exposure.’ This approach means that you will be looking at your body for 40 minutes and the feelings associated with your body. I will be helping you to stay with and process those feelings. Exposure is an evidenced-based intervention to help people feel less anxious and ashamed about their body.  I am going to explain what we are going to do today.  A particular issue is that people can feel ashamed of their body. So I will be asking you to focus on that feeling today through looking at your body and whether the shame you feel about your body changes during that process.  I will ask you to rate your body shame every five minutes as we go along, rating it on a 0-100 scale. When I ask about body shame, I would like you to rate your whole body, from no shame at all, which is 0, to totally ashamed, which is 100.  While undertaking such exposure, please remember the following as it will help the body shame you feel to reduce:   1. Focus on your body at all times, rather than distracting yourself in any way, such as by thinking about other things, or looking at something else. 2. Describe your body in a neutral way – not emotional or critical. So If you tell me ‘I have got ugly ears’, I will ask you to explain what your ears actually look, rather than making a judgment. 3. Keep focused on your body for the whole 40 minutes.   I will remind you from time to time to stay focussed.  It is important for you to know that If you are uncomfortable at any time and decide not to continue, you can stop at any point. Please let me know. |
|  | Participants’ Expectation | Before we start, how likely do you think it is that the body shame that you might feel will be reduced by this approach? Please rate your prediction on a scale of 1 to 10, where 1= not at all, the exposure will not help, and 10 = very high, the exposure will really help. |
| 0 mins | Shame level | Please rate your level of shame about your whole body before we start, on that 0 to 100 scale. Remember that 0 = no shame and 100= totally shamed. |
| 0-40 mins | Instructions  (Note what she fails to mention, so that you can ask about it later.)  Prompts | What I would like you to do is look at the screen, and tell me what you see when you look at yourself.  I want you to describe your body, starting with the top of your head and working all the way down one bit at a time until you get to your feet.  Then I will ask you to do that again, starting with your feet and going up to your head.  All the time, I want you to keep looking at yourself on the screen.  So let’s start…  So start with your head. Describe your head.  How would you describe your face?  Tell me about your neck.  What does your chest look like?  Would you describe your waist, please?  Could you tell me about your arms?  How would you describe your legs?    Tell me about your feet.  --  Let’s go the other way, let’s start with your feet and work up.  Back side  Stomach area  Hands  Fingers  Nose  Ears  Hair  Eyes  Eyebrows  Eyelash  Forehead  Mouth  Chin  Cheeks  Lips  Palm  Elbow  Forearm  Bicep  Armpit  Jaw  Knee  Ankle  Calf  Thigh  Top of your foot  Toes  heel  toe nails  shin  hips  ribs  sternum  collar bones  wrist  abdomen  How many cm is it?  So are they small, large?  How large are they, how many cm?  Long, short, colour? Imagine I was blind and I can’t see it  Are they straight or slightly down?  What colour is it?  How long is that?  How big is that?  (SIZE, COLOR, TEXTURE)  Glasses, marks, make up, wearing polish, wearing eye makeup, lipstick, tattoo, jewellery, earrings, scars, moles, freckles |
| Throughout the exposure | Phrases to use | Image I am blind and I cannot see what you are talking about. Please describe it objectively rather than emotionally.  Please stay with looking at the screen and the part of your body you are focused on.  Please focus exclusively on that part of your body.  Can I remind you not to distract yourself in any way please? |
| Each 5 mins | Shame levels | Please rate your level of shame about your whole body, on that 0 to 100 scale. Remember that 0 = no shame and 100 = totally ashamed. |
| 40 mins | End/ Closure | This is end of the intervention. Thank you again. You will find the post-intervention survey in your e-mail. Could you please have a look at it and complete it? It will only take 10 minutes.  I will also send another survey in two weeks, so that I can see if any changes are maintained. It is very important you to complete that follow-up so that I can decide whether this intervention is helpful over time and not just today.  If you have any question, you can email me anytime. |

## Appendix 4J. Study 3 Body Image Exposure Adherence check

1. Did I do the setting up?
2. Where the conditions for exposure introduced?
3. Did I ask about shame 9 times?
4. When participant start being very emotional, did I encourage them to be neutral?
5. Did I remind them to look at their body (if necessary)?
6. Did I remind them to focus on specific body parts (if necessary)?
7. Did I remind them not to distract themselves (if necessary)?
8. Did I ask about the participants’ expectations at the beginning of the intervention?
9. Did I take 40 minutes or less/more?
10. Did I give the participant the chance to talk? (Did I stay silent properly? Did I interrupt her when she was talking?)
11. Did I phrase the shame questions consistently?

## Appendix 5A. Study 4 Ethical approval

Graphical user interface, application, Word

Description automatically generated

## Appendix 5B. Study 4 Pre-registration Form

Graphical user interface, application, Word

Description automatically generated

## Appendix 5C. Study 4. Questionnaires

**Body Image States Scale (BISS)**

For each of the items below, select the statement that best describes how you feel RIGHT NOW AT THIS VERY MOMENT.

Read the items carefully to be sure the statement you choose accurately and honestly describes how you feel right now.

Right now I feel . . .

1. Extremely dissatisfied with my physical appearance
2. Mostly dissatisfied with my physical appearance
3. Moderately dissatisfied with my physical appearance
4. Slightly dissatisfied with my physical appearance
5. Neither dissatisfied nor satisfied with my physical appearance
6. Slightly satisfied with my physical appearance
7. Moderately satisfied with my physical appearance
8. Mostly satisfied with my physical appearance
9. Extremely satisfied with my physical appearance

Right now I feel . . .

1. Extremely satisfied with my body size and shape
2. Mostly satisfied with my body size and shape
3. Moderately satisfied with my body size and shape
4. Slightly satisfied with my body size and shape
5. Neither dissatisfied nor satisfied with my body size and shape
6. Slightly dissatisfied with my body size and shape
7. Moderately dissatisfied with my body size and shape
8. Mostly dissatisfied with my body size and shape
9. Extremely dissatisfied with my body size and shape

Right now I feel . . .

1. Extremely satisfied with my weight
2. Mostly dissatisfied with my weight
3. Moderately dissatisfied with my weight
4. Slightly dissatisfied with my weight
5. Neither dissatisfied nor satisfied with my weight
6. Slightly satisfied with my weight
7. Moderately satisfied with my weight
8. Mostly satisfied with my weight
9. Extremely satisfied with my weight

Right now I feel . . .

1. Extremely physically attractive
2. Very physically attractive
3. Moderately physically attractive
4. Slightly physically attractive
5. Neither attractive nor unattractive
6. Slightly physically unattractive
7. Moderately physically unattractive
8. Very physically unattractive
9. Extremely physically unattractive

Right now I feel . . .

1. A great deal worse about my looks than I usually feel
2. Much worse about my looks than I usually feel
3. Somewhat worse about my looks than I usually feel
4. Just slightly worse about my looks than I usually feel
5. About the same about my looks as usual
6. Just slightly better about my looks than I usually feel
7. Somewhat better about my looks than I usually feel
8. Much better about my looks than I usually feel
9. A great deal better about my looks than I usually feel

Right now I feel that I look . ..

1. A great deal better than the average person looks
2. Much better than the average person looks
3. Somewhat better than the average person looks
4. Just slightly better than the average person looks
5. About the same as the average person looks
6. Just slightly worse than the average person looks
7. Somewhat worse than the average person looks
8. Much worse than the average person looks
9. A great deal worse than the average person looks

**Subscale of State Shame scale of Shame and Guilt Scale** (SSGS; it is a measure of state shame)

Remember to rate each statement based on how **you are feeling right at this moment.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **not feeling this way at all** |  |  |  | **feeling this way very strongly** |
| I want to sink into floor and disappear | 1 | 2 | 3 | 4 | 5 |
| I feel like I am a bad person | 1 | 2 | 3 | 4 | 5 |
| I feel worthless, powerless | 1 | 2 | 3 | 4 | 5 |
| I feel humiliated, disgraced | 1 | 2 | 3 | 4 | 5 |
| I feel small | 1 | 2 | 3 | 4 | 5 |

**Body shape questionnaire** (BSQ-8C: It is body dissatisfaction measure)

We should like to know how you have been feeling about your appearance over the PAST FOUR WEEKS. Please read each question and choose the appropriate option. (1:Never-5:Always)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Never |  |  |  | Always |
| Have you been afraid that you might become fat (or fatter)? | 1 | 2 | 3 | 4 | 5 |
| Has feeling full (e.g. after eating a large meal) made you feel fat? | 1 | 2 | 3 | 4 | 5 |
| Has thinking about your shape interfered with you ability to concentrate (eg. while watching television, reading, listening to conversations)? | 1 | 2 | 3 | 4 | 5 |
| Have you imagined cutting off fleshy areas of your body? | 1 | 2 | 3 | 4 | 5 |
| Have you felt excessively large and rounded? | 1 | 2 | 3 | 4 | 5 |
| Have you thought that you are the shape you are because you lack self-control? | 1 | 2 | 3 | 4 | 5 |
| Has seeing your reflection (e.g. in a mirror or show window) made you feel bad about your shape? | 1 | 2 | 3 | 4 | 5 |
| Have you been particularly self-conscious about your shape when in the company of other people? | 1 | 2 | 3 | 4 | 5 |

**The Credibility/Expectancy Questionnaire** (CEQ;Credibility measure**)**

We would like you to indicate below how much you believe, right now, that the intervention you are receiving will help to reduce your ‘in the moment’ body shame. Please answer the questions below. In the first set, answer in terms of **what you think.**

1. How logical does the intervention offered to you seem? (1-9)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| not at all logical | | | somewhat logical | | | very logical | | |

2. How successfully do you think this intervention will be in reducing your body shame? (1-9

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| not at all useful | | | somewhat useful | | | very useful | | |

3. How confident would you be in recommending this intervention to a friend?

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |  |
| not at all confident | | | somewhat confident | | | very confident | | |  |

4. How much improvement in your body shame do you think will occur?

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0% | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% |

For this set, close your eyes for a few moments, and try to identify **what you really feel about the intervention** and its likely success. Then answer the following questions.

5. How much do you really feel that intervention will help you to reduce your body shame?

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| not at all | | | somewhat | | | Very much | | |

6. How much improvement in your body shame do you really feel will occur?

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0% | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% |

## Appendix 5D. Study 4 Participant Information Sheet

**Testing a brief intervention for reducing body shame among adult women**

Thank you for considering taking part in this study. Your time is greatly appreciated. Before you decide whether you would like to take part, it is important for you to understand why the research is being conducted and what it will involve. Please take time to read the below information carefully and discuss it with others if you wish, or contact the researcher using the details provided should you have any questions. Please take time to decide whether or not you wish to take part. Thank you for reading this.

**1.     What is the project’s purpose?**

This study is investigating interventions for people who would like to improve their relationship with their body. This study is part of a doctoral research project.

**2.     Do I have to take part?**

No, you do not have to participate. Participation is on a voluntary basis. If you do decide to take part, you can print off or save this information sheet, and you can still withdraw at any time up to the point when data collection is finalised. If you decide to withdraw, please contact me. I will delete your previous responses.

**3.     What will happen to me if I take part? What do I have to do?**

If you are interested in taking part, the first thing you will be asked to do is to give your consent.  Then, you will asked to complete some questions about you. The purpose is to determine whether you meet the criteria for participation.

If this study is suitable for you and you would like to take part, you will be allocated to one of three groups. Prior to the main part of the study, you will be asked to complete some questionnaires. When you are allocated to one of the study groups, you will be asked to attend an online session to listen to a recording. You will be asked to rate your levels of body shame throughout the session. Finally, you will complete the questionnaires again.  This should take approximately 20 minutes of your time. You will be contacted via Prolific to complete those questionnaires again, on the day after attending the online session.

**4.     Will I receive any payment for taking part in this study?**

You will be paid based on Prolific’s pricing regulations.

**5. What are the possible disadvantages and risks of taking part?**

 The risks involved in participating are minimal. It is possible (though unlikely) that you might feel a bit distressed. If you are distressed and decide not to continue, you can stop at any point. In that case, you can contact BEAT (www.b-eat.co.uk), which is a national charity supporting people with body and eating concerns. Alternatively, you could look at the NHS website to understand eating problems, body image and treatment (www.nhs.uk).

**6.     Will my taking part in this project be kept confidential?**

All information relating to your participating in this study will be securely stored on a password-protected computer. The only people who will have access to your data from the study will be the primary researcher and the two supervisors.  Your anonymised data may be shared with other researchers (and/or on a data repository).

**7.**     **What is the legal basis for processing my personal data?**

According to data protection legislation, we are required to inform you that the legal basis we are applying in order to process your personal data is that ‘processing is necessary for the performance of a task carried out in the public interest’ (Article 6(1)(e)). Further information can be found in the University’s Privacy Notice https://www.sheffield.ac.uk/govern/data-protection/privacy/general.

**8.**     **Who is organising and funding the research?**

This research is organized by the University of Sheffield and funded by the Turkish Government.

**9.**     **Who is the Data Controller?**

The University of Sheffield will act as the Data Controller for this study. This means that University of Sheffield is responsible for looking after your information and using it properly.

**10.**     **What will happen to the data collected, and the results of the research project?**

The researchers will have sole access to the data provided. If the research is published, you will not be identifiable. Your data will be stored anonymously once the study is over, for at least 10 years, in case of any need to re-analyse the data.

**11.**     **Who has ethically reviewed the project?**

Ethical approval was obtained from the University of Sheffield, Department of Psychology Ethics Committee.

**12.**     **What if something goes wrong and I wish to complain about the research?**

If you have any concerns or complaints about the study, you may contact me (Fidan Turk, fturk1@sheffield.ac.uk) directly. Alternatively, you can contact the supervisors of this research: Professor Glenn Waller (g.waller@sheffield.ac.uk) and Dr Stephen Kellett (s.kellett@sheffield.ac.uk). You can also contact the Department Manager: Annette Butler (a.n.butler@sheffield.ac.uk) or the Research Ethics and Integrity Manager of the University of Sheffield: Lindsay Unwin (L.V.Unwin@sheffield.ac.uk).

**Contact for further information:**

If you have any questions regarding this study, please feel free to contact Fidan Turk. Alternatively, you can contact the supervisors of this research (details provided above).

Thank you for taking part in this study.

## Appendix 5E. Study 4 Consent form

* I have been given the opportunity to ask questions about the project.
* I understand that my taking part is voluntary and that I can withdraw from the study at any time; I do not have to give any reasons for why I no longer want to take part and there will be no adverse consequences if I choose to withdraw.
* I have read and understood the project information sheet.
* I understand my personal details such as my email address will not be revealed to people outside the project.
* I understand and agree that other authorised researchers will have access to this data only if they agree to preserve the confidentiality of the information as requested in this form.
* I understand and agree that other authorised researchers may use my data in publications, reports, web pages, and other research outputs, only if they agree to preserve the confidentiality of the information as requested in this form.
* I give permission for the questionnaire responses that I provide to be deposited in the University’s data storeso it can be used for future research and learning.
* I understand that my anonymised data may be shared with other researchers (and/or on a data repository).
* I agree to assign the copyright I hold in any materials generated as part of this project to The University of Sheffield.
* I understand that taking part in the project will include completing questionnaires and attending an online session.
* I agree to be contacted again for the following part of the study if appropriate.
* I confirm that I agree to take part in this research.

## Appendix 5F. Study 4 Debrief

**Thank you for taking part in this study.**

This study examines the effect of two different brief interventions for improving individuals’ relationships with their body, to determine whether one is more effective than the other. All groups will get both the recordings after the event, and so that you can try them both and see if they are helpful.

Body image concerns have negative effects on the individual’s life. People who have those concerns are more likely to develop eating problems. Your participation will assist in enhancing treatment programmes to reduce body image and eating concerns.

If you have experienced any distress completing this survey or if you want to learn more about eating concerns, you might find the following resource useful: BEAT (www.b-eat.co.uk). Alternatively, you could look at the NHS website to understand eating problems, body image and treatment (www.nhs.uk).

If you have any further questions about this research study, please do not hesitate to contact us at using the following address:

fturk1@sheffield.ac.uk

Alternatively, please contact my research supervisors:

Professor Glenn Waller g.waller@sheffield.ac.uk

Dr Stephen Kellett s.kellett@sheffield.ac.uk

**Thank you again for your participation**

## Appendix 5G. Study 4 Active self-compassion condition script

*PLEASE DO NOT READ OUT THE INSTRUCTIONS IN ITALICS, LIKE THIS. THERE WILL BE 3 EXERCISES. EACH OF THEM SHOULD TAKE ABOUT 5 MINUTES.*

Welcome to the study. There will be three exercises. Now decide how you would like to position yourself. Please close your eyes gently.

Before we start, could you please rate your level of shame about your whole body, on a zero to one hundred scale? Remember that zero mean no shame and one hundred means totally ashamed.

* *WAIT FOR 10 SECONDS WHILE THEY RATE*
* *FIRST EXERCISE: SCRIPT 399*

This kind of meditation is called the ‘compassionate body scan’.

So what you are going to be doing is moving your attention and awareness to different parts of the body.

And as you go through different parts, giving yourselves compassion for any pain or tension that you may feel there.

Or perhaps for any shame or feelings of inadequacy you have about certain body parts.

So, starting with the crown of your head.

Just notice what sensations are there.

See if you can tune in to that.

Is there any tingling or sensation there? If so, just notice it, if not, that is fine, too.

Then become aware of your facial muscles.

You have hundreds of muscles in your face. They work very hard for you, expressing your emotions, some of which are quite painful.

If you feel any tension or stress in any of your face or facial muscles, try relaxing.

Then become aware the back of your head.

Any sensations there?

If you are not feeling as well as you would like to be, or if you have any sort of headache or pain, just become aware of it and let it go.

This is a way of being kind towards yourself.

Now, become aware of how your neck feels.

Again, any tension, burning or tightness.

Well, first of all, it holds up a heavy head.

And it holds a lot of attention, especially if you sit at a computer all day.

If you are experiencing any discomfort, just relax the neck muscles.

Dropping down into your shoulders.

A lot of emotional tension, fear and stress is held in our shoulders.

You might feel some sort of pain and tension there.

So first, just notice what you feel, what the sensation is like

Hot, cold, tight, stabbing, dull.

Take a moment to have compassion towards yourself.

And just soothing, comforting any feelings of pain or discomfort you may have.

Then dropping down so that you're aware of your upper back, your shoulder blades.

Are you feeling any tension there? Any discomfort?

Allow it to be as it is. Hot, cold, sharp, soft.

Use your awareness to acknowledge any pain and soothe that area of your body.

Mentally, imagine getting a little bit of a massage there in your shoulder blades.

* *WAIT FOR 5 SECONDS*

Please rate your level of shame about your whole body, on that zero to one hundred scale. Remember that zero mean no shame and one hundred means totally ashamed.

* *WAIT FOR 10 SECONDS WHILE THEY RATE*
* *SECOND EXERCISE: SCRIPT 392*

Then we continue with the chest area.

The seat of your heart.

Our emotions are often felt in this area. Felt very intensely, including difficult ones like grief. Disappointment.

Try to notice how the physical sensations of your chest are manifesting.

Is there a sensation, moving, pulsing? Is it tight?

Simply notice what is there. Relax around it.

If you feel any pain, then relax it.

Then focus your attention on your stomach area.

Your belly.

A lot of difficult emotions get stored here, including fear.

You may have some judgments about your stomach.

Maybe it is not quite as flat as you would like it to be.

First, just focus on the actual sensations of your stomach.

Is there any movement, maybe you are digesting food?

Any tension? Any physical discomfort?

Are there any feelings of inadequacy?

You may not like that area

Whatever arises, try to take a very calm, comforting, and loving stance towards this part of your body that we often have such difficulty with.

Maybe even feeling some appreciation for your belly, without which you could not be alive.

Then dropping your attention down to your pelvic area.

You might feel tension here.

We do not normally pay attention to this part of our body.

Just notice what feelings are there.

If there is any discomfort or tension, try to relax.

Then move your attention down to your buttocks, feel the pressure of yourself on the chair cushion.

Finally, focus on your right foot.

A surprising amount of tension and stress gets stored in our feet.

A lot of pressure is put on them.

Then, focus on your left foot.

Take a moment to appreciate your feet. They allow you to walk, run, and dance.

And if any emotional reactions come up of non-acceptance of a certain part of your body, rather than judging yourself, try to allow yourself to be kind for that.

It is hard to be in this human body with its limitations.

You can be kind to yourself in this moment.

Just realise that we are imperfect human beings.

And try to accept that with an open heart.

Recognising how hard it is to be in our competitive culture.

Finally, come to rest on an awareness of this magnificent body you have.

With compassion for its pains and appreciation for its wonder.

* *WAIT FOR 5 SECONDS*

Please rate your level of shame about your whole body, on that zero to one hundred scale. Remember that zero mean no shame and one hundred means totally ashamed.

* *WAIT FOR 10 SECONDS WHILE THEY RATE*
* *THIRD EXERCISE: SCRIPT 395*

This is a noticing practice.

So make sure your eyes are gently closed.

And to begin, just get in touch with your body as it is right now, the feeling of your feet, and your shoulders.

What does your body feel like right now? Try to notice your whole body

Then take three deep breaths to release as much tension as you can.

So three deep breaths in and out.

Then let your breath return to normal.

First, pay attention to your breath.

So notice where you feel the breath most strongly. The nostrils. The lungs. The abdomen.

Just track the sensation of breathing in and breathing out, very simple.

Now, let your tensions settle on any sounds that you hear.

Just notice if there some creaks or maybe birds tweeting, or wind blowing.

What sounds do you hear?

Again, try not to think too much about the source of the sound, just notice them.

Wind blowing, birds tweeting. Door creaking.

Now, see if you can notice any physical sensations.

Maybe an itching, tingling or tightness.

Some part of your body may feel relaxed.

Just gently notice whatever it is you feel physically.

Not telling yourself an elaborate story about it, but making a soft mental note and then letting go of the sensation and seeing what sensation draws you in next.

Tightness. Itching. Heat. And so on.

What is going on for you right now?

Just note whatever comes up.

Sound, physical sensation and emotion, a thought, a smell, whatever arises.

Just notice them and then let it go.

And check in with your mood right now.

Are you interested? Bored? Spacy?

Whatever you are feeling right now, whatever your mood state is, just notice it, label it and let it go.

What is arising in your field of awareness right now?

How it changes, shifts. It is constantly different.

Getting a taste of the freedom of not latching on to any thought or emotion or feeling, just letting it be there as it is.

Shaking its hand and letting it pass.

Then for the very end of this meditation, come back to your breathing, the sensation of your breathing.

Just notice the quality of the breath. Is it silky smooth? Maybe it is rough.

Fast, slow, whatever it is, just rest your awareness fully in your breath, as you breathe in and out.

* *WAIT FOR 5 SECONDS*

We have finished the tasks. Finally, please rate your level of shame about your whole body one more time, on that zero to one hundred scale. Remember that zero mean no shame and one hundred means totally ashamed.

* *WAIT FOR 10 SECONDS WHILE THEY RATE*

Thank you for taking part. Now please remember to complete the questionnaires again, and then you will have finished the study.

## Appendix 5H. Study 4 Inactive self-compassion condition script

*PLEASE DO NOT READ OUT THE INSTRUCTIONS IN ITALICS, LIKE THIS. THERE WILL BE 3 EXERCISES. EACH OF THEM SHOULD TAKE ABOUT 5 MINUTES.*

Welcome to the study. There will be three exercises. Now decide how you would like to position yourself. Please close your eyes gently.

Before we start, could you please rate your level of shame about your whole body, on a zero to one hundred scale? Remember that zero mean no shame and one hundred means totally ashamed.

* *WAIT FOR 10 SECONDS WHILE THEY RATE*
* *FIRST EXERCISE: SCRIPT 348*

For this first exercise, I invite you to focus on a certain part of your body that you do not like or you are uncomfortable with.

Maybe you are feeling stressed or you are worried about that part of your body, or you are worried about how it looks.

What is going on, how do you feel about it?

Really bring that feeling forward in your mind and focus on it.

Then I am going to say three phrases that are designed to help you develop kindness towards yourself and let go of those uncomfortable feelings about your body.

So, the first phrase: “the uncomfortable feeling about your body is in the present moment*”.*

Acknowledge that you are experiencing the uncomfortable feeling in the present moment*.*

And I invite you to put words to those feelings.

Something like “I am really struggling with these feelings about my body right now” or “I am acknowledging that I have these uncomfortable feelings right now”.

The second phrase is: “having these uncomfortable feelings is a part of life”.

Ok, we are reminding ourselves of our common humanity.

It is okay to feel this way. It is a feeling experienced by most people.

It is not abnormal to feel this way.

The degree of this feeling would be different for everyone.

Maybe some people cope with these feelings better than others do.

You might find coping with these feeling easy or difficult.

However, it is a part of life, and part of being human.

And then the third phrase is: “I am allowed to be kind to myself”.

Use any language that supports that sense of kindness.

Perhaps language you would use with a good friend you cared about who was going through a very similar situation.

Maybe something like “it is okay to feel this way, everyone can feel this way, it is going to be OK.”

Then come out of the exercise, and notice how your body feels right now.

Allow any sensations to be just as they are.

Allow yourself to be just as you are in this moment.

* *WAIT FOR 5 SECONDS*

We have finished that first part of the session. Please rate your level of shame about your whole body, on that zero to one hundred scale. Remember that zero mean no shame and one hundred means totally ashamed.

* *WAIT FOR 10 SECONDS WHILE THEY RATE*
* *SECOND EXERCISE: SCRIPT 503*

This second exercise is a guided meditation called ‘loving kindness practice’.

Now, I would like you to bring to mind some aspect of your body that has been bothering you lately.

Something that perhaps you have been criticizing yourself for, or that has made you feel inadequate in some way.

Whatever this is, try to get in touch with your feelings about it.

What does it make you feel? Sad, frightened, isolated, inadequate?

How have you felt when you thought about that feeling?

See if you can locate the sensations of that emotion in your body.

Perhaps it is a tightness in your throat, a heaviness in your heart, tension in the shoulders.

What emotions do you feel when you think about this inadequacy?

And where are those emotions felt in the body?

Actually allow them to be there instead of resisting these feelings that arise when we judge ourselves.

Just notice them. “What am I feeling? Where are the emotions in my body?” Get in touch with how much uncomfortable feeling is caused by judgment.

Our fears of not being good enough.

We might have a belief that somehow we should be perfect. That belief makes us feel inadequate.

You try your best, but no one, no one on this planet is perfect.

We are all inadequate in some way.

We all make mistakes. This is a human experience. It is okay.

And so what you'll do now is repeat some phrases, loving kindness, designed to help you feel compassion for the fact that you're an imperfect being.

I will say a few sets of phrases aloud, and then you can repeat them silently.

I am allowing myself to be safe.

I am allowing myself to be peaceful.

It is ok to be kind to myself.

I am allowing myself to accept myself as I am.

Give yourself the same kindness and support as you would give to a good friend who is feeling bad about themselves.

Remember that everyone is in the same boat.

Everyone feels inadequate in some way. Everyone makes mistakes.

Everyone fails. This is a human condition. This is normal. This is something we all share. It is okay.

And remember that all your fellow humans struggle with self judgment, the way you do.

Repeat the phrases silently to yourself, and comfort yourself with the difficulties of living a human life.

Feel your caring for yourself, your concern for yourself, your tenderness for yourself, as you are struggling like so many others.

Now see if you can feel what the compassion itself feels like.

Maybe your heart is tingling or feels warm, if not that is fine too.

It might be vibrant in some way, the good qualities of an open heart that is filled with compassion, the beautiful feelings of tenderness, care, kindness.

Noticing the joy of compassion, connectedness of an open heart.

This also is part of the human experience.

Thank yourself for being a supportive of yourself. It will be all be well and safe, happy, and free.

* *WAIT FOR 5 SECONDS*

We have finished that second exercise. Please rate your level of shame about your whole body, on that zero to one hundred scale. Remember that zero mean no shame and one hundred means totally ashamed.

* *WAIT FOR 10 SECONDS WHILE THEY RATE*
* *THIRD EXERCISE: SCRIPT 347*

This final exercise is a meditation called ‘affectionate breathing’

Just get in touch with what you are feeling right now.

Now take three deep breaths to let out any tension from the day.

Let your breathing return to normal.

See if you can notice where you feel the breath most strongly.

Your breath may enter and exit your nostrils.

Perhaps it enters and exits your chest.

Does your abdomen rise and fall?

No one sensation is better than another, just notice where you feel your breath most strongly. OK, not trying to control the breath.

Your body knows how to breathe itself.

Just try to relax and let your breathing be natural.

So now, adopt a little half smile. Very, very tiny, just so the corners of your mouth curl up just a little bit. It should not be strained or forced.

Just let your mouth adopt the position of a little bit of a smile with your mouth closed.

Notice how that makes you feel when your face adopts a position of contentment and peace, happiness with the present moment.

Now, as you breathe in and out, notice how each inhalation feels, how each exhalation feels.

Try to let your breath be infused with affection for yourself and others.

…With kindness for yourself and others.

…Affection and kindness for the world, for others in the world who may have some struggles just as you have.

Your mind will naturally wander. It is very normal, very human.

Feeling some appreciation for your breath itself.

Without breath, we could not stay alive.

Notice each breath as it enters and exits.

Hold an affection for yourself and for others — kindness for yourself and for others.

Remember your little half smile.

If your mind is wandering, bring it gently and tenderly back to the breath.

Notice the feelings of affection generated by your half smile.

Kindness being breathed in and out.

Return to your breath if your mind has wandered.

Focus on your breath.

Focus on kindness for yourself and others.

Focus on affection for all human beings, including ourselves.

* *WAIT FOR 5 SECONDS*

We have finished the tasks. Finally, please rate your level of shame about your whole body one more time, on that zero to one hundred scale. Remember that zero mean no shame and one hundred means totally ashamed.

* *WAIT FOR 10 SECONDS WHILE THEY RATE*

Thank you for taking part. Now please remember to complete the questionnaires again, and then you will have finished the study.

## Appendix 5I. Study 4 Distraction/ Control group script

*PLEASE DO NOT READ OUT THE INSTRUCTIONS IN ITALICS, LIKE THIS. THERE WILL BE 3 EXERCISES. EACH OF THEM SHOULD TAKE ABOUT 5 MINUTES.*

Welcome to the study. There will be three exercises. Now decide how you would like to position yourself. Please close your eyes gently.

Before we start, could you please rate your level of shame about your whole body, on a zero to one hundred scale? Remember that zero mean no shame and one hundred means totally ashamed.

* *WAIT FOR 10 SECONDS WHILE THEY RATE*
* *FIRST EXERCISE: SCRIPT 502*

Language and creativity

1 Defining creativity

The terms ‘creativity’ and ‘creative’ are used in a variety of contexts. There are creative artists, thinkers, writers, designers and entrepreneurs; there can be creative talent, ideas, processes and minds. Creativity can be boundless and spontaneous, but it needs to be unleashed, fostered, stimulated and expressed, though sometimes it may be stifled. Creativity is also strongly associated with imagination, innovation, originality and genius. Similar lists and descriptions can be found in many discussions of the concept, and it is an area studied in a number of disciplines.  
Psychologists and neuroscientists are investigating creativity to find out more about its relationship with the mind and the brain; ethnographic work is being done to explore its role in society; linguists are exploring creative language to understand more about how people communicate; and commercial organisations are constantly trying to find ways of making themselves and their employees more creative. Given this wide-ranging interest in the topic, it might be reasonable to assume that it is clear what ‘creativity’ means. But this is not necessarily the case: you will find that each field and discipline defines creativity slightly differently, and takes a different approach to investigating it.

2 What is linguistic creativity?

While this course takes language as the starting point for exploring creativity, it is useful to begin by considering a general definition of ‘creativity’. A currently dominant view in the fields of design, technology and the arts in the Western world is that something is creative if it is novel*,* ofhigh quality and appropriate to the task at hand. In linguistic terms this could be a neologism or an uncommon metaphor used successfully to communicate a complex concept or idea – such as ‘lazy creature’ to talk about a migraine.

While this definition represents a particular view of creativity – a view that perhaps encourages a focus on the creative product, rather than the process – it is important to note its (somewhat problematic) implications. First, novelty refers to the idea that the product of creativity has to be something ‘different, new, or innovative’ (Kaufman and Sternberg, 2010, p. xiii). Kaufman and Sternberg, however, do not make explicit on what basis one decides whether something satisfies those criteria. What should the frame of reference be – that is, different, new, innovative compared to what?  
Second, high quality suggests that someone somewhere needs to evaluate this new ‘thing’ as good, but it doesn’t specify who is qualified to make such a judgement or how they are meant to do so. The frame of reference seems to be important here too. Finally, appropriacy also seems to be an entirely relative concept. The creative ‘thing’ has to make sense or be useful for a particular context. These qualifications are important to bear in mind, but the Kaufman and Sternberg definition is still a good starting point for discussion. Although not everyone will (or should) subscribe to it, the issues it raises are useful ways of thinking in greater depth about the topic of creativity.

* *WAIT FOR 5 SECONDS*

Please rate your level of shame about your whole body, on that zero to one hundred scale. Remember that zero mean no shame and one hundred means totally ashamed.

* *WAIT FOR 10 SECONDS WHILE THEY RATE*
* *SECOND EXERCISE: SCRIPT 557*

3 Three lenses with which to explore linguistic creativity

This section introduces the three ‘lenses’ referred as ways of exploring different dimensions of linguistic creativity in all types of text. Traditionally, linguistic creativity was associated with canonical literature, where it was assumed that literary language was categorically different from language used in more everyday contexts. This assumption led to efforts by a group of scholars, known as the Russian Formalists, in the early twentieth century to try to identify the characteristics of literary language. Although the view that literary language and everyday language are fundamentally different is no longer the dominant view, these early investigations into the properties of literary language nonetheless resulted in influential ways of describing, comparing and analysing language itself as creative. This forms the basis of the first lens for exploring linguistic creativity: the **textual** lens.

Work from the latter half of the twentieth century onwards, in the fields of linguistic anthropology and sociolinguistics, highlighted the idea that human communication is more than just language itself. The social, cultural and historical context within which communication takes place interacts with how communication happens and what it is for. Communication is not just a simple transmission of information, but a way of achieving things: building and maintaining relationships, and constructing identities and the world (the context) around us. It is also fundamentally interactive. Such an appreciation of the inextricability of language from its context of use gives us the second lens with which to view linguistic creativity: the **contextual** lens.

The final lens also comes from an appreciation of context, but it questions the values and  
assumptions embedded in that context. This is the idea that concepts, definitions, the  
things around us and our reactions to them need to be ‘unpacked’ in order to be properly  
understood. Some of the questions in the previous discussions of examples fall into this  
tradition: Who decides what counts as good or appropriate? What are the broader societal  
effects of linguistic creativity, and how is it valued? This is the **critical** lens.

4 Language and art

Now we look at a particular context for linguistic creativity. The context we focus on here is the ways in which language is used in – or sometimes alongside – works of fine art. We will look at what one might call ‘language art’ or ‘textbased art’ (works of art which involve language as a key part of their composition), and assesses how language operates in these contexts. One of the reasons for looking at this is that language art is, by definition, an explicitly ‘creative’ act or product. It is a forum where the way in which language is creatively used is purposefully to the fore and presented as something for the viewer to contemplate. To put it another way, one of the defining features of art is that it is presenting itself (or, more accurately, someone is presenting it) as art. It is understood as the product of a creative act, and thus its use of language becomes, by implication, an explicitly creative use of language. Consequently, examining how language is used in this context is a way of looking at a particularly creative type of language use. In our exploration of what is understood by ‘linguistic creativity’, language art presupposes from the outset that what is being done falls within  
this category.

* *WAIT FOR 5 SECONDS*

Please rate your level of shame about your whole body, on that zero to one hundred scale. Remember that zero mean no shame and one hundred means totally ashamed.

* *WAIT FOR 10 SECONDS WHILE THEY RATE*
* *THIRD EXERCISE: SCRIPT 504*

5 Jeremy Deller: Juxtaposing genres

Having discussed different ways in which language is used in art, let us now concentrate on the work of one particular artist in order to examine in more detail some of these issues. The example I wish to focus on is the work of the British artists Jeremy Deller. Deller has described his work as being a form of ‘social surrealism’, a way of foregrounding ‘how strange [the] everyday can be, and amazing, weird and odd’. This term plays on the notion of ‘social realism’: the art movement highlighting and critiquing the everyday social conditions of the ordinary working person. Although Deller is not referencing it directly, it also parallels a movement from the USA in the 1930s, which drew on European surrealist techniques that were current at the time and applied them to social commentary and critique.   
A technique that was favoured by artists in this earlier social surrealist movement was the juxtapositioning of incongruous images, something which Deller himself practices: ‘that is what art is often about … juxtaposition disrupting reality’. Again, as we shall see, the contextual lens is key to our understanding and appreciation of the work, as much of its meaning and impact comes from the way it interacts with the context in which it is positioned.

5.1 Juxtaposing genres: Example 1

One of the ways in which Deller uses juxtaposition to disrupt reality, especially in his early work, is by merging two forms of communicative genre: placing the content of one within the form of another, to create playful but provocative social imaginings. For example, takes the form of a poster for an imaginary literary event at the British Museum dedicated to the work of the former frontman of The Smiths, Morrissey. By bringing two cultural worlds together – the high culture of the literary event and the popular culture of popular music – Deller highlights the relative value given to the two in society and the arbitrariness of how different cultural projects are framed by different discourses.

**Conclusion**

In this free course, Language and creativity, we have discussed the definition of ‘creativity’, considered some of the main ways it relates to language use, and looked at approaches to analysing this use in society and culture. Although scholars disagree about many things when it comes to creativity, there seems to be some recognition that, in one form or another, it is something that is central to human activities.

Language is not only something that everybody uses, but something that permeates all aspects of our lives. Using language, we discursively construct versions of our identities and the world around us, thereby shaping the reactions, views and behaviours of our audiences. Some texts make us laugh, cry or become angry, while others create, maintain or undermine relationships, social conventions and institutions. Linguistic creativity is a particularly salient way of achieving these effects, making it a lively and interesting focus for investigating communication. Therefore, the more we understand creativity, the more we understand ourselves and the contemporary world.

* *WAIT FOR 5 SECONDS*

We have finished the tasks. Finally, please rate your level of shame about your whole body one more time, on that zero to one hundred scale. Remember that zero mean no shame and one hundred means totally ashamed.

* *WAIT FOR 10 SECONDS WHILE THEY RATE*

Thank you for taking part. Now please remember to complete the questionnaires again, and then you will have finished the study.

1. [↑](#footnote-ref-1)