Investigating the Impact on Disordered Eating through the Role of Self-Criticism and Self-Compassion

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ABSTRACT

With augmentation of treatments for eating disorders (EDs) suggested to improve outcomes (Pennesi et al., 2024), novel interventions that target risk factors which maintain disordered eating (DE) are warranted. While self-criticism is implicated in the onset and maintenance of DE (Werner et al., 2019) and is viewed as a transdiagnostic vulnerability factor due to its impact on various psychopathologies (Ehret et al., 2015; Iancu et al., 2015), the focus has been on self-compassion interventions which have been shown to successfully reduce DE in clinical and non-clinical groups (Ferrari et al., 2019). This thesis addressed several gaps in the literature to examine the relevance of adjunct ED treatments that target self-criticism.

The first study examined the psychometric properties of the Forms of Self-Criticising/Attacking and Self-Reassuring Scale (FSCRS) in a mixed student and clinical sample with EDs. The original model was retained and demonstrated good reliability and validity with related constructs, and unique associations were found for two out of three factors of the FSCRS with ED psychopathology, impairment related to ED, stress and depression. The second study is a published meta-analysis that explored how self-compassion and self-criticism relate to each other with respect to DE. Across 135 studies and an examination of 10 subgroups, small but robust associations revealed that greater self-criticism was linked with greater DE and that greater self-compassion was linked with reduced self-criticism and DE. The third study investigated whether self-criticism over the course of treatment mediated the relationship between fear of self-compassion at the start of treatment and the rate of change in ED symptoms. Results showed that a lower fear of self-compassion at baseline was linked with lower levels of self-criticism during treatment, which was linked with greater reductions in ED symptoms during and after treatment. Finally, a randomised controlled trial investigated a brief DE intervention and its impact on reducing self-criticism and increasing self-compassion, delivered through a guided internet-based condition in four modules over two weeks. University students (N = 84) were screened and randomised (n = 40) to the intervention or waitlist control group. Outcome measures delivered at

baseline, one-week and two-weeks post-randomisation measured participants' self-criticism, fears of compassion, negative affect, ED symptoms, quality of life, and body image flexibility. Group-by-time interactions suggested groups changed at a different rate on two outcomes (fear of receiving compassion from others and body image flexibility), with improvements observed in the treatment while participants in the waitlist group remained stable.

Together, these studies suggest that adjunct treatments may be more efficacious if they target risk factors for DE, including the fear of engaging in compassion-based processes, which may help address self-criticism levels during treatment and thereby result in greater reductions of ED psychopathology over treatment.

DECLARATION

I certify that this thesis:

1. does not incorporate without acknowledgement any material previously submitted for a degree or diploma in any university

2. and the research within will not be submitted for any other future degree or diploma without the permission of Flinders University; and

3. to the best of my knowledge and belief, does not contain any material previously published or written by another person except where due reference is made in the text.

Signed.....Sarah Paranjothy.....

Date.....23/11/2024.....

ACKNOWLEDGEMENT OF COUNTRY

I would like to acknowledge that this work was produced on the lands of both the Kaurna and Ngunnawal nations. I recognise that the Kaurna and Ngunnawal people are the Traditional Custodians of the land where my research was conducted, and I pay my respects to Elders past, present, and emerging. I recognise Aboriginal staff members who have contributed to my PhD journey.

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ACRONYMS USED THROUGHOUT THE DISSERTATION

ACRONYMS	MEANING
AN	ANOREXIA NERVOSA
APA	AMERICAN PSYCHIATRIC ASSOCIATION
BED	BINGE EATING DISORDER
BI-AAQ	BODY IMAGE-ACCEPTANCE AND ACTION QUESTIONNAIRE
BMI	BODY MASS INDEX
BN	BULIMIA NERVOSA
CBT	COGNITIVE-BEHAVIOURAL THERAPY
CFA	CONFIRMATORY FACTOR ANALYSIS
CFT	COMPASSION-FOCUSED THERAPY
CIA	CLINICAL IMPAIRMENT ASSESSMENT
DASS-21	DEPRESSION ANXIETY STRESS SCALE-21
DE	DISORDERED EATING
DSM-5	DIAGNOSTIC AND STATISTICAL MANUAL OF MENTAL DISORDERS (5^{th} EDITION)
ED(S)	EATING DISORDER(S)
EDE-Q	EATING DISORDER EXAMINATION QUESTIONNAIRE
EDNOS	EATING DISORDER NOT OTHERWISE SPECIFIED
FBT	FAMILY-BASED THERAPY
FCS	FEARS OF COMPASSION SCALE

FSCRS	FORMS OF SELF-CRITICIZING/ATTACKING AND SELF-REASSURING SCALE
LMA	LONGITUDINAL MEDIATION ANALYSIS
MA	META-ANALYSIS
OSFED	OTHER SPECIFIED FEEDING OR EATING DISORDER
RCT	RANDOMISED CONTROLLED TRIAL
SCRS	SELF-CRITICAL RUMINATION SCALE
WCS	WEIGHT CONCERNS SCALE

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CHAPTER 1: OVERVIEW, AIMS, AND STRUCTURE

Overview

The global increase in the prevalence of disordered eating (DE) since the onset of COVID-19 (Gao et al., 2022) has compounded wait times for those seeking treatment and reduced access to in-person care (Bryan et al., 2020), with online treatments gaining rapid implementation to increase accessibility to evidence-based treatment. Despite this growth in alternate forms of care, recovery rates remain suboptimal, with a 17-year outcome study of eating disorders (EDs) in 62 adult patients found that only a third achieved full remission whilst half of the cohort experienced no change in outcome (Eielsen et al., 2021). Whilst poor patient outcomes may be due to a complex interplay of factors including but not limited to the presence of comorbidities, the severity of ED psychopathology and patients' motivation to change (Vall & Wade, 2015), current recovery rates prompt calls to develop novel interventions or augment current treatments to better target factors that maintain DE.

This thesis examines if self-criticism and self-compassion are mechanisms that would improve outcomes for people with EDs if they are targeted in adjunct treatments for DE. This is based on the following rationale. First, self-criticism, a mechanism defined as having a highly negative attitude towards the self (Gilbert et al., 2004), is viewed as a transdiagnostic vulnerability factor due to its impact on a wide variety of psychopathologies including depressive and anxiety disorders, post-traumatic stress disorder, personality disorders, and poor life outcomes overall (Ehret et al., 2015; Iancu et al., 2015; Kelly & Carter, 2013; Kopala-Sibley et al., 2012). More specifically to DE, self-criticism has been suggested to predict body dissatisfaction and pathological eating and exercise (Werner et al., 2019), increase the drive to be thin (Pinto-Gouveia et al., 2014), and promote fixation on perceived flaws and appearance comparisons with others (Williams & Levinson, 2022). Self-criticism can also lead to poorer outcomes in psychotherapy (Kannan & Levitt, 2013; Marshall et al.,

2008). These findings suggest that self-criticism not only contributes to the onset and maintenance of psychopathology symptoms but also inhibits positive outcomes during treatment, especially for DE. However, with various distinct conceptualisations of self-criticism that have shown mixed psychometric properties (Rose & Rimes, 2018), a valid measure of self-criticism is needed to help improve confidence in research findings on the relationship between self-criticism and DE.

Second, self-compassion is another transdiagnostic mechanism that could help to reduce engagement in self-criticism, defined as showing kindness, care, and concern during life struggles without being judgemental towards the self (Warren et al., 2016). For instance, Leaviss and Uttley's (2015) systematic review found that compassion-focused therapy was a promising intervention for mood disorders but particularly beneficial for people high in self-criticism. A meta-analysis from Kirby et al. (2017) examined 12 randomised controlled trials (RCTs) of various compassion-based interventions, which also found moderate effect sizes for reduced depression, anxiety, and psychological distress (d = .37 – .66) and improved life satisfaction, happiness, self-compassion and mindfulness (d = .53 – .69). Specific to DE, findings from systematic reviews suggest that engaging in compassion-based interventions may act as a protective factor against DE. Braun et al.'s (2016) review concluded that greater self-compassion is associated with lower levels of DE in adolescents and adults from clinical and non-clinical populations, greater body image flexibility and appreciation, mindful eating and reduced drive for thinness. Long-term benefits have also been observed, with Linardon (2021) finding that greater self-compassion and body satisfaction reduced the likelihood of future emergence of DE symptoms after eight months. Taken together, the literature suggests that self-compassion could be an efficient intervention approach to reduce high levels of self-criticism and, in turn, DE symptoms and general well-being. However, with several risk factors of DE being proposed as key mechanisms to target, such as shame or rumination

(Nechita et al., 2021; Smith et al., 2018), a review of the current evidence is needed to ensure that targeting self-criticism can also impact self-compassion and acts as a pertinent contributor to the development and maintenance of DE.

Third, Gilbert & Procter (2006) noted that participants in a group CFT with high self-criticism levels presented with a fear of engaging in compassion-based processes. This fear of self-compassion can then act as a barrier to treatment if patients are not open to practising showing affiliation towards the self, with Kelly et al.'s (2014) examination of a mixed student and ED sample finding that fear of self-compassion predicted ED pathology. Whilst greater engagement in self-compassion is linked with reduced self-criticism (Wakelin et al., 2021) and ED symptoms (Taylor et al., 2015), failing to target the presence of fear of self-compassion and perceived utility of self-criticism may continue to hinder treatment efficiency if participants actively resist engagement in self-compassion (Kelly et al., 2021). Hence, targeting fear of self-criticism early in treatment could help to accelerate change in treatment outcomes, if patients learn to reconsider the value of self-compassion.

Finally, whilst the literature implies that targeting self-criticism and self-compassion in people with DE could lead to positive treatment outcomes (Linardon, 2021; Werner et al., 2019), developing novel intervention approaches is time-consuming and requires feasibility studies and small- and large-scale RCTs (Araújo-Soares et al., 2019). As such, incorporating elements that target self-criticism and promote self-compassion into current ED treatments may be a more efficient approach to explicitly targeting these constructs. Nevertheless, RCTs are first needed to understand better the additive effects of augmenting elements of compassion-focused interventions into standard ED treatments (Linardon, 2024).

Specific Aims

Based on the evidence provided and current gaps in the literature, this thesis aims to address the following:

1. Establish a reliable measure of self-criticism that can be utilised in research and clinical settings, particularly with people with DE (**Chapter 3**),
2. Synthesise the evidence of the impact of self-criticism and self-compassion on DE (**Chapter 4**),
3. Explore how self-criticism, fear of self-compassion, and DE interact over time (**Chapter 5**),
4. Investigate whether targeting self-criticism and self-compassion as an adjunct treatment for DE improves outcomes (**Chapter 6**),
5. Summarise the evidence and suggest future directions for targeting risk factors that contribute to the onset and maintenance of DE and improving adjunct treatments for DE (**Chapter 7**).

Structure

Overview of Thesis Studies

The next Chapter (**Chapter 2**) provides a narrative literature review with a detailed examination of the issues and themes introduced in this overview. DE and their prevalence and impact are discussed in more detail, current evidence-based psychological treatments and their limitations are examined with literature that advocates for a transdiagnostic approach to treatment, and how adjunct treatments that target self-criticism and promote self-compassion are a promising new avenue to explore.

Chapter 3 reports a Confirmatory Factor Analysis (CFA) of a measure of self-criticism, the Forms of Self-Criticising/Attacking and Self-Reassuring Scale (FSCRS) (Gilbert et al., 2004). Two of the three subscales are postulated to measure self-criticism. The first is the ‘inadequate-self’ subscale, and the second is the ‘hated-self’ subscale. The third subscale is the ‘reassuring-self’ subscale, reflecting compassionate feelings directed towards oneself. Whilst the FSCRS has been previously validated with several clinical samples, most

of the focus has been on clinical samples with affective disorders such as depression (e.g., Baião et al., 2015; Kupeli et al., 2013), with limited research validating the measure with a focus on an ED sample. The CFA utilised data from a non-clinical sample of undergraduate students (n = 104) collected for this study and a clinical sample with an ED (n = 196). Indicators of reliability (test-retest reliability and several methods to examine internal consistency) and validity are also reported to inform the appropriate use of this measure with people with DE.

Chapter 4 explores a Meta-Analysis (MA) reviewing associations between self-criticism and self-critical perfectionism in DE and how self-compassion and self-criticism relate to each other with respect to DE. Research has suggested that being self-critical can lead to the development and maintenance of DE (e.g., Fennig et al., 2008; Kelly & Carter, 2013). However, whilst literature has often implied that increasing self-compassion could buffer against self-criticism and reduce DE symptoms (e.g., Kelly et al., 2021), the strength of this evidence remains unclear. Further, whilst research has demonstrated significant overlap between self-criticism and self-critical perfectionism and both constructs showing strong associations with DE (e.g., Egan et al., 2011; van der Kaap-Deeder et al., 2016), literature has shown that self-criticism could be more pathogenic and linked with greater ED psychopathology when controlling for various forms of perfectionism (Steele et al., 2011). Consequently, this MA increases understanding of how to increase the effectiveness of interventions targeting self-criticism in people with DE.

Chapter 5 uses the clinical sample utilised for the CFA (n = 196) to conduct a Longitudinal Mediation Analysis (LMA) to detect whether a change in mean levels of self-criticism over time mediates the relationship between baseline fear of self-compassion and change in slope of ED symptoms over time. Whilst the relationship between self-compassion and ED pathology has already been established in the literature (e.g., Turk & Waller, 2020),

this work informs the potential impact of tackling patients' fear of self-compassion early in treatment as results suggest it leads to subsequent reductions in self-criticism and accelerated change in ED symptoms.

Chapter 6 investigates a brief approach to an online intervention in people with DE and its impact on reducing self-criticism and increasing self-compassion. A Randomised Controlled Trial (RCT) is conducted through a brief guided self-help intervention (delivered virtually over four sessions) focusing on increasing self-compassion in participants who show an elevated risk of developing an ED to reduce depression, anxiety, stress, and ED symptoms whilst increasing well-being, quality of life, and body image flexibility. This intervention is compared to a waitlist control, with the latter group receiving the intervention at the end of the assessment period. Pre-post intervention change in the treatment group provides support for further investigation of this intervention.

Chapter 7 concludes the thesis with a general discussion summarising key findings observed across the earlier studies. The discussion sections for **Chapters 3 to 6** focus on each chapter's immediate results. **Chapter 7** integrates these findings and explores clinical and research implications, limitations, and directions for future research in this field.

A reference list for the entire thesis follows Chapter 7, followed by the appendices. Tables and figures can be found within the bodies of each Chapter.

CHAPTER 2: LITERATURE REVIEW[1]

[1] This chapter contains content from a paper that was published which can be found in **Appendix A**. The first author contributed 20% to the research design, 80% to data collection and analysis, and 80% to the writing and editing. The second author contributed 80% to the research design, 20% to data collection and analysis, and 20% to the writing and editing.

Paranjothy, S. M., & Wade, T. D. (2024). A meta-analysis of disordered eating and its association with self-criticism and self-compassion. *International Journal of Eating Disorders, 57*(3), 473–536. https://doi.org/10.1002/eat.24166

Eating Disorders Defined

Eating disorders (ED) are severe mental health conditions characterised by a preoccupation about body weight and shape concerns. This is often marked by persistent negative thoughts and emotions, which can then lead to behaviours to alter and control body weight and shape, including vomiting, excessive exercise, overuse of laxatives, restrictive eating, reducing insulin use if Type 1 diabetes is present, or limiting the amount or type of food to achieve their goal. EDs affect individuals of all genders, ages, races/ethnicities, sexual orientations and socio-economic backgrounds and present in all different shapes and sizes of bodies.

Types of Eating Disorders

EDs are most diagnosed with reference to the criteria outlined in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5; American Psychiatric Association (APA), 2013). The DSM-5 provides diagnostic criteria for pica, rumination disorders, avoidant/restrictive food intake disorder, anorexia nervosa, bulimia nervosa, binge eating disorder, and other specified feeding or eating disorders. The core feature of pica is the ingestion of non-nutritive, non-food substances (e.g., cloth, hair, rocks), whilst ruminative disorder involves bringing up previously swallowed food that may be partially digested into the mouth, followed by re-chewing and swallowing it again or spitting it out. Avoidant/restrictive food intake disorder is characterised by a noticeable lack of interest in eating or food in general, avoiding food based on its sensory traits or having concerns about any aversive consequences of eating that are not explained by a preoccupation about body weight or shape. As these disorders do not include a preoccupation with body weight and shape concerns, they are beyond the scope of this thesis.

The focus of this thesis are the EDs that feature a concern with body shape and weight. Anorexia Nervosa (AN) is characterised by restricting food intake, leading to

significantly low body weight with reference to their age, gender, developmental and physical health, failure to acknowledge the severity of their low body weight, as well as holding a relentless fear of gaining weight or of becoming overweight despite being at a significantly low weight. There are two subtypes of AN, with symptom presentation in the last three months. The first is the restricting subtype, where weight loss is achieved through dieting, abstaining from meals, and/or excessive exercise. The second is a binge eating/purging subtype, where there is a recurrence of binge eating or purging behaviours such as self-induced vomiting or use of laxatives in addition to dietary restriction. While the DSM-5 has been deliberately less prescriptive about weight, individuals with a Body Mass Index (BMI; kilograms/height in meters^2) $\geq$ 18.5 kg/m^2 would usually not be considered to meet the full criteria for AN.

Bulimia Nervosa (BN) involves having recurrent episodes of binge eating within discrete periods (e.g., within 2 hours) where an excessive amount of food is consumed, accompanied by the sense of not being able to control how much one is eating compensatory behaviours to prevent weight gain and control body weight and shape, such as purging (self-induced vomiting and/or laxatives), fasting, and excessive exercise. Both binge eating and use of compensatory behaviours must occur at least once a week for three months. The severity of the illness is characterized by the frequency of compensatory behaviours utilized per week: Mild (1–3 episodes of compensatory behaviours per week), Moderate (4–7 episodes of compensatory behaviours per week), Severe (8–13 episodes of compensatory behaviours per week), or Extreme (14 or more episodes per week).

Binge eating disorder (BED) is characterised by recurring episodes of significant overeating (called objective binge episodes) within discrete periods (e.g., within 2 hours) with the sense of not being able to control how much one is eating without then utilising compensatory behaviours to control body shape and weight. These episodes must occur at

least once a week for three months and result in marked distress, with negative evaluation often a delayed consequence of a binge eating episode (APA, 2013). The severity of the illness is considered by the frequency of compensatory behaviours utilized per week: Mild (1–3 episodes of compensatory behaviours per week), Moderate (4–7 episodes of compensatory behaviours per week), Severe (8–13 episodes of compensatory behaviours per week), or Extreme (14 or more episodes per week).

Other Specified Feeding or Eating Disorders (OSFEDs) apply to presentations where the individual engages in the ED behaviours described above but fails to meet the above diagnostic criteria. For example, this could take the form of an individual engaging in behaviours aligned with BED but not at a high frequency (e.g., less than once a week), someone meeting all of the criteria for AN but continuing to hold their weight within the normal or above the normal range despite significant weight loss, someone that meets all of the criteria for BN but engage in binge eating and inappropriate compensatory behaviours at a low or inconsistent frequency (e.g., for less than three months), or someone that purges frequently in the absence of objective binge episodes. In addition, there exists the diagnosis of Unspecified Feeding or Eating Disorder (UFED) for those who do not meet the full criteria of any of the other feeding or eating disorders.

It should be noted that, for diagnostic purposes, all these EDs are accompanied by clinically significant distress or impairment of functioning. Thomas et al.'s (2009) meta-analysis of EDs under the DSM found that Eating Disorders Not Otherwise Specified (EDNOS) showed no difference in psychopathology compared to AN and BED. In line with Thomas et al.'s (2009) suggestions to relax the diagnostic criteria amongst EDs and introduce an other-specified category, Wilkop et al. (2023) explored whether these changes, as implemented in the DSM-5, have improved the distinction between the diagnostic categories. Conversely, their multi-level meta-analysis reported no significant differences in general

psychopathology between AN and OSFED and UFED, between BN and low-frequency BN, or between BED and OSFED. Health impairments were more significant in AN than in OSFED and UFED, greater eating and general psychopathology were observed in BN compared to OSFED and UFED, and greater health impairments were reported in OSFED and UFED than BN. These variations between disorders highlight the lack of clear distinction between their associated impairments.

Disordered Eating

Disordered eating (DE) is viewed as part of the continuum of EDs and non-clinical populations who may show similar psychological markers to clinical samples (Miller et al., 2009), including cognitions and behaviours categorised across the ED diagnoses without meeting criteria to warrant a formal diagnosis. DE is shifting to a norm among young women, with almost 23% experiencing DE in a 12-month period (Wade et al., 2012). Kärkkäinen et al. (2018) also showed that DE in young adults was associated with poorer self-reported health, greater BMI, and psychological distress in both men and women, demonstrating that DE can lead to impairments similarly observed in people who qualify for a formal ED diagnosis. Consequently, the research across this thesis will focus on DE as a spectrum rather than focusing on specific diagnoses, indicating the physical, cognitive, emotional and behavioural features that form the core psychopathology of EDs.

Prevalence of Eating Disorders

The prevalence and impact of EDs are rising. A recent narrative review reported that the global lifetime prevalence for ED ranged from 0.74% to 2.2% in males and 2.58%-8.4% in females (Hay et al., 2023). Qian et al.'s (2022) examination of EDs in the general population reported that the pooled lifetime and 12-month prevalence were 0.91% and 0.43%, respectively, with the lifetime prevalence of AN, BN, and BED sitting at 0.16%, 0.63%, and 1.53%, respectively. Much of the evidence has been obtained through

examinations of female samples, with Galmiche et al. (2019) similarly reporting that the lifetime prevalence of any ED for females was 8.4%. However, understudied populations are also demonstrating high rates of ED, such as in indigenous populations and sexual and gender minority groups. Burt et al.'s (2020) estimation of the prevalence of EDs amongst Aboriginal and Torres Strait Islander peoples found that 27% of respondents had ED, with the majority classified under other-specified EDs. Their findings also revealed that Aboriginal and Torres Strait Islander peoples demonstrated greater levels of weight/shape overvaluation and had poorer mental health outcomes than other Australians without ED. Nagata and colleagues (2020) also found that the lifetime prevalence of AN, BN and BED diagnoses is higher amongst sexual minority adults compared to cisgender heterosexual adults in the United States, with 10.5% of transgender men and 8.1% of transgender women qualifying for an ED diagnosis. Young men are also at risk of presenting with ED, with Silén et al. (2020) reporting DSM-5 EDs affected one in six females and one in 40 males aged 13 to 25 years old. Mitchison and colleagues (2019) showed self-report point prevalence of any ED was 22.2% in Australian adolescents, 12.8% in boys, and 32.9% in girls.

Regardless of meeting the criteria for an ED diagnosis, previous findings suggest that engaging in DE is common. For instance, Sparti et al. (2019) reported that 31.6% of Australian adolescents experienced DE, which was slightly more common among girls (41%) than boys (34%). Based on recent trends, the prevalence of DE is expected to increase (Galmiche et al., 2019), particularly due to the advent of COVID-19 exacerbating this trend. Miskovic-Wheatley and colleagues (2022) found that participants with self-reported ED diagnosis or symptomology over 16 years old had an increase in body image concerns (88%), 74% restricted their food, 66% engaged in binge eating, and 46% excessively exercised during the pandemic. Existing data also suggests that those most susceptible to symptom escalation, including those with a formal ED diagnosis, young women, athletes,

parents/carers, and individuals with high anxiety, had worsened mental health reportedly due to the pandemic (Linardon et al., 2022).

The Adverse Impacts of Disordered Eating

EDs can have long-term medical, physical and mental health impacts, including substance use, deliberate self-harm, suicide attempts, depressive and anxiety disorders, chronic fatigue, chronic pain, osteoporosis and bone health, cancer, gastrointestinal disorders, infectious diseases, metabolic syndrome, oral health, vitamin deficiencies, reproductive health, neurological and cardiovascular symptoms, and adverse weight outcomes: both high-weight (associated with higher rates of medical problems including diabetes, hypertension and dyslipidaemia independent of obesity) and underweight (Johnson et al., 2002; Hambleton et al., 2022; Linardon et al., 2021; Micali et al., 2015). Mortality rates for AN are amongst the highest in all psychiatric disorders (Chesney et al., 2014), either due to the medical consequences associated with the disorder or through suicide (Steinhausen, 2009). DE has a long-term adverse impact on young women's quality of life, both physically and mentally (Wade et al., 2012), associated with an increased risk of mental health comorbidities (McBride et al., 2013). Findings from a rapid review reported that the most prevalent comorbidities for EDs include anxiety at over 60%, over 50% with mood disorders, and slightly over a quarter with substance use and post-traumatic stress disorders (Hambleton et al., 2022).

Treatments for Disordered Eating

The National Institute for Health and Care Excellence (NICE; 2017) guidelines recommend psychological interventions as the first-line treatment for AN, BN, BED, and OSFED. **Table 2.1** provides a brief summary of the treatment recommendations provided by NICE (2017).

Based on NICE's (2017) recommendations, Cognitive Behavioural Therapy for Eating Disorders (CBT-ED) is advised as a treatment approach across AN, BN, and BED in adults. Whilst CBT-ED includes different CBT approaches for ED (e.g., CBT-E and CBT-T), the central focus is on helping the person test anxious predictions related to food, weight and shape through experimenting with behaviour change. Meta-analyses show that CBT is more efficacious for individuals with BN and BED compared to waitlist controls and active psychotherapy comparisons (Linardon et al., 2017) and superior to third-wave therapies such as Acceptance and Commitment Therapy (ACT) that aim to foster mindfulness acceptance and psychological flexibility (Hayes et al., 2011; Linardon et al., 2017).

Whilst CBT-ED is also evaluated with children and young people, Family-Based Treatment (FBT) is considered the frontline treatment in this age group. FBT is designed to restore youths to health by giving their parents responsibility for decisions over their child's eating and recovery. A meta-analysis (Zeeck et al., 2018) exploring psychotherapeutic treatments for AN identified that FBT was more frequently relied on for treatments with adolescent patients compared to individual psychotherapy in adults, with weight gains reported to be more rapid in adolescents. Chen et al. (2016) also found that FBT for youths with AN results in significant weight restorations that were maintained a year post-treatment (g = 0.95), and FBT for AN has been identified as a more cost-effective treatment compared to general family therapy that looks at addressing issues within the family unit more so than the patients' eating and weight struggles (Agras et al., 2014).

Table 2.1

Summary of NICE's (2017) treatment recommendations for EDs

Diagnosis	Treatment Recommendations
Anorexia nervosa	**For adults:** 1. Individual eating-disorder-focused cognitive behavioural therapy (CBT) 2. Maudsley anorexia nervosa treatment for adults (MANTRA) 3. Specialist supportive clinical management (SSCM) 4. Eating-disorder-focused-focal psychodynamic therapy (FPT) as an alternative option
	For children and young people: 1. Anorexia-nervosa-focused family therapy (FT-AN) 2. Individual eating-disorder-focused cognitive behavioural therapy (CBT) as an alternative option 3. Adolescent-focused psychotherapy for anorexia nervosa (AFP-AN) as an alternative option
Bulimia nervosa	**For adults:** 1. Bulimia-nervosa-focused-guided self-help for adults with bulimia nervosa 2. Individual eating-disorder-focused cognitive behavioural therapy (CBT) as an alternative option

	For children and young people: 1. Bulimia-nervosa-focused family therapy (FT-BN) 2. Individual eating-disorder-focused cognitive behavioural therapy (CBT) as an alternative option
Binge eating disorder	**For adults:** 1. Binge-eating-disorder-focused guided self-help 2. Group eating-disorder-focused cognitive behavioural therapy (CBT) as an alternative option 3. Individual eating-disorder-focused cognitive behavioural therapy (CBT) as an alternative option
	For children and young people: 1. Binge-eating-disorder-focused guided self-help 2. Group eating-disorder-focused cognitive behavioural therapy (CBT) as an alternative option 3. Individual eating-disorder-focused cognitive behavioural therapy (CBT) as an alternative option
Other specified feeding and eating disorders (OSFED)	Referring to the treatments for the ED it most closely resembles

Guided self-help interventions utilising CBT also offer a cost-effective approach to seeking help for BED, with a binge-eating-focused self-help intervention recommended for both adults and young people. With the high demand for psychological services, remotely offered guided self-help versions of treatments allow for reduced therapist involvement and provide an avenue to increase treatment availability whilst still supporting individuals and removing geographical barriers to accessing care (Abrahamsson et al., 2018). Melisse and colleagues (2023) conducted a randomised controlled trial (RCT) using a web-based guided self-help CBT for BED, which found that objective binge eating episodes reduced from an average of nineteen to three, and 40% of participants achieved remission post-treatment.

Limitations of Current Treatment Approaches

Whilst these results indicate positive outcomes if individuals seek treatment for DE, the long-term effectiveness of these therapies is less promising, with remission being a significant challenge across different diagnoses, treatments, and age groups. For instance, Le Grange and colleagues (2007) reported that almost 40% of participants undergoing FBT for BN abstained from bingeing or purging behaviours post-treatment, but remission rates reduced to almost 30% after a 6-month follow-up. Similarly, only 22% of participants who completed FBT for AN reported full remission post-treatment and at a 6-month follow-up (Le Grange et al., 2016). A meta-analysis examining various psychotherapeutic treatments for AN found no significant differences between treatments (Zeeck et al., 2018), similarly reported by Murray et al. (2019), where no significant treatment effect on psychological outcomes for AN was observed post-treatment and at follow-up across various treatment modalities.

Mixed remission rates have also been observed across various treatments. A meta-analysis examining how many individuals abstain from core BN symptoms such as binge eating and/or purging found that, on average, only 35% of patients achieved abstinence from

core behavioural symptoms post-treatment (Linardon & Wade, 2018). However, behavioural-based therapies such as CBT demonstrated greater average abstinence rates, whilst FBT demonstrated lower rates. Additionally, whilst NICE's (2017) recommendations for AN provided several options, the difference in treatment efficacy for AN was explored by Solmi and colleagues (2021), which found that Maudsley Anorexia Nervosa Treatment for Adults (MANTRA), CBT, and Eating-Disorder-Focused-Focal Psychodynamic Therapy (FPT) did not significantly differ from expert-delivered treatment as usual (which included Specialist Supportive Clinical Management or SSCM) when assessing for change in participants' BMI, clinical symptoms and drop-out rates. Similarly, when comparing CBT, MANTRA and SSCM for recommended AN treatments in an outpatient treatment setting, Byrne et al. (2017) found no significant difference between the treatments in ensuring clinically significant improvements in BMI, ED and general psychopathology or psychosocial impairment 12 months post-treatment.

Whilst limited research has compared the efficacy of interventions for DE between various age groups, a systematic review by Bulik and colleagues (2007) found that FBT was more effective for adolescents with AN with a shorter duration of the illness than adults with a more chronic course. Calugi et al. (2015) also compared the effectiveness of CBT for AN in weight restoration between adults and adolescents receiving treatment, which found that over 65% of adolescents achieved their weight goals compared to just under 37% of adults ($p <$ .01), and adolescents took significantly less time to restore body weight than the adults (15 weeks vs. 28 weeks; $p < .001$). Whilst more research is needed to compare remission rates across various age groups to identify the most effective treatments, together, the findings above highlight the conundrums faced by clinicians in deciding the best course of treatment for their patients whilst also considering their diagnosis and demographic factors.

It is essential to consider that whilst these divergent remission rates across diagnoses, treatments, and age groups have been reported across multiple randomised controlled trials and meta-analyses, other variables can also moderate remission rates. For instance, the type of treatment modality has been shown to affect abstinence estimates of BN treatments, with guided self-help interventions achieving significantly lower remission rates compared to treatments guided by a clinician (Linardon & Wade, 2018). Having a comorbid diagnosis of major depressive disorder, a lower BMI or being older at the start of treatment (Franko et al., 2018) are also just a few of many identified negative predictors of long-term recovery for DE. Being unable to maintain minimal to no symptoms post-treatment for the long term can also lead to continuous cycles of readmission and discharge from ED-related treatments (Vall & Wade, 2017). Gatt et al. (2014) explored the economic burden of seeking ED treatments in Australia and found that almost 97% of participants reported economic hardship in paying for interventions, with BN connected with the highest out-of-pocket costs and limited availability for specialist ED programs in public hospital systems force many to seek private treatment that often includes substantial out-of-pocket expenditures. A recent study found that only 32% of people reported seeking formal treatment from health professionals for ED concerns (Ali et al., 2024). Consequently, the financial burden that comes with accessing treatments on multiple occasions may prove a barrier for people to access psychological aid when needed, thereby leading to relapse in DE symptoms.

Future research should continue to understand all possible patient, therapist, and treatment characteristics that may moderate remission estimates. These findings above nonetheless suggest that novel approaches to enhance current interventions for DE and improve remission rates are warranted.

The Role of Transdiagnostic Approaches to Theory and Treatment

To improve the effectiveness of treatments in youth mental health generally, attention has turned to transdiagnostic approaches. The transdiagnostic approach focuses on a common maladaptive process that underpins different diagnostic presentations, targeting these unifying mechanisms (McEvoy et al., 2009). This has been driven by two factors. First, by the recognition that an "overwhelming weight of evidence from decades of such data-driven efforts indicates that mental health problems are best conceptualized along a series of continua rather than as discrete categories" (p.182, Dalgleish et al., 2020). For example, hierarchical dimensions predict significantly greater variance in ED behaviours and future impairment than diagnosis (Forbush et al., 2024). Targeting these dimensions may lead to more integrated and efficient interventions and the identification of treatment elements that are effective across a wide range of disorders (Mansell et al., 2008). The vast array of diagnosis-specific manuals in which therapists must be proficient may act as a disincentive for implementing empirically supported treatments (Norton & Philipp, 2008).

Second, recognition that comorbidity is the norm rather than the exception. For instance, Bahji et al.'s (2019) meta-analysis showed that over 20% of individuals with ED also presented with lifetime comorbid substance use disorder; Tobacco, caffeine, and alcohol being the most prevalent substances used. A United States study with over 30,000 adults with BED also found that 70% of participants reported having mood disorders, 68% with substance-use disorders, 59% with anxiety, almost 50% with borderline personality disorder and more than a third with post-traumatic stress disorder (Udo & Grilo, 2019). High rates of DE have also been detected in individuals diagnosed with lifetime mood and anxiety disorders, with 13% meeting the criteria for a lifetime ED and nearly 40% reporting engaging in at least one clinically significant ED-related behaviour, such as binge eating (Garcia et al., 2020). Lydecker and Grilo (2021) found that 41% of patients who had psychiatric

comorbidity were also predicted to have worse ED psychopathology and greater binge-eating frequency across all treatments and time points, and patients with mood comorbidity were significantly less likely to remit compared to those without mood disorders.

An early transdiagnostic theory was proposed by Fairburn et al. (2003), suggesting four common mechanisms operating across ED diagnostic categories: Perfectionism, low self-esteem, mood intolerance, and interpersonal difficulties, with eating, shape and weight concerns seen as central to the maintenance of the disorder (Fairburn et al., 2003). Research has provided wide support for this theory, with Hoiles et al. (2012) finding that the four mechanisms indirectly impacted dietary restraint through eating, weight, and shape concerns. A recent network analysis by Mares and colleagues (2022) also confirmed that over-evaluation of eating, weight, and shape concerns is a central symptom across EDs, supporting the transdiagnostic theory that specifically targeting this process could lead to improvement across other symptoms. This transdiagnostic theory has led to the development of an "enhanced" form of CBT (CBT-E; Fairburn et al., 2003), which targets the core maintaining mechanisms of DE pertinent to the individual.

Albeit, to date, transdiagnostic interventions have not produced better outcomes than diagnostic-specific interventions (Fusar-Poli et al., 2019; Linardon et al., 2017). They do represent, however, a potential augmentation across disorder-specific treatments that can improve effectiveness (Pennesi et al., 2024). Additionally, adding a focus on the most pertinent transdiagnostic mechanisms may help increase treatment efficiency. This thesis focuses on whether self-criticism may be a pertinent transdiagnostic mechanism to target in treatment augmentation for DE. The following sections will provide evidence to demonstrate that self-criticism is a central phenomenon impacting a wide array of mental disorders and introduce another transdiagnostic mechanism that can be targeted during treatment to reduce levels of self-criticism in individuals with DE and other psychological disorders.

The Transdiagnostic Nature of Self-Criticism

Whilst a fundamental challenge in understanding the impact of self-criticism is a lack of consensus regarding a clear definition, it can be generally defined as having harsh and overly judgemental evaluations of the self, such as during moments of perceived failure (Löw et al., 2020). Although a qualitative paper found that individuals with DE sometimes view self-criticism as a motivational tool for self-improvement and the ability to meet important standards (Kelly et al., 2021), engagement in self-criticism is linked to a wide array of psychological disorders, including EDs, major depressive disorder, social anxiety disorder, and post-traumatic stress disorder (Ehret et al., 2015; Fennig et al., 2008; Harman & Lee, 2010; Iancu et al., 2015; Kelly & Carter, 2013; McIntyre et al., 2018; Noordenbos et al., 2014; Shahar et al., 2014; Thew et al., 2017), psychiatric comorbidity (Egan et al., 2011), and increases the likelihood of patients experiencing poorer treatment outcomes (Marshall et al., 2008).

Additionally, Powers and colleagues (2009) suggest that higher levels of self-criticism are associated with extrinsically motivated goals, such as avoiding failure or negative evaluations from others, rather than intrinsically motivated goals based on personal interests. They found that progress toward valued academic, social or weight loss goals was hampered due to high self-criticism. Discrepancy (the gap between one's perceived and desired performance) is associated with lower academic performance and less helpful academic behaviours, such as procrastination and higher levels of academic stress, burnout, and self-efficacy (Osenk et al., 2020). Consequently, being self-critical may negatively impair self-efficacy or the belief that one can influence the challenges in life (Stoeber et al., 2008). This is of concern as higher self-efficacy predicts steeper symptom reduction and shorter length of admission among inpatients with ED (Pinto et al., 2008) and more significant reductions in ED-related symptoms among people receiving guided self-help for BN (Steele et al., 2011).

Self-criticism, however, affects not only the self but also one's interpersonal relationships and is associated with poor interpersonal skills and unsatisfactory relationships (Priel & Besser, 2000; Whiffen & Aube, 1999). Individuals with greater self-criticism levels would thus also be more likely to have poorer treatment outcomes in traditional therapies for ED, such as CBT, as self-critics are more likely to struggle with building positive therapeutic alliances (Blatt et al., 1995). While many of these studies do not show causality, they highlight the adverse effects of self-criticism on mental health (including ED), goal pursuit, and interpersonal relationships. They suggest that reducing self-criticism may help reduce DE while improving mental health, social relationships, and self-efficacy.

Evidence for the transdiagnostic nature of self-criticism has been implicated in a wide array of psychopathologies, including DE. People with DE tend to compare themselves unfavourably with others (Ferreira et al., 2011) and often assume others evaluate them negatively. Defensive strategies like self-criticism help them manage the shortcomings of an inadequate perceived self (Gilbert et al., 2004). However, engaging in self-judgement and self-scrutiny promotes unhealthy eating patterns such as dietary restrictions, fasting, purging, and binge eating (Palmeira et al., 2017; Stice et al., 2011; Zelkowitz & Cole, 2020), increases the drive to be thin and exercise excessively (Pinto-Gouveia et al., 2014; Zelkowitz & Cole, 2020), and is widely observed across multiple ED diagnoses (van der Kaap-Deeder et al., 2016). Longitudinal studies also demonstrate that self-criticism predicts more significant growth of ED risk in young female adolescents (Wade et al., 2015) and predicts subsequent excessive thoughts of food, food cravings, restriction, purging and excessive exercise amongst women with BED symptoms (Mason et al., 2021).

Theoretical Models and Measurements of Self-Criticism

With the increasing attention to self-criticism being a transdiagnostic factor in recent years, there has been an explosion of theoretical models of self-criticism and measurement

tools to explore its implications in various mental health disorders. Whilst researchers typically imply that self-criticism is the tendency to judge the self harshly and negatively (Shahar, 2015), the discussion around the definition and conceptualisation of self-criticism remains open-ended. Various forms, functions, and underlying emotions pertaining to self-criticism have been postulated in research, and these have often demonstrated overlaps with constructs such as perfectionism. Below is an exploration of the features and drawbacks of three prominent yet distinct theories that have had more significant attention in scientific research.

Sydney Blatt's theory. Informed by a cognitive-personality development perspective, Blatt and colleagues (1976) attempted to distinguish between different subtypes of depression. They distinguished a depression attributed to interpersonal struggles characterised by loneliness or helplessness due to fears of being abandoned. They also identified an introjective depression dominated by engagement in self-criticism and feelings of failure and inadequacy due to a chronic fear of being negatively scrutinised by others (Blatt & Zuroff, 1992). They proposed that these two factors, formed by early life experiences, are fundamental in personality development and in shaping adaptive and maladaptive functioning. In particular, introjective depression is likely to develop through early parental experiences of having to meet strict standards amid fear of being disapproved or punished, contributing to greater engagement in self-criticism when set standards have not been met (Blatt, 2008).

The Depressive Experiences Questionnaire (DEQ), which aligns with this theory, is a validated scale (Atger et al., 2003; Bagby et al., 1994) that has also demonstrated significant associations between self-criticism and ED psychopathology (e.g., de Valle & Wade, 2022; Zelkowitz & Cole, 2020). Building on this theory, Thompson and Zuroff (2004) then further identified two levels of self-criticism: Comparative self-criticism, characterised by negative

thoughts and feelings experienced when comparing oneself to others, and internalised self-criticism which results from failure to achieve high standards, utilising the Levels of Self-Criticism Scale to assess this (LOSC). Whilst the scale shows good psychometric properties in its original study (Thompson & Zuroff, 2004), only one other validation study has been conducted (Halamová et al., 2018), which argued for a further breakdown of the comparative self-criticism subscale into two smaller factors of favourable and unfavourable comparison with others, with neither study utilising a clinical population for their factor analysis.

Blatt et al.'s (1976) theory, which informed the DEQ and LOSC, also featured some drawbacks. First, the theory focuses on early childhood experiences in shaping personality development and engagement in self-criticism, which is then linked with greater depressive symptoms (Blatt & Zuroff, 1992). Whilst early experiences, including trauma, can have a significant impact on self-critical thinking and the risk of developing depression, Little and Garber's (2000) study with nearly 500 children (*M*age = 11.40) found that their levels of self-criticism did not significantly predict their depression scores three months later. More recently, Kopala-Sibley et al. (2015) had over 200 adolescents complete measures of self-criticism, dependency, depression and anxiety at baseline and 24 months (*M*age = 12.57) and found that controlling for dependency, life events and anxiety, self-criticism did not significantly predict depression scores two years later. Gittins and Hunt (2020) also observed in their longitudinal study on teenagers aged 12 to 14 that self-criticism did not predict the development of depressive symptoms and vice-versa, which calls into question the vulnerability model put forward and how it applies to other forms of psychopathology including ED.

Aaron Beck's theory. Beck et al.'s (1979) introduction of the cognitive triad brings forth a cognitive approach to conceptualising self-criticism, which suggests that negative cognitions are attached to how we see ourselves (e.g., I am worthless), how we see the world

(e.g., The world is cruel), and how we see the future (e.g., There is nothing to look forward to). Whilst there is no clear emphasis on identifying these cognitions as self-critical, it is likely to be observed that individuals who engage in self-criticism often utilise negative self-talk consistent with Beck et al.'s (1979) theory (Shahar, 2015). In stark contrast to Blatt et al.'s (1976) theory, Beck et al. (1979) does not explicitly expand on the developmental trajectory of self-criticism but suggest that adverse childhood experiences, including abuse and neglect, contribute to maladaptive cognitive vulnerabilities in adulthood (Pilkington et al., 2021). The theory's focus on the cognitive role in shaping self-criticism is part of its drawback due to a limited focus on emotional and behavioural factors that can also contribute to this process. Further, whilst there is a measure based on the cognitive triad, Beck's depression inventory (Beck et al., 1996) is designed to assess depression rather than self-criticism, limiting researchers' ability to support the theory empirically.

Paul Gilbert's theory. Gilbert (2009) used a cognitive-evolutionary perspective conceptualisation of self-criticism, postulating that social challenges have helped humans develop mechanisms to engage and regulate in various relationships. They postulate three emotion regulation systems: Threat and protection central to the ability to identify and respond when threats emerge; drive associated with the seeking and acquiring rewards and resources; contentment and soothing associated with recovery rather than detecting threats or seeking resources (Gilbert, 2014). Consequently, self-critics often have heightened sensitivity to the threat-protection system, characterised by anger, anxiety or disgust towards the self, and low use of soothing, characterised by an ability to be supportive, compassionate and self-validating when faced with setbacks.

Compared to Blatt et al.'s (1976) and Beck et al.'s (1979) self-criticism theories, which were formulated to link depressive symptoms to self-criticism, this theory provides a more functional perspective as self-criticism can take different forms and serve different

functions rather than being linked explicitly with depression. For instance, whilst some individuals engage in self-criticism when they feel inadequate compared to others and wish to rid parts of themselves they dislike, some may see self-criticism as a positive function by criticising themselves with the perception that it would increase their motivation to achieve. Consequently, each individual's self-criticism function would influence how they feel, think, and act. Integrating the role of emotions and behaviours when one engages in self-criticism offers a more comprehensive model compared to Blatt's (1976) model, which focuses on adverse early childhood experiences in shaping self-criticism, and Beck's (1979) model, which focuses on the cognitive role of self-criticism over emotional and behavioural factors.

To further unpack specific self-critical functions and how they make individuals think, feel and behave, Gilbert et al. (2004) developed the Forms of Self-Criticizing/Attacking and Self-Reassuring Scale (FSCRS) to identify two distinct forms of self-criticism as well as a self-reassurance subscale to capture positive and compassionate feelings directed towards oneself. One of the self-criticism subscales attempts to capture a sense of feeling like a failure or inadequate through an 'inadequate-self' subscale, and the other attempts to capture a sense of hate and contemptuous feelings through a 'hated-self' subscale. Literature that examined the psychometric properties of the FSCRS have been able to find support for the measure's ability to distinguish between the two constructs (Biermann et al., 2020; Castilho et al., 2015) and that self-hatred is more pathogenic than self-inadequacy (Baião et al., 2015; Gilbert et al., 2004). This thesis will thus utilise the conceptual framework of self-criticism developed by Gilbert (2004) in the subsequent chapters.

Differentiating Self-Criticism from Perfectionism

When attempting to conceptualise self-criticism, consideration must also be given to factors that significantly contribute to it. Perfectionism is one such primary construct

underlying self-critical tendencies, defined as a person's concern with striving to achieve high self-imposed standards (Stoeber & Childs, 2010). For example, Fairburn et al. (2003) postulated that a similar maintaining function of perfectionism can be observed when engaging in self-criticism for failing to adhere to excessively high self-imposed standards, but that it is this function that is thought to make perfectionism a pathological issue (Frost et al., 1990). This suggests that self-criticism could play a fundamental role in addressing clinical perfectionism. Namely, whilst setting standards for oneself and weighing one's achievements could be beneficial in helping to attain goals, it is when self-evaluations are dominated by self-critical appraisals that they become unhealthy (Alden et al., 2002).

Several studies have shown that self-criticism and perfectionism can be differentiated, mainly supporting self-criticism as central to better understanding the relationship between perfectionism and DE. Dunkley et al. (2006) examined the impact of perfectionism and self-criticism on maladjustment using daily questionnaires of self-criticism, perfectionism, hassles, coping, perceived social support, and affect over seven days, with self-criticism revealed to be the strongest predictor in predicting maladjustment. Another study (Dunkley et al., 2006) of 236 patients treatment-seeking adults who were overweight and met diagnostic criteria with BED found that perfectionism was no longer uniquely related to the over-evaluation of shape and weight after controlling for self-criticism. Dunkley and Grilo (2007) similarly showed that the self-critical component of perfectionism maintained a unique relation with over-evaluation of shape and weight independently to the depressive symptoms and low self-esteem, another transdiagnostic mechanism (Fairburn et al., 2003). Together, these studies suggest that self-criticism warrants consideration as a more pertinent transdiagnostic component to address during adjunct interventions for DE.

To circumvent the confusion between perfectionism and self-criticism, "self-critical perfectionism" was formulated across several factor analyses (Dunkley et al., 2006; Stoeber

& Otto, 2006). Defined as being overly critical and unable to derive satisfaction from one's behaviour as well as having chronic concerns about others' criticism (Dunkley et al., 2003), self-critical perfectionism is postulated to be the dimension of perfectionism that predicts maladjustment (Dunkley et al., 2006). It is a combination of measures, including the self-criticism subscale of the DEQ (Blatt et al., 1976), the concern over mistakes subscale of the Frost Multidimensional Perfectionism Scale (FMPS; Frost et al., 1990), and the socially prescribed perfectionism subscale of the Hewitt and Flett Multidimensional Perfectionism Scale (HMPS; Hewitt & Flett, 1991).

Like those with high self-criticism, the literature has shown that individuals with high levels of self-critical perfectionism present with a greater risk of experiencing DE, including binge eating, diet restrictions and body dissatisfaction (Boone et al., 2012; Boone et al., 2012; Mackinnon et al., 2011). With Boone et al.'s (2012) study revealing that priming self-critical perfectionism increases the likelihood of engaging in binge eating the day following the prime, and Boone et al.'s (2011) study indicating that self-critical perfectionism predicted increases in bulimic symptoms over 2 years, high self-critical perfectionism could make one more susceptible to develop DE. While not examining DE, Dunkley et al. (2003) showed that university students who experienced self-critical perfectionism were more sensitive to failure, loss of control, criticism from others, and certain coping mechanisms were less effective compared to students who were not experiencing perfectionism. Similar to self-criticism, higher levels of self-critical perfectionism also adversely impact therapeutic processes and outcomes through engagement with treatment. Self-critical perfectionism predicts poorer response to treatment for depression (Blatt et al., 1995; Blatt et al., 1998), and postulated mechanisms for this relationship include interference with the therapeutic alliance, particularly in the second half of treatment (Zuroff et al., 2000) as well as poorer social networks (Shahar et al., 2004). Together, whilst support has been provided to self-criticism

being a more significant transdiagnostic component to target in treatment for DE, self-critical perfectionism was reported to be comparable to self-criticism, and associated measures can be used interchangeably (Dunkley et al., 2006; Shahar, 2015).

Current Treatments Targeting Self-Criticism

Several broad interventions have been evaluated in terms of their impact on reducing self-criticism. One intervention incorporated Acceptance and Commitment Therapy (ACT) to address self-criticism and shame in participants with substance abuse, which trains individuals to accept rather than avoid their emotions, attend to the present moment through mindfulness and engage in behaviours consistent with their values (Emamghaisi & Atashpour, 2020). However, whilst their results showed that ACT significantly reduced feelings of shame, no such effect was found for self-criticism. Scarce research has focused on exploring the effects of ACT on self-criticism (Luoma & Platt, 2015).

Cognitive-behavioural interventions such as CBT-E also focus on mechanisms that maintain ED psychopathology, and this often includes targeting self-criticism through understanding and changing self-critical thoughts or core beliefs that individuals carry with them into various situations (Kannan & Levitt, 2013). However, whilst Hamedani and colleagues (2023) found CBT-E led to reductions in self-criticism, its use of female college students limits its generalisability in whether CBT-E will lead to similar results in samples with DE.

Emotion-focused therapy (EFT) has shown promise in reducing self-criticism (Shahar et al., 2012), using a two-chair dialogue to develop emotional awareness and regulating and changing maladaptive emotions (Greenberg, 2008). The client engages in a dialogue as their inner critic using one chair and speaks to the experiencing self, who responds to these self-critical attacks using another chair, with the client often switching between the two roles to resolve the conflict between the inner critic and the self. Shahar and colleagues (2012) found

that EFT led to reductions in self-criticism, depression and anxiety and an increase in self-compassion. However, only 10 participants were used, no control group was included, and only significant reductions in the 'inadequate-self' factor of the FSCRS were observed. Further, whilst research shows that EFT is an effective solution to increase self-compassion and reduce self-criticism in non-clinical populations (Halamová et al., 2021), its effectiveness in clinical samples, including DE populations, again remains less clear.

Finally, compassion-based interventions have also been gaining attention, a key goal being to cultivate self-compassion. Self-compassion involves treating yourself with kindness, care, and concern during life struggles or when confronting personal inadequacies, mistakes, and failures (Warren et al., 2016). Whilst it is often touted as an 'antidote' to self-criticism, self-compassion and self-criticism are not simply inverses of each other, given that psychopathology does not exist on a continuum (Lamers et al., 2015), and positive affect is not simply due to the absence of self-criticism. Regardless, diverse conceptualisations of compassion proposed in the literature have resulted in multiple forms of self-compassion-related interventions, with two of the more popular approaches described below.

Mindful Self-Compassion. Neff (2003) describes self-compassion as having three components: Self-kindness over self-judgement, connecting with others over isolating oneself and practising mindfulness without over-identifying or suppressing emotions. Neff's mindful self-compassion programme (Neff & Germer, 2013) was developed to cultivate the three components of self-compassion through mindfulness-based treatment in an 8-week format, applying self-compassion exercises to daily life by encouraging a more self-compassionate voice. However, whilst a systematic review and meta-analysis found that mindfulness-based programmes on self-compassion are effective in boosting self-compassion (Golden et al., 2021), this was only explored in non-clinical populations and had a heavy emphasis on cultivating mindfulness and appreciation.

Compassion-focused therapy. On the other hand, Compassion-Focused Therapy (CFT) is an alternative model of self-compassion primarily developed to target self-criticism, with Wakelin et al.'s (2021) review indicating that the biggest proportion of self-compassion-interventions for targeting self-criticism in literature were based on CFT principles. CFT aims to help individuals cultivate affiliative feelings towards themselves and generate a more self-compassionate inner voice (Leaviss & Uttley, 2015). Developed by Gilbert using the cognitive-evolutionary perspective of self-criticism as previously discussed (2014), CFT postulates that compassion flows in three directions: Compassion for ourselves, compassion for others and compassion we feel from others, with CFT interventions often developed to address each of these components (Leaviss & Uttley, 2015). As self-critics often have heightened sensitivity to the threat-protection system and low use of soothing, CFT aims to achieve a balance between the three systems by facilitating the development of the compassion-based soothing system whilst withdrawing from the threat system, which in turn would provide individuals with the drive to pursue goals consistent with their values using techniques such as imagery, role-play, letter writing and meditation to develop more self-soothing abilities (Gilbert, 2009).

With a central focus of CFT being based on developing compassion for the self (Kirby et al., 2017), Millard and colleagues' (2023) recent meta-analysis found that CFT resulted in a significant increase in self-compassion as well as a reduction in self-criticism, fear of self-compassion and ED. This was supported by a recent systematic review (Craig et al., 2020) of CFT interventions, which concluded that it is likely that CFT is more effective compared to no treatments or treatments as usual in DE, depression and psychosis clinical populations and results in increased self-compassion and reduced psychopathology compared to interventions like mindfulness or behavioural self-help.

Self-Compassion as a Promising Treatment Approach

Whilst various conceptualisations and definitions of self-compassion exists (Gilbert, 2017), self-compassion can be seen as cultivating a non-judgemental approach to the self and fostering feelings of warmth and acceptance towards the self (Gilbert & Irons, 2009). Self-compassion shares close links with similar constructs. Namely, as Gilbert et al. (2004) developed the FSCRS measure based on his model of self-criticism, the FSCRS also included a reassuring-self factor, intended to capture positive and kind feelings directed towards oneself when things go wrong. Research has often placed self-compassion on the same pedestal as self-reassurance given that they are both ways of relating to oneself with care and concern during personal shortcomings, failure, or life struggles (Hermanto & Zuroff, 2016). Self-reassurance is also postulated to be a central mechanism of CFT (Gilbert et al., 2004) and positively linked with the ability to engage with one's compassionate self in daily life (Matos et al., 2017).

On the other hand, research also posits that Neff's (2003) conceptualisation of self-compassion differs from self-reassurance. Namely, self-compassion captures components of practicing self-kindness over self-judgement, being mindful of distress without avoiding emotions, and connecting with others over isolating oneself, whilst self-reassurance only captures the self-kindness component (Hermanto & Zuroff, 2016). This suggests that similar to self-criticism and self-compassion being recognized as distinct components and not simply inverses of each other (Lamers et al., 2015), self-reassurance and self-compassion are not entirely identical to the other. However, as this thesis focuses on utilising Gilbert's (2004) conceptualisation of self-criticism and compassion-focused therapy over Neff's (2003) conceptualisation of self-compassion, chapters in this thesis will be utilising the FSCRS and reassuring-self subscale (Gilbert et al., 2004) to measure engaging in compassionate feelings towards the self when things go wrong, and the fears of compassion scale (Gilbert et al.,

2011) to measure fears of engaging in self-compassion, expressing compassion towards others, and receiving compassion from others.

An increasing number of benefits are linked with targeting self-criticism and promoting self-compassion, with Leaviss and Uttley's (2015) systematic review concluding that CFT was a promising intervention for mood disorders but particularly beneficial for people high in self-criticism. Increasing one's levels of self-compassion has been linked with widespread benefits such as improved resilience to stress (Terry & Leary, 2011), reduced psychopathology across an array of mental health disorders (Macbeth & Gumley, 2012), cognitive and psychological well-being (Zessin et al., 2015), and greater positive affect including greater levels of happiness, extroversion and optimism (Neff et al., 2007). Engaging in self-compassion has also demonstrated physiological benefits, including increased heart rate variability (Rockliff et al., 2008), brain activation in the prefrontal cortex (Klimecki et al., 2014), and emotion regulation (Macbeth & Gumley, 2012).

Self-compassion also seems to benefit constructs similar but distinct to self-criticism, such as shame. Perpetuated by perceiving oneself as flawed and believing others around us feel the same way (Kelly et al., 2014), this socially focused emotion presents both internal and external dimensions closely linked with self-criticism. Namely, Gilbert (1998) postulated that when one perceives that others see them in a negative light, they may then engage in an internal shaming process with harsh self-blaming and disgust towards the self, parallel to experiences of self-criticism. Similarly, research has shown that shame can be observed in various psychopathology including but not limited to depression (Steindl et al., 2018), anxiety (Cândea & Szentagotai-Tătar, 2018), personality disorders (Kramer et al., 2018), non-suicidal self-injury (VanDerhei et al., 2014), post-traumatic stress disorder (López-Castro et al., 2019) and obsessive-compulsive disorders (Laving et al., 2023). Similar to self-criticism, shame has also shown strong associations with ED, able to predict ED pathology in both

clinical (Kelly et al., 2013) and non-clinical samples (Burney & Irwin, 1999), and that individuals with ED symptomology who displayed higher levels of shame engaged in more disturbed eating behaviours (Nechita & David, 2023). Fortunately, whilst self-compassion is touted as an 'antidote' to self-criticism, targeting shame through showing care and concern towards the self can lead to similar benefits on ED pathology. Indeed, Kelly and Tasca (2016) found that shame in patients with ED reduced following periods of increased self-compassion, and that patients who had greater increases in self-compassion early in ED treatment showed greater reductions in shame, even when controlling for early changes in ED symptoms (Kelly et al., 2014). Whilst the scope of this thesis primarily explores self-criticism as a transdiagnostic factor to target in ED treatment with self-compassion, the positive effects that one reaps from exhibiting care and concern towards the self can lead to a range of secondary benefits that reduce one's vulnerability to various psychopathology and both internal and external negative self-appraisals including shame.

A growing body of research has also explored the relationship between self-compassion and DE, with a meta-analysis of RCTs by Ferrari et al. (2019) finding that self-compassion interventions were successful in reducing DE in both clinical and non-clinical adult populations (g = 1.76). A systematic review found that greater self-compassion is associated with lower levels of DE in adolescents and adults from clinical and non-clinical populations, greater body appreciation and body image flexibility, mindful eating and reduced drive for thinness (Braun et al., 2016), and patients with greater self-compassion also present with less severe ED pathology (Ferreira et al., 2013). Self-compassion is also linked with greater intrinsic motivation, successful goal pursuit, and resilience when goals are unmet (Warren et al., 2016). This was highlighted in a study by Guertin et al. (2020), who found that participants who engaged in more negative conversations about their body or weight pursued extrinsic goals contingent upon living up to societal expectations or receiving social

affirmations, with these negative conversations associated with more unhealthy eating and non-self-determined motivation. In contrast, participants with greater self-compassion pursued more intrinsic health goals, had greater self-determined motivation and engaged in more healthy eating, emphasising the benefits of being self-compassionate to ensure one's goals and subsequent behaviour are not directed towards unhealthy pursuits that may maintain ED symptoms. Hence, increasing self-compassion in ED patients not only protects against self-criticism and improves relationships with others but also increases intrinsic motivation to encourage the pursuit of values-based goals rather than goals of maintaining DE.

However, increasing self-compassion in ED patients may also require addressing individuals' fears of self-compassion (Gilbert, 2014), another central focus of CFT. Fear of self-compassion relates to a fear or avoidant response that emerges when individuals engage with compassion towards the self, which can also exist when showing compassion for others and receiving compassion from others (Kirby et al., 2019). Whilst there can be several reasons why this fear or avoidance develops, they include the perception that self-compassion makes one look weak or self-indulgent, showing compassion towards others can lead to rejection or be seen an unhelpful, or that others are expressing compassion to manipulate or for their own self-interest (Gilbert & Mascaro, 2017). A study that had community adults complete measures of self-criticism, perfectionism, self-compassion and general distress found that higher levels of self-criticism have also been found to reduce self-compassion over time, leading to higher levels of general distress (Tobin & Dunkley, 2021). Gilbert and Procter (2006) also found that self-criticism can induce fear of self-compassion, which can act as a roadblock to recovery when patients struggle to engage in compassion-based processes. This phenomenon is familiar to therapists who work with people with EDs, who typically refuse to countenance practising self-compassion due to a corrosive level of self-

criticism, with greater fears of self-compassion linked with poorer treatment outcomes through more severe and treatment-resistant eating pathology (Geller et al., 2019). This is encapsulated in the three subscales of the Fears of Compassion Scale (FCS; Gilbert et al., 2011), which correlate with measures of self-compassion, self-criticism, and ED pathology (Biermann et al., 2020; Kelly et al., 2013; Gilbert et al., 2011; Pinto-Gouveia et al., 2014). The impact of addressing fear of self-compassion and promoting affiliative feelings towards the self during CFT is postulated to significantly reduce levels of self-criticism and increase the ability to provide comfort and reassurance to oneself (Vidal & Soldevilla, 2022).

Gaps in Current Literature

Despite the evidence in current research that demonstrates the association between self-criticism, self-compassion and ED, important gaps remain yet to be filled. First, in the context of the difficulty in agreeing on a standard definition and conceptualisation of self-criticism, there is no consensus on the most appropriate tool to measure self-criticism. To improve our understanding of the association between self-criticism and DE and to be confident it has changed after an intervention, a valid and reliable scale of self-criticism is needed for use across a wide range of clinical (including EDs) and non-clinical populations. A systematic review on the utility of existing self-criticism measures by Rose and Rimes (2018) posits the 22-item FSCRS (Gilbert et al., 2004) to be the best tool for measuring self-criticism. Only three studies (Biermann et al., 2020; Baião et al., 2015; Castilho et al., 2015), however, included clinical participants, with most of the focus on affective disorders such as depression.

Second, whilst the association between self-criticism and ED has been increasingly explored in research (e.g., Mason et al., 2021; van der Kaap-Deeder et al., 2016), self-critical perfectionism is also an important concept to examine if that is of relevance to DE. Self-critical perfectionism is associated with a greater risk of experiencing ED psychopathology,

including binge eating, diet restrictions and body dissatisfaction (Boone et al., 2012; Mackinnon et al., 2011), and it could predict increases in bulimic symptoms over two years (Boone et al., 2011). The association between self-critical perfectionism and self-compassion also needs to be further explored, in addition to self-criticism per se.

Third, increasing understanding of the role of fears of self-compassion in the maintenance of EDs would help ensure that this key component of recovery is effectively targeted in treatment. Kelly et al. (2013) found that ED patients with lower self-compassion at the start of treatment were associated with greater shame and more severe ED pathology, whilst lower fear of self-compassion was linked with reduced shame and ED pathology. Patients with lower self-compassion and greater fear of self-compassion did not show any significant change in ED symptoms over a 12-week ED treatment, whilst those with greater self-compassion showed a reduction in ED symptoms regardless of their fear of self-compassion, highlighting how having low self-compassion and high fear of self-compassion could impede patients' response to ED treatments. The benefit of having high self-compassion has also been demonstrated in another study (Kelly et al., 2014), as participants who developed greater self-compassion early in treatment showed greater reductions in ED symptoms post-treatment. Kelly and Tasca (2016) also observed that patients receiving treatment for ED who presented with greater shame or self-criticism had more severe ED pathology and that periods of increased self-compassion were associated with a greater reduction in shame and eating pathology.

These studies suggest that a patient's fear of self-compassion levels may influence the extent to which they can overcome self-criticism as well as ED psychopathology. Whilst Kelly and colleagues (2013; 2014) papers focused on the capacity of fear of self-compassion in overcoming shame and ED psychopathology, there are likely other factors beyond a change in shame that contribute to within-person changes in ED pathology during treatment.

As highlighted by Kelly et al. (2021), ED patients may fear practising self-compassion as they rely on being self-critical to ensure they meet set standards, and literature has also postulated that engaging in self-criticism can lead to ED psychopathology such as binging and purging behaviours (Mason et al., 2021). However, Kelly et al.'s (2021) paper was a qualitative study, meaning their findings cannot be generalised to a broader population that quantitative analyses can more certainly achieve, and there is no certainty that their findings were statistically significant or due to chance (Atieno, 2009). As such, this limits the conclusion that can be drawn on a causal link, demonstrating that fear of self-compassion leads to increased self-criticism, thereby leading to a causal impact on ED.

Finally, whilst self-criticism and self-compassion could be key constructs to address ED symptoms, and the review by Craig and colleagues (2020) highlights the benefits of CFT in increasing compassion and reducing psychopathology, no previous interventions suitable for use in augmented therapy have been conducted with the shared intention of reducing self-criticism and increasing self-compassion in populations with DE. The advent of COVID-19 and increasing prevalence rates of ED (Linardon et al., 2022; Zhou & Wade, 2021) also highlight the need for a brief, online treatment. Research is still limited in terms of the evaluation of an online CFT (Craig et al., 2020). While the availability of services is a barrier to early intervention (Innes et al., 2017), encouraging individuals to engage in treatment is also difficult, with denial and stigma acting as significant help-seeking barriers (Ali et al., 2017; Radunz et al., 2023). However, adapting current treatment approaches to manage the increase in prevalence rates of ED and ensuring that services are more accessible can help to normalise seeking help for ED (Nicula et al., 2022), facilitating early intervention and preventing costly long-term health complications.

Conclusion

This chapter has provided evidence supporting the need to create adjunct treatments that target risk factors which perpetuate DE. Self-criticism and self-compassion are two transdiagnostic mechanisms worth further exploration that could help to enhance treatment efficiency. In pursuing this aim, the following chapter explores the psychometric properties of a measure of self-criticism in a clinical population with ED and a non-clinical population through a confirmatory factor analysis that examines its validity and reliability for use in research and clinical settings.

CHAPTER 3: AN EXAMINATION OF THE FACTOR STRUCTURE OF MEASURES OF SELF-CRITICISM AND THEIR RELATION TO DISORDERED EATING

Abstract

Self-criticism is considered a risk factor for eating pathology, and a measure of self-criticism that has been validated with eating disorders (ED) is required. Therefore, this study examined the construct validity and reliability of the Forms of Self-Criticising/Attacking and Self-Reassuring Scale (FSCRS) in relation to clinical (people with ED) and nonclinical (undergraduate) samples. A confirmatory factor analysis was conducted, followed by correlational and regression analyses. Test-retest reliability and multicollinearity were also examined. Participants were a mixed sample of 300 people (N=196 presenting for treatment for an ED and N=104 from an undergraduate sample), M = 25.15, SD = 9.09; 91% Females, 8% Males. The 3-factor FSCRS model was deemed a better fit compared to a 2-factor and unidimensional model. The FSCRS demonstrated good internal reliability and convergent validity with related constructs, including fear of self-compassion, ED psychopathology, psychosocial impairment related to ED, negative affect, and body image acceptance. Unique associations with ED psychopathology were found for the inadequate-self and reassuring-self FSCRS subscales, whilst unique associations with impairment related to ED were found for the inadequate-self and reassuring-self FSCRS subscales as well as the stress and depression subscales from the Depression Anxiety Stress Scale (DASS-21). This study not only identifies a measure to assess self-criticism in people with ED and undergraduate samples but supports the association between self-criticism and ED-related constructs.

Current outpatient treatments for eating disorders (EDs) in tertiary settings result in symptom remission in around 28% to 49% of people across different diagnoses, treatments, and age groups (Byrne et al., 2017; Eisler et al., 2016; Linardon & Wade, 2018). As such, adjuncts that target risk factors for the development or maintenance of ED are needed to improve current treatment approaches. One potential risk factor for ED is self-criticism, defined as having a highly negative attitude towards the self (Gilbert et al., 2004). People with ED tend to compare themselves unfavourably with others (Ferreira et al., 2011) and engaging in self-criticism helps them manage the shortcomings of an inadequate perceived self (Gilbert et al., 2004). However, engaging in weight- or shape-related self-judgement and self-scrutiny promotes unhealthy eating patterns (Stice et al., 2011), increases the drive to be thin (Pinto-Gouveia et al., 2014), and predicts greater growth of ED risk in young female adolescents (Wade et al., 2015).

To improve our understanding of the association between self-criticism and disordered eating (DE) and to be confident it has changed after an intervention, a valid and reliable scale of self-criticism is needed for use across a wide range of clinical and non-clinical populations. One such measure of self-criticism is Thompson and Zuroff's (2004) Levels of Self-Criticism Scale (LOSC) which identifies comparative self-criticism that results from comparing ourselves negatively with others, and internalised self-criticism that results from failing to meet personal standards. Whilst a validation study was conducted (Halamová et al., 2018), they argued that the factors needed further breakdowns into more specific forms of self-criticism that could occur. Gilbert's (2004) model however fills that gap by differentiating between two forms of self-criticism that can occur when things go wrong, either taking a form that draws attention to failures and inadequacies about the self that warrants improving in contrast to more disgust-based, self-hating forms of self-criticism. The 22-item Forms of Self-Criticising/Attacking and Self-Reassuring Scale (FSCRS, Gilbert et

al., 2004 was developed to capture these two forms in his model; The ‘Inadequate-self’ which attempts to capture feelings of failure and inadequacy, and the ‘Hated-self’ focused on self-hating and contemptuous feelings, with a third factor (i.e., the ‘Reassuring-self’) assessing positive and compassionate feelings directed towards oneself (Halamová et al., 2017). A systematic review on the utility of existing self-criticism measures (Rose & Rimes, 2018) posits the FSCRS (Gilbert et al., 2004) to be the best tool for measuring self-criticism. **Table 3.1** lists the studies examining the scale's validity, with the majority finding that the 3-factor solution is an appropriate model.

Table 3.1

Validation Studies of the FSCRS - 22 items, three subscales: Inadequate-self (IS; Nine items), Hated-self (HS; Five items), Reassuring-self (RS; Eight items)

Study and Population	Cronbach's alpha	Test-Retest Reliability	Construct validity (Associations with other measures)	CFA
Gilbert et al., 2004: *n* = 246 non-clinical participants (female undergraduate students)	IS: α = .90, HS: α = .86 RS: α = .86		**Convergent validity:** LOSC ISC Factor: RS *r* = -.45, HS *r* = .45, IS *r* = .77 LOSC CSC Factor: RS *r* = -.63, HS *r* = .55, IS *r* = .63 **Concurrent validity:** Moderate associations with depression HS *r* = .57, RS *r* = -.51, IS *r* = .52	
Baião et al., 2015: CFA across 12 studies; *n*=887 non-clinical participants (undergraduates) and n=171 clinical participants (depression *n*=100, personality disorder *n*=16, substance abuse *n*=13, anxiety *n*=9, bipolar disorder *n*=3, unknown disorder *n*=30)	**Non-clinical population:** IS: α = .89-.91 HS: α = .82-.89 RS: α = .82-.88 **Clinical population:** IS: α = .87-.89 HS: α = .83-.86 RS: α = .85-.87			**Clinical population CFI:** .936 **Non-clinical population CFI:** .909
Castilho et al., 2015: *n*=381 non-clinical participants (*n*=270 undergraduate students and *n*=111 community sample) and *n*=304 clinical participants (*n*=24 Axis I Disorders (anxiety disorders, mood Disorders, EDs), *n*=58 Axis II Personality Disorders, *n*=222 Comorbidity Axes)	**Non-clinical population:** IS: α = .87 HS: α = .89 RS: α = .72 **Clinical population:** IS: α = .81 HS: α = .91 RS: α = .82	**After 4 weeks:** IS: *r* = 0.72 HS: *r* = 0.78 RS: *r* = 0.65	**Discriminant validity:** Significant differences between clinical and non-clinical samples in all three subscales: medium to large effect sizes. **Convergent validity:** All three subscales were significantly associated with both LOSC subscales for both populations. **Concurrent validity:** All three subscales were significantly associated with general health, life orientation, self-compassion and depression, anxiety and stress measures for both populations.	**Non-clinical population CFI:** .866 **Clinical population CFI:** .922

Leboeuf et al., 2019: *n* = 285 non-clinical participants (general population)	IS: α = .85 HS: α = .77 RS: α = .82		**Convergent validity:** **Self-Criticising/Attacking Subscales** IS/HS negatively correlated to the positive dimension of SCS; IS/HS positively correlated to the negative dimension of SCS, depression, anxiety, and perceived stress; High correlation between IS and the negative dimension of the SCS. **Self-Reassuring Subscale** RS was positively correlated to the positive dimension of the SCS and negatively correlated to the negative dimension of the SCS, depression, anxiety, and perceived stress.	**CFI:** .906
Kupeli et al., 2013: EFA and CFA with *n*=1570 non-clinical participants: (undergraduates *n*=346 and general population *n*=1224)	IS: α = .91 HS: α = .86 RS: α = .88			**CFI:** .958
Biermann et al., 2020: N = 415 participants from 4 groups: **(1)** general population (*n*=169; Affective disorder *n* = 23, Anxiety disorder *n* = 13, OCD *n* = 1, BPD *n* = 15, PTSD *n* = 9, Addictive Disorder *n* = 3, ED *n* = 2, Other disorder n = *2*, Disorder unknown *n* = 6); **(2)** psychiatric residential patients and outpatients (*n*=139): Affective disorder *n*=92, Anxiety disorder *n*=35, OCD *n*=7, BPD *n*=30, PTSD *n*=15, Addictive Disorder *n*=4, ED *n* = 17, Other disorder *n*=2; **(c)** BPD patient sample (*n*=66): Affective disorder *n*=39, anxiety disorder *n*=12, BPD *n*=66, PTSD *n*=20, Addictive Disorder *n*=9, ED	IS: α = .87-.91 HS: α = .84-.88 RS: α = .89-.92		**Concurrent validity:** The IS and HS negatively correlated with the positive dimensions of the SCS and SWLS; The IS and HS positively correlated with the negative dimensions of the SCS, self-criticism subscale of the DEQ, and problems in attachment style; The RS positively correlated with the positive dimensions of the SCS and SWLS and negatively correlated with the negative dimensions of the SCS, self-criticism subscale of the DEQ, and problems in attachment style; Only in the population-based sample were higher IS and HS scores associated with lower self-esteem, and higher RS scores associated with greater self-esteem; No significant correlations between any of the three subscales and self-esteem were found for the mixed clinical sample; No significant correlations of the subscale scores were found with depression and anxiety in the population-based sample, but in the mixed clinical sample, IS and HS scores were moderate to highly positively correlated with depression and anxiety.	**Non-clinical population CFI:** .93 **Clinical population CFI:** .92

n=26, Other disorder *n*=13, **(4)** Healthy control sample (*n*=41)			**Discriminant validity:** None of the subscales significantly correlated with social desirability in any sample; All four samples showed significant differences between all three subscales. The BPD sample showed significantly higher scores on the HS subscale compared to the other three samples. Significantly higher IS scores were found in the BPD sample compared to the population-based and healthy control samples. The mixed clinical sample showed significantly higher IS and HS scores and a lower RS score compared to the population-based and healthy control samples. The population-based sample showed significantly higher HS scores in addition to the IS subscale when compared with the healthy control sample. Differences in the FSCRS subscale scores remained significant when adjusting for age, gender, and education levels.	
Halamová et al., 2017: *n*=1181 non-clinical participants (general population)	IS: α = .85 HS: α = .75 RS: α = .83 Total α = .90		**Convergent validity:** High correlations with the SCCS and LOSC; No differences between sex or relationship status.	**CFI:** .918
Yasien et al., 2017: *n*=245 students	IS: α = .68 HS: α = .70 RS: α = .51		**Concurrent validity:** IS, HS significantly positively associated with depression and anxiety; RS significantly positively associated with anxiety.	
Halamová et al., 2018: CFA across 13 nonclinical samples (*n*=7510) from twelve different countries: Australia (*n*=319), Canada (*n*=383), Switzerland (*n*=230), Israel (*n*=476), Italy (*n*=389), Japan (*n*=264), the Netherlands (*n*=360), Portugal (*n*=764), Slovakia (*n*=1326), Taiwan (*n*=417), the United Kingdom 1 (*n*=1570), the United Kingdom 2 (*n*=883), and USA (*n*=331).	**3-Factor:** Across the countries, IS: .81 to .92 HS: .77 to .89 RS: .82-.92 **2-Factor:** Across the countries, RS, combined IS and HS: .90 to .95			**3-Factor CFI:** .88 to .95 **2-Factor CFI:** .90 to .97

Note: FSCRS = Forms of Self-Criticising/Attacking and Self-Reassuring Scale; IS = Forms of Self-Criticising/Attacking and Self-Reassuring Scale (Inadequate-self); HS = Forms of Self-Criticising/Attacking and Self-Reassuring Scale (Hated-self); RS = Forms of Self-Criticising/Attacking and Self-Reassuring Scale (Reassuring-self); CFA = Confirmatory Factor Analysis; CFI = ; LOSC = Levels of Self-Criticism Scale; ISC = Internalised Self-Criticism; CSC = Comparative Self-Criticism; SCS = Self-Compassion Scale; EFA = Exploratory Factor Analysis; OCD = Obsessive-Compulsive Disorder; PTSD = Post-Traumatic Stress Disorder; ED = Eating Disorder; SWLS = Satisfaction with Life Scale; DEQ = Depressive Experiences Questionnaire; BPD = Borderline Personality Disorder; SCCS = Self-Compassion and Self-Criticism Scale.

The scale is associated with good internal reliability in both clinical and non-clinical populations (Castilho et al., 2015). Biermann et al. (2020), Halamová et al. (2017), Leboeuf et al. (2019) and Yasien and colleagues (2017) have also found the FSCRS to have good internal reliability and construct validity in various languages. However, whilst three studies (Biermann et al., 2020; Baião et al., 2015; Castilho et al., 2015) included a mixed clinical and nonclinical sample to assess the factor structure's generalisability, there was a focus on affective disorders. No research has validated the measure in an ED sample compared to nonclinical samples, thereby leaving a gap in understanding whether people with ED engage with the more self-hating form of self-criticism or with the one that draws attention to their inadequacies. Second, only one study has evaluated the measure's test-retest reliability (Castilho et al., 2015). Third, whilst the reliability of a scale using Cronbach's alpha is routinely reported, this is not an optimal measure of internal consistency because it assumes that each item in the scale contributes equally to the total scale score and assumes the scale is unidimensional where all items measure the same construct (McNeish, 2018), unlike the 3-factor FSCRS which violates this assumption. Consequently, this secondary analysis study aims to validate Gilbert's (2004) model encapsulated in the 3-factor FSCRS with a mixed sample of people presenting for treatment for an ED and an undergraduate population to assess if the factor structure remains consistent across different levels of severity and to explore how people with ED engage with the two forms of self-criticism as conceptualised by Gilbert's (2004) model, investigate different models of the FSCRS using a Confirmatory Factor Analysis (CFA), examine test-retest reliability and various indicators of internal reliability such as Omega and H.

Method

Participants

A general rule of thumb for CFA recommends a sample of 300 participants (VanVoorhis & Morgan, 2007), and therefore, data from first-year undergraduate students (*n* = 104) was collected and integrated with a clinical sample who sought treatment for an ED (*n* = 196). Monte Carlo sample size estimation for confirmatory factor analyses using Mplus was also used to estimate power (Muthén & Muthén, 1998-2015). With a total sample size of 300, power was 0.91 when comparing the inadequate- and hated-self factors, 0.92 when comparing the hated- and reassuring-self factors, and 0.90 when comparing the inadequate- and reassuring-self factors. This indicates that we can be confident of the results from the CFA. Data from the clinical sample were previously collected in two sequential samples referred across South Australia from The Statewide Eating Disorder Service, a health professional or self-referred, to the Flinders University Services for Eating Disorders (FUSED; Pellizzer et al., 2019a; Pellizzer et al., 2019b; Wade et al., 2021). Mean age of the combined sample was 25.15 (*SD* = 9.09), with the undergraduate sample having a significantly lower mean age at 21 compared to the clinical sample at 27. Gender and ethnicity did not significantly differ between the two groups. The median Body Mass Index (BMI) of the clinical sample was 24.10. Diagnosis using the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) criteria (American Psychiatric Association (APA), 2013) was assessed at baseline appointments using self-report measures. Participants represented a mixed sample of EDs, with over two-thirds diagnosed with Bulimia Nervosa (BN, *n* = 132, 67%), followed by Otherwise Specified Feeding and Eating Disorder (OSFED, *n* = 54, 28%), Unspecified Feeding and Eating Disorder (UFED, *n* = 6, 3%) and Binge Eating Disorder (BED, *n* = 4, 2%). **Table 3.2** presents the demographic attributes of both samples.

Procedure

The Flinders University Social and Behavioural Research Ethics Committee approved the collection of data from the students (ID: 4294). The study was advertised on the Flinders

University School of Psychology SONA Research Participation pool. Once students intended to participate, they were redirected to log on to the Qualtrics website to read about the study's purpose and provide consent to complete the survey. The survey comprised a demographic questionnaire and measures used previously with the clinical sample. The FSCRS (Gilbert et al., 2004) was used as a self-criticism measure and five measures to capture our key constructs: fears of compassion, depression, anxiety, stress, body image flexibility, DE and psychosocial impairment related to DE. Participants received course credit for their participation.

Table 3.2

Demographic Characteristics of the Sample

Demographic	**Category**	**Undergraduates** **N=104**	**Clinical** **N=196**	**Combined**	**Chi-Square**	**Odds Ratio**	**95% CI**
Gender [N = 300]	Female N (%)	92 (89)	181 (92)	273 (91)		-	-
	Male	9 (9)	15 (8)	24 (8)	χ^2 (3, 300) = 5.85, p = .119.	-	-
	Non-binary	2 (2)	0 (0)	2 (0.7)		-	-
	Genderfluid	1(1)	0 (0)	1 (0.3)		-	-
Age [N = 296]	Mean (SD)	21.35 (6)	27.17 (9.87)	25.15 (9.09)	-		
	Range	18 to 51	15 to 69	15 to 69	-	.875	0.83, 0.92
Ethnicity [N = 288]	Caucasian	96 (92)	163 (83)	259 (86)		-	-
	Asian	4 (4)	10 (5)	14 (5)	χ^2 (4, 288) = 1.82, p = .768.	-	-
	African	1 (1)	3 (2)	4 (1)		-	-
	Other	3 (3)	8 (4)	11 (4)		-	-
Diagnosis (N = 196)	Bulimia Nervosa		132 (67)				
	Other specified Feeding and Eating Disorders		54 (28)				
	Unspecified Feeding and Eating Disorders		6 (3)				
	Binge Eating Disorder		4 (2)				

Approval for the clinical trial was obtained from the Southern Adelaide Clinical Human Research Ethics Committee (204.15). Participants were required to be over 15 years old, have a BMI over 17.5, fulfil criteria for an ED based on the diagnostic criteria from the DSM-5 (APA, 2013) which was assessed at the baseline assessment appointment with self-reports to supplement the assessment. Participants with a BMI under 17.5 were excluded from the study as they were attending an ED clinic run by trainee psychologists attending short-term placements, thereby limited in their capacity to treat patients that may meet criteria for anorexia nervosa which require longer treatment. Participants were randomized to a 4-week waitlist period or immediate start for a Cognitive Behaviour Therapy for ED (CBT-T; Waller et al., 2019) after completing measures at baseline. Self-report measures utilised during treatment (and included in this secondary analysis) were completed at baseline, 4- and 10-weeks post-randomisation, and during the follow-up at 14- and 22-weeks post-randomisation. Both treatments consisted of 10 weekly sessions and two follow-up sessions, with clinical psychology postgraduates delivering the treatments under supervision.

Measures

This section will provide detailed summaries of the measures utilised in this study that also appear regularly across the subsequent chapters. Unless a measure is unique to that study and has not been summarised in this chapter, the measures described below will only be summarised briefly in subsequent chapters to limit repetition. In this chapter, the self-report measures utilised during assessments and included in this secondary analysis comprises the FSCRS (Gilbert et al., 2004) which was used as a self-criticism measure, and five measures to capture our key constructs: fears of compassion, depression, anxiety, stress, body image acceptance, DE, and psychosocial impairment related to DE.

Self-Criticism

Description. The FSCRS (Gilbert et al., 2004) consists of three subscales; 'Inadequate-self' (9 items assessing feelings of failure and inadequacy, e.g., "*I am easily disappointed with myself*"), 'Hated-self' (5 items focused on more self-hating and contemptuous feelings, e.g., "*I have a sense of disgust with myself*"), and 'Reassuring-self' (8 items assessing positive and compassionate feelings directed towards oneself; e.g., "*I find it easy to forgive myself*"). Each item asked respondents to rate the extent to which a series of self-critical statements are true about them (e.g., *I do not like being me*) on a 5-point Likert scale (0 = Not at all like me, 4 = Extremely like me). Scoring instructions were not provided in the original article, but a common technique and one that has been used in this thesis is summing and averaging the items in each subscale (Baião et al., 2015). Higher scores on the inadequate- and hated-self subscales indicate greater self-criticism, whilst a higher score on the reassuring-self subscale indicates greater self-reassurance.

Factor Structure. Gilbert et al. (2004) first proposed the measure with 24 items to examine how critical/attacking or how supportive/reassuring people in the face of hardship, derived from clinical work with patients with depression on their own self-critical reflections. A principal component analysis specified a three-factor solution (two self-critical components labelled as the 'inadequate-self' and 'hated-self', and a self-reassurance factor labelled as the 'reassured-self'), with two items removed due to no significant correlations with other items. Since then, the 3-factor structure has been replicated across clinical and non-clinical samples (Baião et al., 2015; Castilho et al., 2015), and across various languages and cultural samples (Halamová et al., 2018).

Reliability. The original article found good internal consistency across the inadequate- ($\alpha = .90$), hated- ($\alpha = .86$), and reassuring-self ($\alpha = .86$) subscales. All three subscales have also demonstrated good internal consistency in follow-up analyses since the

original article (α = .82-.91; Baião et al., 2015; Castilho et al., 2015; Kupeli et al., 2013) and test-retest reliability (*r* = .65-.78; Castilho et al., 2015). McDonald's ω also demonstrated good internal reliability across 13 distinct populations (ω = .93-.97; Halamová et al., 2018), however Halamová et al. (2018) did not report how McDonald's ω scored across each subscale. In this study, the clinical and non-clinical samples demonstrated good internal reliability across all three subscales.

Validity. Construct and convergent validity were reported in the original article by Gilbert et al. (2004) who compared between the FSCRS and the Levels of Self-Criticism Scale (LOSC; Thompson & Zuroff, 2004) which measures comparative and internalised self-criticism. Correlational analyses reported a significant association between the comparative self-criticism subscale and the inadequate- (*r* = 0.63), hated- (*r* = 0.55), and reassuring-self (*r* = -0.63) subscales of the FSCRS, and between the internalised self-criticism subscale and inadequate- (*r* = 0.77), hated- (*r* = 0.57), and reassuring-self (*r* = -0.45) subscales of the FSCRS (Gilbert et al., 2004). The FSCRS has also correlated with measures of general health, life orientation, self-compassion, negative affect, and self-esteem (Biermann et al., 2020; Castilho et al., 2015; Gilbert et al., 2004; Leboeuf et al., 2019). Discriminant validity has also been reported in Baião et al. (2015) using square correlations between the subscales, where good validity was found between the inadequate- and reassuring-self (r^2 = .36-.42), and between the hated- and reassuring-self (r^2 = .42-.46) subscales in a clinical and non-clinical sample, but less evident between the inadequate- and hated-self in the clinical sample (r^2 = .79) compared to the non-clinical sample (r^2 = .60).

Fears of Compassion

Description. The 38-item Fears of Compassion Scale (FCS; Gilbert et al., 2011) has three subscales: fear of expressing compassion to others (10 items, e.g., "*I fear that being too compassionate makes people an easy target*"), fear of receiving compassion from others (15

items, e.g., "*Wanting others to be kind to oneself is a weakness*"), and the fear of self-compassion (13 items, e.g., "*I feel that I don't deserve to be kind and forgiving to myself*"). Each item rated the extent to which a series of statements are true about them on a 5-point Likert scale (0 = Don't agree at all, 4 = Completely agree). Scores for each subscale were then calculated by summing all the items that belong to a subscale. Higher levels indicate a greater fear of self-compassion.

Factor Structure. Gilbert et al. (2011) developed the measure through discussions with patients and informed by psychotherapy and attachment literature. Twenty items for each subscale were initially examined. The research team then removed several items according to face validity, leaving the fear of expressing compassion for others component with 13 items, 15 items for the fear of receiving compassion from others component, and 17 items for the fear of self-compassion component. Exploratory factor analysis with therapists and student populations were then conducted with single-factor solutions for each scale having emerged, and several items were removed again due to small factor loadings. This left 10 items for the fear of expressing compassion for others, 13 items for the fear of receiving compassion from others, and 15 items for the fear of self-compassion factor.

Reliability. The original article found good internal reliability across the subscales in a student (α = .84-.92) and therapist (α = .76-.86) population. Good internal consistency has also been replicated across all three subscales (α = .76-.96; Asano et al., 2017; Biermann et al., 2020; Geller et al., 2019), and test-retest reliability has also been previously examined (r = .88; Khanjani et al., 2020). All three subscales demonstrated good internal reliability in this study across both samples.

Validity. The scales have previously demonstrated convergent validity through their correlations with measures of self-criticism, shame, negative affect, dissatisfaction with life, attachment styles and ED pathology (Biermann et al., 2020; Gilbert et al., 2011; Kelly et al.,

2013; Pinto-Gouveia et al., 2014), and also showed divergent validity against self-compassion and compassion for others, cognitive emotion regulation and psychological wellbeing (Khanjani et al., 2020; Pfeiffer et al., 2022).

Eating Disorder Psychopathology

Description. The 28-item Eating Disorder Examination Questionnaire (EDE-Q; Fairburn & Beglin, 2008) measured cognitive and behavioural features of ED psychopathology over the previous 28 days. Out of the 28 items, 22 items ask people to rate a series of statements about restriction (e.g., "*Have you had a definite desire to have an empty stomach with the aim of influencing your shape or weight?*"), eating concern (e.g., "*Have you had a definite fear of losing control over eating?*"), weight concern (e.g., "*Have you had a strong desire to lose weight*?") and shape concern (e.g., "*Have you felt fat*?") over the past four weeks on a 7-point Likert scale related to frequency (0 = No days, 6 = Every day), or intensity (0 = Not at all, 6 = Markedly). A "global" score is then averaged across the sum of the four subscales scores. Higher levels indicate greater ED psychopathology. An additional six items examine the frequency of DE behaviours (e.g., "*Over the past 28 days, how many times have you taken laxatives as a means of controlling your shape or weight?*"), including objective binge eating (items 13-15), self-induced vomiting (item 16), laxative misuse (item 17) and excessive exercise (item 18), with greater scores indicating greater frequency of engaging in DE behaviours in the past 28 days.

Factor Structure. The EDE-Q is a self-report questionnaire derived from the semi-structured interview of the Eating Disorder Examination (EDE, Fairburn & Cooper, 1993). Despite being a widely established measure in the literature for ED psychopathology and a more cost-effective approach to the EDE (Mond et al., 2006), its original four-factor structure was not empirically backed and chosen on "rational" grounds based on content similarity (Mond et al., 2004). There have been mixed findings on the scale's factor structure. Whilst

Franko et al.'s (2012) CFA found support for the original factor structure (CFI = 0.99), most studies have been unable to achieve similar findings. For instance, one of the first factor analyses for the EDE-Q found a one-factor solution to be the best-fitting model (Pennings & Wojciechowski, 2004). Allen et al. (2011) examined the goodness-of-fit of a brief one-factor, extended one-factor, two-factor, three-factor and the original four-factor model found that the brief one-factor model, including eight items related to weight and shape concern, was the only model that presented with an acceptable fit to the data. More recently, Rand-Giovannetti and colleagues (2017) examined twelve different models in an undergraduate sample and found support for a four-factor model (dietary restraint, preoccupation and restriction, weight and shape concern, and eating shame). These variations highlight the questionable reliability and inconsistency of the current EDE-Q despite its popularity and emphasise the importance of continuous evaluation of the EDE-Q as an appropriate measure for ED psychopathology. Given the inconsistent factor structure, only the global EDE-Q score is reported across the thesis studies.

Reliability. The scale has previously demonstrated good internal consistency (α = .84-.94; Luce & Crowther, 2008; Mond et al., 2004; Rø et al., 2010) and test-retest reliability (*r* = .71-.92; Bardone-Cone & Boyd, 2007; Luce & Crowther, 2008). The global score demonstrated good internal consistency in this study across the clinical and undergraduate samples.

Validity. The EDE-Q is strongly associated with the interview version of the Eating Disorder Examination and can differentiate between those with and without ED (Berg et al., 2012; Rø et al., 2015). The EDE-Q has also demonstrated good convergent validity with the EDE and the more recently developed Eating Disorder-15 (ED-15, Accurso & Waller, 2020). The EDE-Q has previously correlated with measures of self-criticism, self-critical perfectionism, self-compassion, body dissatisfaction, emotion regulation, and negative affect

(Contreras-Valdez et al., 2022; da Luz et al., 2023; Duarte et al., 2015; Duarte et al., 2016; Esposito et al., 2019; Pisetsky et al., 2016).

Body Image Acceptance

Description. The 12-item Body Image Acceptance and Action Questionnaire (BI-AAQ; Sandoz et al., 2013) measured one's capacity to experience ongoing perceptions, sensations, thoughts, feelings, and beliefs related to one's body whilst pursuing value-based goals. The 12 items measuring thoughts regarding body image (e.g., "*Feeling fat causes problems in my life"; "Worrying about my weight makes it difficult for me to live a life that I value"*) were rated on a 7-point Likert scale (1 = Never true, 7 = Always true). In this thesis, the items are reversed scored and summed such that higher levels indicate greater body image acceptance.

Factor Structure. The original measure included 46 items before 17 items were removed due to low or negative item-total correlations (< 0.30), and a further 17 items were removed until twelve items with factor loadings above 0.60 were retained (Sandoz et al., 2013). This unidimensional measure accounted for 34% of the variance in the original study, and its factor structure has since been replicated in several psychometric studies (e.g., Ferreira et al., 2011; Pellizzer et al., 2017; Timko et al., 2014).

Reliability. The scale has previously demonstrated good internal consistency (α = .89-.95; Ferreira et al., 2011; He et al., 2021; Lucena-Santos et al., 2017) and test-retest reliability (*r* = .82-.87; Ferreira et al., 2011; Timko et al., 2014). In the current study, the BI-AAQ significantly correlated at -.73 and -.74 with the two over-evaluation items (shape and weight) from the EDE-Q, indicating greater over-evaluation of shape or weight was linked with lower body image acceptance, and the scale demonstrated good internal consistency across both samples. McDonald's ω has also previously demonstrated good internal reliability (ω = .92; Regan et al., 2023).

Validity. The BI-AAQ has previously correlated with measures of self-compassion, body image dissatisfaction, body appreciation, ED and general psychopathology, self-esteem, negative affect, distress tolerance, psychological flexibility, and social comparison (Ferreira et al., 2011; Lucena-Santos et al., 2017; Pellizzer et al., 2016; Sandoz et al., 2013; Timko et al., 2014). Sandoz et al. (2013) previously found support for the predictive validity of the measure as body image flexibility predicted ED behaviours even after controlling for body shape dissatisfaction and BMI, and Pellizzer et al. (2017) found that BI-AAQ was a stronger predictor of ED and psychosocial impairment related to ED when compared to measures of body checking and body avoidance.

Quality of Life

Description. The 16-item Clinical Impairment Assessment (CIA; Bohn et al., 2008, Bohn & Fairburn, 2008) measured participants' levels of psychosocial impairment caused by ED. Each of the 16 items asked people to rate how their eating habits, exercising, or feelings about their eating, shape or weight have affected them over the past four weeks, and was intended to be administered with the EDE-Q (Bohn et al., 2008). Sample items include "*Over the past 28 days, to what extent have your eating habits, exercising, or feelings about your eating, shape or weight interfered with you doing things that you used to enjoy?"* and "*Over the past 28 days, to what extent have your eating habits, exercising, or feelings about your eating, shape or weight affected your ability to make everyday decisions?*" measured on a 4-point Likert scale (0 = Not at all, 3 = A lot). The mean across all item scores are used to calculate a global summary score. Higher levels indicate greater psychosocial impairment.

Factor Structure. The developers of the CIA originally examined 22 items examining areas of mood and self-perception, cognitive functioning, interpersonal functioning and effects on work performance. Conducting their factor analysis among outpatient ED patients in the United Kingdom, they removed a further six items for a better

fit, leaving 16 items explaining 71% of the variance initially through two factors. As one factor had low loadings (<0.59) compared to the other one (>0.86), a three-factor solution accounted for 77% of the variance coined as personal, social and cognitive impairment, respectively (Bohn et al., 2008). However, they have suggested that the global score and domain-specific scores are both appropriate to utilise. Several studies have provided support for the CIA's factor structure (Becker et al., 2010; Calugi et al., 2017; Jenkins, 2013; Reas et al., 2010), with Raykos et al. (2019) also exploring a bifactor model and finding a reliable general factor but unreliable subfactors, suggesting the use of the global score.

Reliability. The CIA has previously demonstrated good internal consistency (α = .93-.97; Bohn et al., 2008; Calugi et al., 2017; Reas et al., 2010; Vannucci et al., 2012) and test-retest reliability (*r* = .77-.94; Bohn et al., 2008; Calugi et al., 2017; Reas et al., 2010). McDonald's ω has also demonstrated good internal reliability (ω = .90; Zhou et al., 2024). The scale demonstrated good internal consistency in this study across the clinical and undergraduate samples.

Validity. The CIA has also previously correlated well with measures of ED psychopathology and discriminated between those with and without ED (Becker et al., 2010; Bohn et al., 2008; Calugi et al., 2017; Reas et al., 2010). Good criterion validity was also demonstrated in Vannucci et al. (2012), where women at high risk of ED onset who reported engaging in compensatory behaviours (e.g., binge eating, purging, and excessive exercise) had greater CIA global scores compared to those who were at lower risk of ED onset. Maraldo et al. (2021) also found support for the predictive validity of the CIA, with ED patients categorised as "recovered" at discharge reporting lower admission CIA scores compared to patients who had "not recovered" at discharge.

Depression, Anxiety and Stress

Description. The Depression Anxiety Stress Scales 21 (DASS-21) is a shorter form of the original 42-item DASS (Lovibond & Lovibond, 1995), which measured depression, stress, and anxiety, with seven items for each subscale. Each of the 21 items was rated on a 4-point Likert scale (0 = Never, 3 = Almost always). Sample items include "*I felt down-hearted and blue*" (depression), "*I felt I was close to panic*" (anxiety) and "*I found it difficult to relax*" (stress). Scores for the subscales were then calculated by summing all items that belong to a subscale. Higher levels indicate greater depression, anxiety, and stress.

Factor Structure. The original DASS measure was intended to consist only of two factors – anxiety and depression, with scale development revealing a third distinct factor of stress (Lovibond & Lovibond, 1995). Their CFA analysis in a student sample found the three-factor model to be the best fit compared to the original two-factor model. Similar support for the three-factor structure have been produced in community samples (Crawford & Henry, 2003) and clinical samples with affective disorders (Brown et al., 1997). Lovibond and Lovibond (1995) further suggested that 21 items could be used for a shorter version (DASS-21), with Antony et al. (1998) reporting more advantages to the DASS-21 including a cleaner factor structure, fewer items which could reduce response burden, and lower inter-factor correlations, accounting for 67% of the total variance in their clinical sample. More recent studies have continued to explore the factor structure of the DASS-42 and DASS-21, with a meta-analysis finding bifactor models (consisting of one general distress factor and three group factors for depression, anxiety, and stress) to be most consistently best-fitting (Yeung et al., 2020). Many studies have also tested the factor structure of the DASS-21 across various countries and languages (e.g., Camacho et al., 2016; Yildirim et al., 2018), with the DASS-21 continuing to be established in the literature.

Reliability. The scale has also previously demonstrated good internal consistency (α = .69-.94; Antony et al., 1998; Gloster et al., 2008; Tran et al., 2013) and test-retest reliability

(*r* = .61-.81; Asghari et al., 2008; Sariçam, 2018). McDonald's ω has also demonstrated good internal reliability across the three factors (ω = .83-.88; Osman et al., 2012). All three subscales demonstrated good internal consistency across both samples in this study.

Validity. The DASS-21 has correlated with other measures of negative affect (Gloster et al., 2008; Park et al., 2020; Tran et al., 2013), demonstrating convergent validity. This includes correlations between the DASS-21 depression and anxiety subscales and measures such as Beck's Depression Inventory II (*r* = .71-.80, Al-Dassean & Murad, 2024; Beck et al., 1996; Osman et al., 2012), Beck's Anxiety Inventory (*r* = .69-.73, Al-Dassean & Murad, 2024; Beck et al., 1998; Osman et al., 2012), and with the subscales of positive affect (*r* = -0.15--0.37) and negative affect (*r* = -0.46--0.55) under the Positive and Negative Affect Schedule Measure (Watson et al., 1988). The measure has also demonstrated discriminant validity by being able to discriminate between clinical and community samples through significantly lower scores across the subscales compared to clinical groups with mood disorders (Gloster et al., 2008).

Statistical Analyses

MPlus software version 7.31 was used to conduct the CFA of the 3-factor self-criticism scale to ascertain the best factor structure using weighted least squares with mean and variance adjustment (WLSMV, Brown, 2006; Muthén & Muthén, 1998-2015). The overall fit of each model was judged using the following fit indices: Root-Mean-Square Error of Approximation (RMSEA), Comparative Fit Index (CFI), and the Tucker-Lewis index (TLI). The following *a priori* benchmarks were used: RMSEA < 0.08, CFI and TLI < 0.9 indicated a marginal fit, a RMSEA < 0.05, CFI and TLI > 0.9 indicated a good fit, and a RMSEA < 0.01, CFI and TLI > 0.95 indicated an excellent fit (Hu & Bentler, 1999). However, RMSEA can be artificially large in models where a small sample size is used with small degrees of freedom and was thus interpreted with some caution (Kenny & McCoach,

2003). The Bayesian Information Criterion (BIC) was used to compare each model as it can inform the comparative fit of non-nested models that use the same set of observed variables (Vrieze, 2012). The model with the lowest BIC will be identified as having the best factor structure. To determine the internal reliabilities of the measures using Cronbach's alpha, Omega, and H, a score above 0.90 will indicate an excellent fit, scores between 0.80 to 0.90 as good, scores between 0.70 to 0.80 as acceptable, scores between 0.60 to 0.70 as questionable, and scores under 0.60 as poor fits.

IBM SPSS Statistics Version 27 was used to conduct all other analyses. Pearson correlations were performed to evaluate the relationship between the subscales of self-criticism, self-compassion and negative affect, DE measures including body image acceptance, ED psychopathology and quality of life related to ED. Binary logistic regressions were used to compare the strength of the variables between the population groups, and simultaneous multiple regressions were conducted to assess the unique contribution of each self-criticism subscale with respect to ED psychopathology and psychosocial impairment related to ED when also considering negative affect and age. As the body image flexibility measure (BI-AAQ) has previously been found to be highly correlated with the ED psychopathology measure (EDE-Q; Pellizzer et al., 2018), this measure was not included in the regression analysis.

Results

Preliminary Analyses

Whilst the non-clinical sample had no missing data, a missing values analysis was conducted due to missing data in the two sequential clinical samples. Little's test of Missing Completely at Random (MCAR) was not significant, $\chi^2(12, N = 196) = 43.63$, $p = .313$ ($p > .05$), indicating the missing data was missing completely at random. The missing values were estimated and replaced with Expectation Maximization (EM). The data were also checked for

normality through visual inspection and statistical procedures to ensure the suitability of parametric tests as recommended by Tabachnick and Fidell (2012). Results indicated that three variables were normally distributed: The FSCRS (Hated-self), CIA, and the stress subscale from the negative affect measure (DASS-21). Due to significant skewness, log transformations were used for the following variables: All three FCS subscales, global score of the EDE-Q, and the anxiety and depression subscales of the DASS. The Inadequate- and Reassuring-Self of the FSCRS and the BI-AAQ were found to be skewed but not transformed as log, inverse, and square root transformations did not help to improve the skew. The transformed variables were used only in regression analyses that required normality as an assumption.

CFA of Self-Criticism Subscales

Fit indices from the CFA of all the FSCRS models are presented in **Table 3.3,** and the standardized factor loadings for each item are summarized in **Table 3.4**. Using the CFI benchmarks for our study, the 3-factor model presented a good fit (CFI = .925), a 2-factor combined inadequate- and hated-self and reassuring-self presented with a good fit (CFI = .904), whilst a unidimensional model presented with a marginal fit (CFI = .683). Ultimately, we chose the 3-factor version of the FSCRS as presenting the best-fitting model given its lower CFI and BIC value (BIC = 17342.61) compared to the 2-factor (BIC = 17434.87) and unidimensional models (BIC = 18492.74). It is this model that is reported in the subsequent analyses. Whilst cross-loadings are constrained to zero and each item loads onto one factor only in a CFA analysis (Steenkamp & Maydeu-Olivares, 2022), factor correlations in the 3-factor version indicated strong positive correlation between the inadequate- and hated-self factors (.91) suggesting that greater scores on the inadequate-self factor was related to greater scores on the hated-self factor, and both showed negative correlations with the reassuring-self

factor (-.19–-.35), suggesting that greater scores on inadequate- and hated-self factors were linked with reduced scores on the reassuring-self factor.

Table 3.3

Model Fit Indices from the CFA (best fitting model shaded)

Measure	***χ2 (df)***	**AIC**	**RMSEA**	**CFI**	**TLI**	**BIC**
Forms of Self-Criticising/Attacking and Self-Reassuring Scale [Unidimensional]	5029.636 *(231)*	18248.290	0.156	0.683	0.649	18492.739
Forms of Self-Criticising/Attacking and Self-Reassuring Scale 2-Factors [Inadequate-Self, Hated-Self]	667.718 *(208)*	17186.716	0.086	0.904	0.894	17434.870
Forms of Self-Criticising/Attacking and Self-Reassuring Scale 3-Factors [Inadequate-Self, Hated-Self, Reassuring-Self]	564.046 (206)	17087.044	0.076	0.925	0.916	17342.605

Note: *χ2 (df)* = Chi-Square Test of Model Fit (Degrees of Freedom); AIC = Akaike; RMSEA = Root-Mean-Square Error of Approximation; CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; BIC = Bayesian Information Criterion.

Table 3.4

Item Factor Loadings from best fitting CFA Models of the Forms of Self-Criticising/Attacking and Self-Reassuring Scale

Items	Forms of Self-Criticising/Attacking and Self-Reassuring Scale 2-Factor Model [Inadequate-Self + Hated-Self, Reassuring-Self]		Forms of Self-Criticising/Attacking and Self-Reassuring Scale Unidimensional Model	Forms of Self-Criticising/Attacking and Self-Reassuring Scale 3-Factor Model [Inadequate-Self + Hated-Self + Reassuring-Self]		
	F1	F2		F1	F2	F3
Inadequate-Self_1	0.862		0.861	0.870		
Inadequate-Self_2	0.874		0.872	0.886		
Reassuring-Self 3		0.687	-0.076			0.684
Inadequate-Self_4	0.723		0.718	0.724		
Reassuring-Self 5		0.651	-0.237			0.648
Inadequate-Self_6	0.849		0.846	0.855		
Inadequate-Self_7	0.857		0.854	0.865		
Reassuring-Self 8		0.817	-0.297			0.824
Hated-Self_9	0.789		0.617		0.668	
Hated-Self_10	0.746		0.834		0.860	
Reassuring-Self 11		0.754	-0.164			0.753
Hated-Self_12	0.808		0.736		0.787	
Reassuring-Self 13		0.831	-0.237			0.832
Inadequate-Self_14	0.782		0.787	0.789		
Hated-Self_15	0.615		0.692		0.708	
Reassuring-Self 16		0.750	-0.291			0.745
Inadequate-Self_17	0.833		0.740	0.757		
Inadequate-Self_18	0.731		0.808	0.801		
Reassuring-Self 19		0.588	-0.123			0.587
Inadequate-Self_20	0.689		0.778	0.789		
Reassuring-Self 21		0.678	-0.056			0.678
Hated-Self_22	0.790		0.798		0.846	

Factorial invariance between the undergraduate and clinical population groups was tested, as shown in **Table 3.5**. Results demonstrated metric (weak) but not scalar (strong) invariance that is, the factor loadings could be constrained to be the same across both groups but not the item thresholds. In other words, the clinical group had higher thresholds than the student group. Therefore, in the analyses that follow, we examine the groups separately. Further invariance testing (residual errors) was therefore not carried out.

Table 3.5

Invariance Testing of 3-Factor FSCRS between clinical and undergraduate groups

Model	**Number of parameters**	**Chi-square *(df)***	**Models compared**	**Chi-square *(df)***
Configural	138	881.103 *(412)****		
Metric	119	903.728 *(431)****	Metric against Configural	22.625 *(19)*
Scalar	100	977.215 *(450)****	Scalar against Metric	73.487 *(19)****

Note: *** $p < .001$

Descriptives and Convergent Validity

Strong intercorrelations were observed between self-criticism subscales in the FSCRS, with a positive correlation between the inadequate-self subscale and the hated-self subscale for both clinical ($r = .76$) and undergraduate samples ($r = .71$). The inadequate- and hated-self subscales from the FSCRS were significantly correlated with all other measures in both groups. Therefore, greater self-criticism was associated with greater fears of compassion ($r = .24$-$.70$), ED psychopathology ($r = .42$-$.52$), psychosocial impairment related to ED ($r = .42$-$.50$), negative affect ($r = .48$-$.71$), and lower body image acceptance ($r = -.48$--$.54$), whilst greater self-reassurance was associated with lower fears of compassion ($r = -.24$--$.60$), ED psychopathology ($r = -.38$--$.41$), psychosocial impairment related to ED ($r = -.32$--$.45$),

negative affect (r = -.33--.58), and greater body image acceptance (r = .38-.47). All other correlations were significant apart from the correlation between the fear of compassion for others subscale from the reassuring-self subscale of the FSCRS (**See Table 3.6**).

Internal reliability

The Cronbach's alpha, omega and H coefficients for each measure are presented in **Table 3.7**. Overall, all the measures demonstrated good to excellent internal consistency using Cronbach's alpha across the undergraduate sample, clinical sample, and combined samples. Across the samples, the majority of the Omega and H estimates also demonstrated good to excellent fits across all measures.

Binary Logistic Regression

Table 3.8 shows the results from the binary logistic regressions comparing the undergraduate and clinical samples, and the separate means and standard deviations for each population group. All subscales demonstrated odds ratios and 95% confidence intervals that did not cross one, apart from the BI-AAQ, indicating that the clinical population group scored significantly higher across all the subscales compared to the undergraduate population.

Multicollinearity

Given that there was a high correlation between the two self-criticism subscales at (r = .71-.76), the presence of multicollinearity was examined using hierarchical multiple regression analyses. The ED psychopathology (EDE-Q) and clinical psychosocial impairment (CIA) were the dependent variables. The inadequate-self and hated-self subscales of the FSCRS were the independent variables. A condition index (CI) > 30 and variance proportions (VP) > 0.50 for at least two different variables would indicate that multicollinearity was present, as recommended by Tabachnick and Fidell (2012). Whilst some variables reported VPs > 0.50, both population groups reported CIs < 30. Hence, multicollinearity was not indicated.

Table 3.6

Means, standard deviations (combined groups) and bivariate correlations (clinical group in upper diagonal, undergraduate in lower diagonal)

Variables (N)	***M (SD)***	**1.**	**2.**	**3.**	**4.**	**5.**	**6.**	**7.**	**8.**	**9.**	**10.**	**11.**	**12.**
1. FSCRS_IS	2.42 (1.08)		.76 [3]	-.49 [3]	.34 [3]	.58 [3]	.68 [3]	.43 [3]	-.54 [3]	.50 [3]	.56 [3]	.49 [3]	.57 [3]
2. FSCRS_HS	1.52 (1.18)	.71 [3]		-.61 [3]	.32 [3]	.53 [3]	.70 [3]	.42 [3]	-.40 [3]	.46 [3]	.54 [3]	.57 [3]	.64 [3]
3. FSCRS_RS	1.49 (0.80)	-.55 [3]	-.49 [3]		-.24 [3]	-.51 [3]	-.60 [3]	-.41 [3]	.38 [3]	-.45 [3]	-.42 [3]	-.37 [3]	-.58 [3]
4. FCS_CForO	1.49 (0.84)	.24 [1]	.24 [1]	-.10	.	.48 [3]	.41 [3]	.17 [1]	-.18 [1]	.22 [2]	.35 [3]	.25 [3]	.25 [3]
5. FCS_CFromO	1.36 (0.92)	.63 [3]	.66 [3]	-.51 [3]	.51 [3]		.71 [3]	.33 [3]	-.36 [3]	.48 [3]	.56 [3]	.45 [3]	.56 [3]
6. FCS_SelfC	1.39 (1.04)	.67 [3]	.64 [3]	-.56 [3]	.40 [3]	.78 [3]		.38 [3]	-.39 [3]	.48 [3]	.57 [3]	.46 [3]	.64 [3]
7. Global_EDEQ	3.06 (1.69)	.45 [3]	.52 [3]	-.38 [3]	.31 [3]	.48 [3]	.46 [3]		-.64 [3]	.58 [3]	.38 [3]	.39 [3]	.30 [3]
8. BI-AAQ	3.21 (1.50)	-.48 [3]	-.49 [3]	.47 [3]	-.29 [2]	-.48 [3]	-.46 [3]	-.86 [3]		-.56 [3]	-.42 [3]	-.42 [3]	-.33 [3]
9. CIA	1.28 (0.96)	.42 [3]	.47 [3]	-.32 [3]	.26 [2]	.43 [3]	.42 [3]	.71 [3]	.-68 [3]		.59 [3]	.53 [3]	.57 [3]
10. DASS_S	1.26 (0.86)	.55 [3]	.58 [3]	-.33 [3]	.26 [2]	.48 [3]	.53 [3]	.43 [3]	-.43 [3]	.43 [3]		.74 [3]	.60 [3]
11. DASS_A	0.77 (0.72)	.48 [3]	.53 [3]	-.45 [3]	.40 [3]	.61 [3]	.59 [3]	.44 [3]	-.48 [3]	.38 [3]	.70 [3]		.50 [3]
12. DASS_D	1.07 (0.87)	.61 [3]	.71 [3]	-.47 [3]	.23 [1]	.57 [3]	.63 [3]	.48 [3]	-.50 [3]	.54 [3]	.73 [3]	.69 [3]	

Note: [1] $p < .05$, [2] $p < .01$, [3] $p < .001$; FSCRS_IS = Forms of Self-Criticising/Attacking and Self-Reassuring Scale (Inadequate-self); FSCRS_HS = Forms of Self-Criticising/Attacking and Self-Reassuring Scale (Hated-self); FSCRS_RS = Forms of Self-Criticising/Attacking and Self-Reassuring Scale (Reassuring-self), FCS_CForO = Fears of Compassion Scale (Fear of Compassion for Others); FCS_CFromO = Fears of Compassion Scale (Fear of Compassion from Others); FCS_SelfC = Fear of Compassion for Self; Global_EDEQ = Eating Disorder Examination Self-Report Questionnaire; BI-AAQ = Body Image Acceptance and Action Questionnaire; CIA = Clinical Impairment Assessment; DASS_S = Depression Anxiety Stress Scale (Stress); DASS_A = Depression Anxiety Stress Scale (Anxiety); DASS_D = Depression Anxiety Stress Scale (Depression).

Table 3.7

Cronbach's Alphas, Omegas and H

	Cronbach's Alpha			Combined groups		Undergraduates		Clinical	
Measure	**Undergraduates**	**Clinical**	**Combined**	**Omega**	**Coefficient H**	**Omega**	**Coefficient H**	**Omega**	**Coefficient H**
FSCRS_IS	.903	.890	.946	0.946	0.952	0.905	0.917	0.890	0.906
FSCRS_HS	.866	.816	.882	0.885	0.898	0.863	0.891	0.816	0.834
FSCRS_RS	.887	.886	.895	0.896	0.908	0.888	0.899	0.888	0.907
FCS_CForO	.830	.872	.889	0.886	0.915	0.827	0.890	0.869	0.910
FCS_CFromO	.892	.916	.934	0.936	0.941	0.897	0.906	0.917	0.927
FCS_SelfC	.931	.930	.953	0.954	0.957	0.932	0.943	0.930	0.938
Global_EDEQ	.960	.894	.968	0.969	0.978	0.962	0.968	0.887	0.941
BI-AAQ	.967	.891	.954	0.957	0.966	0.968	0.973	0.893	0.923
CIA	.913	.887	.971	0.973	0.980	0.914	0.934	0.883	0.897
DASS_S	.882	.874	.927	0.927	0.933	0.887	0.902	0.872	0.884
DASS_A	.846	.857	.888	0.888	0.899	0.847	0.864	0.857	0.874
DASS_D	.909	.926	.942	0.942	0.947	0.910	0.925	0.929	0.940

Note: FSCRS_IS = Forms of Self-Criticising/Attacking and Self-Reassuring Scale (Inadequate-self); FSCRS_HS = Forms of Self-Criticising/Attacking and Self-Reassuring Scale (Hated-self); FSCRS_RS = Forms of Self-Criticising/Attacking and Self-Reassuring Scale (Reassuring-self); FCS_CForOthers = Fears of Compassion Scale (Fear of Compassion for Others); FCS_CFromOthers = Fears of Compassion Scale (Fear of Compassion from Others); FCS_SelfC = Fear of Compassion for Self; Global_EDEQ = Eating Disorder Examination Self-Report Questionnaire; BI-AAQ = Body Image Acceptance and Action Questionnaire; CIA = Clinical Impairment Assessment; DASS_S = Depression Anxiety Stress Scale (Stress); DASS_A = Depression Anxiety Stress Scale (Anxiety); DASS_D = Depression Anxiety Stress Scale (Depression).

Table 3.8

Binary Logistic Regression: Comparison of Key Variables between Clinical and Undergraduate groups

Measure	Undergraduate Mean (SD)	Clinical Mean (SD)	Odds Ratio	95% CI
FSCRS_IS	1.38 (0.78)	2.97 (0.77)	.122	0.08, 0.19
FSCRS_HS	0.57 (0.75)	2.02 (1.05)	.206	0.14, 0.30
FSCRS_RS	1.17 (0.69)	1.65 (0.81)	.430	0.30, 0.61
FCS_CForO	0.98 (0.59)	1.75 (0.82)	.227	0.15, 0.34
FCS_CFromO	0.71 (0.57)	1.71 (0.88)	.166	0.11, 0.26
FCS_SelfC	0.55 (0.60)	1.84 (0.95)	.142	0.09, 0.22
Global_EDE-Q	1.24 (1.08)	4.02 (1.02)	.150	0.10, 0.23
BI-AAQ	4.30 (1.73)	2.63 (0.95)	2.41	1.93, 3.00
CIA	0.12 (0.21)	1.89 (0.55)	.000	0.00, 0.04
DASS_S	0.49 (0.51)	1.66 (0.73)	.076	0.04, 0.13
DASS_A	0.29 (0.40)	1.02 (0.73)	.105	0.06, 0.19
DASS_D	0.44 (0.54)	1.40 (0.83)	.147	0.09, 0.24

Note: FSCRS_IS = Forms of Self-Criticising/Attacking and Self-Reassuring Scale (Inadequate-self); FSCRS_HS = Forms of Self-Criticising/Attacking and Self-Reassuring Scale (Hated-self); FSCRS_RS = Forms of Self-Criticising/Attacking and Self-Reassuring Scale (Reassuring-self), FCS_CForO = Fears of Compassion Scale (Fear of Compassion for Others); FCS_CFromO = Fears of Compassion Scale (Fear of Compassion from Others); FCS_SelfC = Fear of Compassion for Self; Global_EDEQ = Eating Disorder Examination Self-Report Questionnaire; BI-AAQ = Body Image Acceptance and Action Questionnaire; CIA = Clinical Impairment Assessment; DASS_S = Depression Anxiety Stress Scale (Stress); DASS_A = Depression Anxiety Stress Scale (Anxiety); DASS_D = Depression Anxiety Stress Scale (Depression).

Concurrent Validity

As seen in **Table 3.9**, in the undergraduate sample, the only significant independent predictor of psychosocial impairment related to ED from the CIA was the depression subscale of the DASS-21, $R^2 = .300$, $F(7, 95) = 5.81$, $p < .001$. In the clinical sample, the significant predictors of ED psychopathology from the EDE-Q were the inadequate- and reassuring-self subscales of the FSCRS ($R^2 = .274$, $F(7, 185) = 9.96$, $p < .001$), whilst significant predictors of impairment related to ED (CIA) were the inadequate- and reassuring-

self subscales of the FSCRS, as well as the stress and depression subscales from the DASS-21, $R^2 = .474$, $F(7, 185) = 23.79$, $p < .001$.

Test-Retest Reliability

To examine test-retest reliability, clinical participants' scores on the FSCRS subscales from their baseline assessment and their evaluation during their fourth treatment session were used. As participants were randomized to either start immediately or moved to a 4-week waitlist period, the test-retest period is between 4-8 weeks as some participants would have started treatment between the first and second observation. Results showed that test-retest reliability for the inadequate-self subscale was .717, .779 for the hated-self subscale, and .810 for the reassuring-self subscale, indicating acceptable to good reliability.

Table 3.9

Summary of Regression Analyses with the FSCRS and FCS Subscales, with the EDE-Q and CIA Scores as the Dependent Variables

	Undergraduates [N =104]								**Clinical [N = 196]**							
	Global EDE-Q				**CIA**				**Global EDE-Q**				**CIA**			
Predictors and order of entry	***B***	***SE***	***β***	***p***	***B***	***SE***	***β***	***p***	***B***	***SE***	***B***	***p***	***B***	***SE***	***β***	***P***
FSCRS_IS	0.05	0.04	0.17	.217	0.02	0.04	0.06	0.669	0.03	0.01	0.23	0.024	0.14	0.06	0.02	0.021
FSCRS_HS	0.05	0.04	0.17	.244	0.04	0.04	0.15	0.285	0.002	0.01	0.02	0.875	-0.08	0.05	-0.14	0.150
FSCRS_RS	-0.03	0.03	-0.10	.369	-0.01	0.03	-0.04	0.725	-0.03	0.01	-0.26	0.002	-0.10	0.05	-0.15	0.039
DASS_S	0.02	0.06	0.06	.687	0.04	0.06	0.10	0.499	0.01	0.02	0.06	0.593	0.18	0.07	0.23	0.012
DASS_A	0.28	0.25	0.15	.276	-0.09	0.25	-0.05	0.732	0.10	0.07	0.16	0.129	0.45	0.31	0.13	0.153
DASS_D	0.08	0.22	0.06	.715	0.45	0.22	0.31	0.043	-0.06	0.05	-0.09	0.310	0.88	0.25	0.28	<0.001
Age	0.004	0.003	0.12	.177	-0.002	0.003	-0.04	0.620	0.00	0.001	-0.05	0.457	0.002	0.003	0.04	0.522
Model	**R^2 = .306, F(7, 95) = 5.99, p < .001**				**R^2 = .300, F(7, 95) = 5.81, p < .001**				**R^2 = .274, F(7, 185) = 9.96, p < .001**				**R^2 = .474, F(7, 185) = 23.79, p < .001**			

Note: FSCRS_IS = Forms of Self-Criticising/Attacking and Self-Reassuring Scale (Inadequate-self); FSCRS_HS = Forms of Self-Criticising/Attacking and Self-Reassuring Scale (Hated-self); FSCRS_RS = Forms of Self-Criticising/Attacking and Self-Reassuring Scale (Reassuring-self); Global_EDEQ = Eating Disorder Examination Self-Report Questionnaire; CIA = Clinical Impairment Assessment; DASS_S = Depression Anxiety Stress Scale (Stress Subscale); DASS_A = Depression Anxiety Stress Scale (Anxiety Subscale); DASS_D = Depression Anxiety Stress Scale (Depression Subscale).

Discussion

The aim of the current study was to investigate the factor structure, validity, and reliability of three subscales measuring self-criticism with a mixed sample of people presenting for ED treatment and an undergraduate sample. Consistent with previous literature, the self-criticism measure (FSCRS) demonstrated a good (but not excellent) fit to a 3-factor compared to a 2-factor (i.e., a combined inadequate- and hated-self with the reassuring-self) and unidimensional model. Given that no prior study has looked at the 22-item FSCRS measure with a focus on an ED population, our findings advance knowledge of an appropriate tool for measuring self-criticism in ED populations. This choice is also informed by our examination of the FSCRS using three different measures of internal reliability, demonstrating good to excellent internal consistency across both clinical and non-clinical samples. Our examination of concurrent validity also suggests that the inadequate-self and reassuring-self measures from the self-criticism measure (FSCRS) contribute unique variance to ED psychopathology and quality of life related to ED, suggesting that if there is a need for shorter assessment of self-criticism, these would be the subscales of choice. This study also examined the test-retest reliability of the measure, finding an acceptable quality of reliability. These results add to the current literature as only one study previously examined the test-retest reliability of the original measure (Castilho et al., 2015), which presented similar results. Examining test-retest reliability also improves confidence that using the measure over multiple time points indicates the FSCRS is relatively stable over time and not impacted by extraneous factors that may influence participants' levels of self-criticism.

The FSCRS subscales also showed strong relationships with other constructs in the expected directions. Greater self-criticism was associated with greater fear of self-compassion, ED psychopathology, psychosocial impairment related to ED, negative affect, and lower body image acceptance. The findings support prior research by Fennig et al.

(2008), which showed that self-criticism was a strong predictor for ED symptoms, highlighting the need to investigate adjunct treatments for risk factors such as self-criticism that may be contributing to DE. Moreover, our findings also potentially suggest that future interventions for DE would be more effective if they both aimed to reduce self-critical thinking whilst concurrently cultivating positive and compassionate feelings. This has been supported by prior research that greater self-compassion predicts a lower likelihood of experiencing ED symptoms (Linardon, 2021). Together, these findings highlight that treatments which intervene early to reduce self-criticism and build self-compassion levels may improve patient outcomes through a greater reduction in ED symptomology and related constructs, including negative affect that is often impacted due to DE.

This study has several limitations. First, this study was a secondary analysis with a convenience sample previously recruited for CBT-T treatment (Pellizzer et al., 2019a; Pellizzer et al., 2019b; Wade et al., 2021) and future research could replicate the CFA as a primary analysis to improve confidence in data collection. We also examined cross-sectional associations which limits its interpretability in drawing causal conclusions regarding the contribution of self-criticism to DE. While our results provide strong evidence for robust relationships between self-criticism and psychological maladjustment, further testing of causality is required. Factorial invariance between the samples found that metric invariance was supported, however, scalar non-invariance indicated that at least one item intercept differed between the clinical and non-clinical samples (Putnick & Bornstein, 2016). Whilst it would have been more appropriate to separate the samples given this result, conducting the CFA in just the clinical group may not have been sufficiently powered to detect significant effects. Whilst we did not carry out further invariance testing, replication studies could investigate the source of non-invariance and re-examine the models (Putnick & Bornstein, 2016). Finally, over 80% of participants were Caucasian females and participants with a BMI

under 17.5 that would qualify for an anorexia nervosa diagnosis were excluded from the study, which limits the generalisation of results to these groups. Whilst the rate of DE is highly prevalent in this sample (e.g., Galmiche et al., 2019), the results should nonetheless be interpreted cautiously when applied to males or people from various cultural backgrounds, and further research may seek to replicate the findings of this study with other populations.

Conclusion

In summary, the factor structure of a self-criticism measure was examined in an ED sample and found the 22-item 3-factor FSCRS to be a valid and reliable measure. The inadequate-self and reassuring-self FSCRS subscales demonstrated robust links with ED and psychosocial impairment related to ED in the clinical sample. This highlights the need to target risk factors like self-criticism in future interventions, with further research needed to explore the effectiveness of self-compassion interventions to safeguard against self-criticism and DE. The next Chapter aims to extrapolate evidence in the literature that has previously explored the association between self-criticism and self-critical perfectionism with DE and how self-compassion interacts in conjunction with these constructs, to further strengthen the argument to target these transdiagnostic mechanisms in ED treatment.

CHAPTER 4: A META-ANALYSIS OF DISORDERED EATING AND ITS ASSOCIATION WITH SELF-CRITICISM AND SELF-COMPASSION[2]

[2] The study described in this chapter was published and can be found in **Appendix A**. The first author contributed 20% to the research design, 80% to data collection and analysis, and 80% to the writing and editing. The second author contributed 80% to the research design, 20% to data collection and analysis, and 20% to the writing and editing.

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Abstract

Future treatments for Eating Disorders (ED) need to be enhanced by targeting maintaining mechanisms. Literature suggests self-criticism and self-critical perfectionism act as key mechanisms exacerbating ED, and self-compassion protects against self-criticism. This meta-analysis examines associations between self-criticism and self-critical perfectionism on disordered eating (DE) and reviews how self-compassion and self-criticism relate to each other with respect to DE. Searches across three databases yielded 135 studies across 42,952 participants. Heterogeneity, publication bias, and quality assessments were analyzed. Moderation analyses between self-criticism measures, self-compassion measures, between clinical and non-clinical samples, and between cross-sectional and experimental studies were also conducted. Random-effects models showed a medium positive link between self-criticism and DE (r = .37), and 10 subgroups pertaining to various measures of self-criticism utilized in the literature showed small to large positive links with DE (r = .20 – .52). Preliminary evidence also suggests negative relationships between self-compassion and DE (r = -0.40 – -0.43) and negative relationships between self-compassion and self-criticism (r = -.04 – -.88). Greater levels of self-criticism is linked with greater levels of DE and reduced levels of self-compassion, suggesting a need to tackle self-criticism and nurture self-compassion in standard treatments for ED. Understanding these interactions better in conjunction with dismantling intervention studies can help develop more effective and efficient interventions targeting self-criticism and self-compassion for people with DE.

Augmentation of treatment through careful consideration of key mechanisms is an important pathway to explore to improve treatment outcomes (Wade et al., 2024). The transdiagnostic model of eating disorders (EDs) postulates four key mechanisms to target in treatment, namely self-esteem, perfectionism, interpersonal relationships, and unhelpful emotional regulation strategies (Fairburn et al., 2003). While targeting these risk factors in treatment promotes a modest improvement in outcomes (Fairburn et al., 2009), the mechanisms remain rather broadly defined and conceptualized. Focusing on pertinent dimensions of these mechanisms may increase the helpful impact on treatment. The focus of the current review is whether self-criticism may be a pertinent mechanism to target in the treatment of EDs. Evidence supports self-criticism as a risk factor for depression, anxiety, post-traumatic stress (Fennig et al., 2008; Thew et al., 2017) and facets of DE, including fasting, purging, and excessive exercise (Zelkowitz & Cole, 2020). Interlinked with self-criticism, self-critical perfectionism is postulated to be the key dimension of perfectionism that predicts maladjustment (Dunkley et al., 2006). Like those with high self-criticism, individuals with high levels of self-critical perfectionism present with a greater risk of experiencing symptoms including binge eating, diet restrictions and body dissatisfaction (Boone et al., 2012; Mackinnon et al., 2011).

Recent interest has focused on self-compassion as an adaptive approach to regulating self-critical thoughts (Gilbert, 2014). Individuals high in self-compassion are likely to have lower self-criticism, although the constructs are not simply inverses of each other (Neff, 2003). Systematic reviews have found that self-compassion-related interventions significantly lowered self-criticism when compared to controls (g = 0.51; Wakelin et al., 2021). A meta-analysis (Turk & Waller, 2020) showed that higher self-compassion was linked with lower eating pathology, reduced body image concerns and greater positive body image, and that self-compassion interventions for eating pathology and body image were effective and

superior compared to control groups (g = 0.39). Thus, self-criticism needs to be explicitly targeted to be dismantled for helpful aspects of self-compassion to have more impact.

As such, the first aim of this systematic review and meta-analysis was to investigate the association of self-criticism with DE. Namely, we conducted ten meta-analyses that grouped together studies based on the self-criticism measure they used, which could help to identify which dimensions of self-criticism demonstrate the most robust links with DE. We also conducted additional subgroup analyses that explored potential moderating effects of variables (i.e., the difference between clinical and non-clinical populations, between self-criticism and self-critical perfectionism measures, and between experimental and cross-sectional studies), to gain insight into whether the type of sample group, conceptualisation or study design moderates the impact on DE. Longitudinal studies will also be examined to help answer the question of whether self-criticism predicts DE. Whilst such evidence cannot demonstrate causality, it would satisfy two of the three essential criteria for establishing causation (i.e., association and temporal precedence), which could highlight a need for further research to consider the long-term impact of self-criticism on DE. The second aim was to examine how self-compassion and self-criticism relate to each other with respect to DE to inform a model that can be used to develop future interventions for DE.

Method

Search Strategy

The meta-analysis was conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Page et al., 2021). A comprehensive literature search was conducted using the PsycINFO (OvidSP) and Scopus databases. A search of grey literature using the ProQuest Dissertations and Theses Global database was also searched. As the factors found to have loaded onto self-critical perfectionism include Hewitt and Flett Multidimensional Perfectionism Scale (HMPS)

socially prescribed perfectionism and Frost Multidimensional Perfectionism Scale (FMPS) concerns over mistakes factors (Dunkley & Blankstein, 2000; Dunkley et al., 2006), the search terms were used in a three-component strategy (Eating Terms; Self-Criticism Terms; and Self-Critical Perfectionism Terms). These were searched for in the title and abstract in the articles to locate pertinent publications in all journals: (("eating disorder*" or "disordered eating" or anorexi* or "Binge eating" or bulimi* or ednos or "eating disorder not otherwise specified" or osfed or "Other Specified Feeding and Eating Disorder") and (self-critic* or "self critic*" or "self-critical perfectionis*" or "concern over mistakes" or "socially prescribed perfectionism")). Additional articles from references lists and extended searches were also included in the literature search. Where further information was required from articles to calculate effect sizes, the corresponding authors of those articles were contacted via email to request this information.

Inclusion Criteria

No restrictions on the year of publications, publication type or sample types were set. Studies will then be inspected for meeting the following criteria: (1) The study was written in English, (2) The publication included a quantitative association between DE and self-criticism or self-critical perfectionism, (3) Valid and reliable quantitative instruments or subscales in the instruments used in the study measured self-criticism, self-critical perfectionism, and DE. Studies were determined to measure DE if they were evaluating any cognitions, attitudes, feelings, and behaviours related to eating, weight, and shape concern, as well as measures examining the presence of various EDs.

Study Identification

A search on Scopus and PsychINFO databases yielded 1131 published studies in March 2023, and an additional search conducted on the 25th of August 2023 resulted in three additional studies. The author (SP) and a research assistant (JD) independently screened all

titles and abstracts to determine whether papers broadly related to the research question. Abstracts that did not examine quantitative associations between DE and perfectionism or self-criticism were removed. Seven studies were also identified in the ProQuest Dissertations and Theses Global database, with four papers meeting the inclusion criteria for data extraction. Twenty-two papers were also excluded as they were not in English. Interrater reliability was excellent, with 98.5% alignment, who resolved disagreements through discussion. When insufficient data was supplied within the study to extract effect sizes, authors were contacted (N = 64); 20 (31%) replied and provided additional data. Forty-four studies were ultimately excluded due to the absence of replies from the corresponding authors. In total, 135 studies were included in the meta-analysis. **Figure 4.1** presents a PRISMA flow diagram of the study selection process.

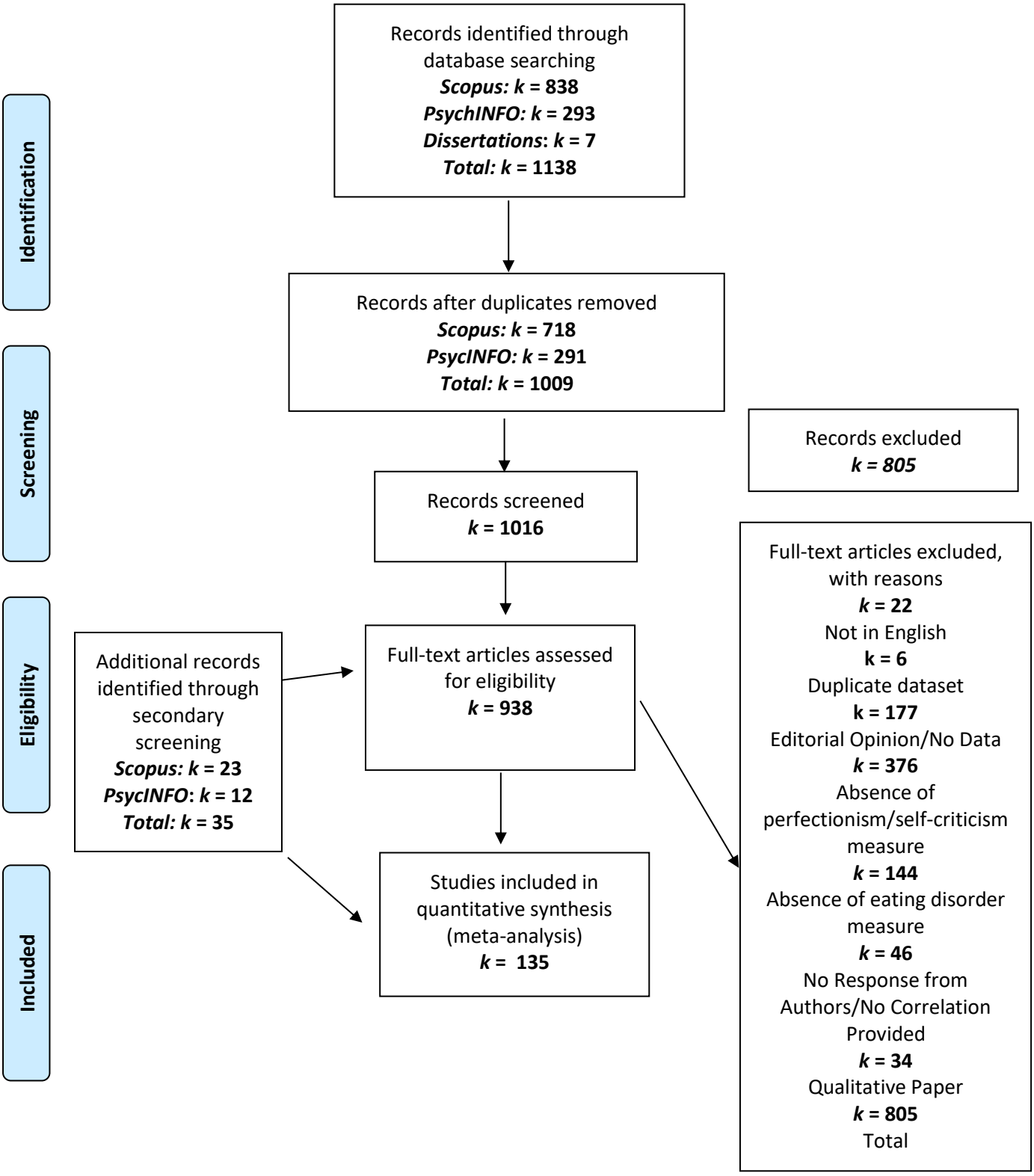


Figure 4.1. PRISMA diagram of the selection process of studies included in the meta-analysis.

Coding of Studies

A coding sheet was completed for each study included in the meta-analysis in the full-text screening process. The coding sheet included: (a) publication information (authors/year), (b) sample size, (c) sample characteristics (including mean age, sample type, race, ethnicity and socioeconomic status), (e) the measures or subscales used to assess self-criticism or self-critical perfectionism, (f) the measures or subscales used to assess ED symptomology, (f) the bivariate correlations and 95% confidence intervals between the perfectionism or self-criticism measures and ED measures, and (g) the Fisher's Z score for each study and (h) the bivariate correlations, 95% confidence intervals and Fisher's Z scores between the self-compassion measure and ED measure, as well as between the self-compassion and self-criticism measures. For the longitudinal studies, the table included the time between measurement points. **Table 4.1** lists all the self-criticism measures that were utilised in the meta-analysis, classified into whether they were measuring self-criticism or self-critical perfectionism, and **Table 4.2** lists all the measures that were utilised to assess DE in the meta-analysis; coded information for each study is presented in **Table 4.3**.

Quality Assessment

Risk of bias and quality assessments were conducted by a research assistant in consultation with the author. The Cochrane Effective Practice and Organisation of Care (EPOC) risk of bias (RoB) tool (2017) was used to assess the internal validity and risk of bias assessment of each study according to seven domains. Each domain was classified as either low risk (plausible bias unlikely to seriously alter the result), high risk (plausible bias that seriously weakens confidence in the results), or unclear risk (plausible bias that raises some doubt about the results).

Table 4.1

Definitions of Scales measuring self-criticism and self-critical perfectionism with classification of their measure type.

Scale	Definitions	Measure Type
Frost Multidimensional Perfectionism Scale (FMPS; Frost et al., 1990; *k* = 50)	Concern over mistakes (CM): the tendency to show negative reactions to mistakes and to interpret mistakes as a failure. Doubts about actions (DA): concern that tasks have not been completed properly.	Self-Critical Perfectionism
Hewitt Multidimensional Perfectionism Scale (HMPS; Hewitt & Flett, 1991; *k* = 33)	Socially prescribed perfectionism (SPP): the tendency to expect others to have extremely high standards for him/her and to constantly evaluate him/her for what he/she achieves.	Self-Critical Perfectionism
Children and Adolescent Perfectionism Scale (CAPS; Flett et al., 2016; *k* = 12)	Socially prescribed perfectionism (SPP): the tendency to expect others to have extremely high standards for him/her and to constantly evaluate him/her for what he/she achieves.	Self-Critical Perfectionism

Depressive Experiences Questionnaire (DEQ; Blatt et al., 1976; *k* = 7)	Self-Criticism (SC): Issues with self-definition, including achievement and feelings of inferiority and guilt in the face of perceived failure to meet standards.	Self-Criticism
Eating Disorder Inventory-2 Perfectionism subscale – (EDI-P; Garner et al., 1983; *k* = 6)	Socially Prescribed Perfectionism: Perceiving that others are demanding perfection of oneself)	Self-Critical Perfectionism
Self-Rating Scale (SRS; Hooley et al., 2002; *k* = 3)	Attempts to capture both the emotional and cognitive aspects of self-criticism with questions such as "Sometimes I feel completely worthless" and "Flaws, defects, and mistakes are intolerable." No clear definition has been provided, but it is a measure targeted for use in self-injury research.	Self-Criticism
Self-Compassion Scale (SCS; Neff, 2003 ; *k* = 9)	Self-Kindness vs Self-Judgement: Measures how individuals emotionally respond to pain and failure Common Humanity vs Isolation: Measures one's ability to cognitively understand their predicaments (be it as part of the human experience or as isolating) Mindfulness vs Over-Identification: Measures how much attention one gives to their suffering	Self-Criticism

	(be it in a mindful way or in an over-identified manner)	
Fear of Self-Criticizing/Attacking and Self-Reassuring Scale (FSCRS; Gilbert et al., 2004; *k* = 22)	Inadequate-Self: Attempts to capture feelings of failure and inadequacy Hated-Self: Focused on self-hating and contemptuous feelings. Reassuring-Self: Assesses positive and compassionate feelings directed towards oneself	Self-Criticism
Levels of Self-Criticism (LOSC; Thompson & Zuroff, 2004; *k* = 3)	Internalized Self-Criticism: A negative view of the self in comparison with internal, personal standards. These internal standards tend to be high, resulting in a chronic failure to meet one's standards. The focus is not on comparison with others or on the opinions that others have of them but on one's own view of self as deficient.	Self-Criticism
Dysfunctional Attitudes Scale (DAS; Weissman & Beck, 1978; *k* = 6)	Constant and harsh self-scrutiny and self-evaluation, concerns about other's criticism, and a tendency to engage in defensive strategies that perpetuate a vulnerable sense of self.	Self-Criticism

Table 4.2

Definitions of Scales measuring ED symptomology

Scale	Definitions
Eating Pathology Symptoms Inventory – Behavioral Restriction Subscale (EPSI-BR; Forbush et al., 2014)	The EPSI is a multidimensional self-report measure that was developed to examine ED pathology among a variety of populations. The EPSI is a 45-item questionnaire that has eight scales, including body dissatisfaction, binge eating, cognitive restraint, purging, behavioural restricting, excessive exercise, and negative attitudes towards obesity and muscle building. Only the behavioural restriction subscale was used.
Stirling Eating Disorder Scales – Bulimic Dietary Behavior Scale (SEDS-BDBS; Williams et al., 1994)	The SEDS-BDBS is an 80-item self-report measure designed to measure anorexia and bulimic cognitions and behaviors. It is comprised of eight subscales: Anorexic dietary behavior, Anorexic dietary cognitions, Bulimic dietary behavior, Bulimic dietary cognitions, High perceived external control, Low assertiveness, Low self-esteem, and Self-directed hostility.
Eating Disorder Inventory (EDI; Garner et al., 1983)	The EDI is a 64-item self-report measure designed to examine psychological and behavioural traits associated with anorexia nervosa and bulimia nervosa. The measure is comprised of eight sub-scales: Drive for thinness, Bulimia, Body dissatisfaction, Ineffectiveness, Perfectionism, Interpersonal distrust, Interoceptive awareness and Maturity fears.

Eating Disorder Examination Questionnaire (EDE-Q; Fairburn & Beglin, 1994)	The EDE-Q is a 28-item self-report measure designed to assess range, frequency and severity of behaviors associated with ED. It comprises four subscales: Restraint, Eating concern, Shape concern, and Weight concern, as well as behavioral symptoms linked with these concerns (e.g., frequency of behaviors, use of laxatives, and overexercise).
Weight Restriction/Control Questionnaire (WRCQ; Donovan et al., 2014)	The Weight Restriction and Control Questionnaire (WRCQ) is a 39-item self-report measure, with 3 subscales focusing on the behavioural aspects of weight restriction and control with respect to dieting, purging, and exercise.
Eating Disorder Diagnostic Scale – Binge Eating Subscale (EDDS-BE; Stice et al., 2000)	The EDDS is a 22-item self-report measure that examines the presence of 3 EDs: Anorexia nervosa, bulimia nervosa, and binge eating disorder. Only the subscale assessing for the presence of binge eating disorder was used.
Three-Factor Eating Questionnaire – Restraint Subscale (TFEQ-R; Stunkard & Messick, 1985)	The TFEQ is a 51-item self-report measure that examines current dietary practices and measures three different eating behaviours. The TFEQ is comprised of three factors: Restraint, Disinhibition, and Perceived hunger. Only the restraint subscale was utilized.
Bulimia Test – Revised (BULIT-R; Thelen et al., 1991)	The BULIT-R is a 36-item self-report measure designed to examine symptoms of bulimia nervosa and binge eating.

Dutch Eating Behavior Questionnaire – Restraint Subscale (DEBQ-R; van Strien et al., 1986)	The DEBQ is a 33-item self-report measure that was developed to measure eating styles that may contribute to or attenuate the development of being overweight. It comprises three subscales: Emotional eating, External eating and Restrained eating.
Eating Attitudes Test – 26 (EAT-26; Garner et al., 1982)	Adapted from the EAT-40, the EAT-26 is a 26-item self-report measure used to identify the presence of "ED risk" based on attitudes, feelings and behaviours related to eating. The measure comprises of 3 subscales: Dieting, Bulimia and Food Preoccupation, and Oral Control.
Eating Attitudes Test – 40 (EAT-40; Garner & Garfinkel, 1979)	The EAT-40 is a 40-item self-report measure used to evaluate adult attitudes, feelings and behaviours related to eating. The measure comprises of 3 subscales: Dieting, Bulimia and Food Preoccupation, and Oral Control.
Binge Eating Scale (BES; Gormally et al., 1982)	The BES is a 16-item questionnaire assessing the presence of certain binge eating behaviours which may be indicative of an ED.
Children's Eating Attitudes Test (ChEAT; Maloney et al., 1988)	The ChEAT is a 26-item scale assessing attitudes and behaviors associated with anorexia nervosa and bulimia nervosa. Each item is the same as the EAT-26 (Garner et al., 1982), but the language is modified for children, and comprises 6 subscales: Overconcern with Body size, Dieting, Food preoccupation, Social pressure to gain weight, Vomiting, and Caloric awareness and control.

Eating Habits Questionnaire (EHQ; Gleaves et al., 2013)	The EHQ is a 21-item self-report measure designed to measure orthorexic eating behaviors. The measure is comprised of three factors: Knowledge of healthy eating, Problems associated with healthy eating and feeling positive about healthy eating.
Eating Disorder – 15 Questionnaire (ED-15; Rodrigues et al., 2019)	The ED-15 is a brief 15-item measure that assesses ED psychopathology over the preceding week. This measure comprises two subscales: Weight and shape concerns as well as Eating concerns.
Body Attitudes Test (BAT; Probst et al., 2008)	The Body Attitudes Test (BAT) measures an individual's subjective body experience and attitudes towards their body. It comprises twenty items which yields four different factors that evaluate the internal view of one's own body (Negative appreciation of body size, Lack of familiarity with one's own body, General body dissatisfaction and Rest factor).

Table 4.3

Coded information of studies included in the meta-analysis

Author(s)/Year	Sample Size	Sample Characteristics (Mean age, Sample type, Race, Ethnicity, Socioeconomic Status (SES))	Self-Criticism/Self-Critical Perfectionism Measure	Eating Disorder Symptomology Measure	Bivariate Correlations	95% Confidence Intervals	Fisher's Z	Self-Compassion Correlations
Bardone-Cone et al., 2008	236 Females, 111 Males	**Sample Type:** Participants were 111 male and 236 female undergraduates from introductory psychology courses. **Age:** Participants ranged in age from 18 to 23; for men, the mean age was 18.67 years (SD = 1.00) and, for women, the mean age was 18.37 years (SD = .62). **Race/Ethnicity:** The majority of male participants (87%) self-reported as Caucasian, 5% African American, 3% Asian, and 5% biracial/other race. The majority of female participants (88%) self-reported as Caucasian, 5% African American, 1% Hispanic, 2% Asian, and 3% biracial/other race. Ethnicity and SES NR.	HMPS-SPP	EDE-Q	Men: 0.23; Women: 0.44	Men: 0.05, 0.40; Women: 0.30, 0.51	Men: 0.23; Women: 0.44	
Bardone-Cone et al., 2009	97	**Sample Type:** Participants were 97 women attending an American Midwestern university in the USA attending introductory psychology classes who self-identified as African American. **Age:** Participants were, on average, 19.04 years old (range 18–28; SD = 1.59), most (n = 68; 70.1%) were in their first 2 years of college. **SES:** As an index of socioeconomic status, the average highest parental education was 15.8 years (range = 12–	HMPS-SPP	BULIT-R	0.59	0.44, 0.71	0.68	

		21; SD = 2.81), or about 4 years of college.						
Bardone-Cone, 2007	406	**Sample Type:** Undergraduate women attending a United States university taking Introductory Psychology participated. Based on their self-report of current height and weight at the start of the study, participants averaged a body mass index (BMI) of 22.00 kg/m2 (SD = 3.01; Range: 14.76–40.35). **Age:** Participants had an average age of 18.60 years (SD = .97; range: 17–25). **Race/Ethnicity:** The majority of the participants (92.4%) self-reported as Caucasian, 3.2% as Asian, 2% as Hispanic, 1.2% as African American, and 1.1% as other races. Ethnicity and SES NR.	HMPS-SPP	EDI-Bulimia	0.22	0.12, 0.31	0.22	
Boone, 2013	328	**Sample Type and Age:** 57% late-adolescent females and 43% males (Mean age = 17.1, SD = 1.13, Range = 14-20) from two high schools in Belgium. Males and females did not differ in age. **Race/Ethnicity:** All participants were Caucasian, **SES:** All participants came from middle-class backgrounds. Of the participants, 78% came from intact, two parent families, 20% had divorced parents, 2% came from a family in which one of the parents had died. Ethnicity NR.	HMPS-SPP	EDI-II	0.34	0.24, 0.43	0.35	
Brannan & Petrie, 2008	398	**Sample Type:** Female undergraduates from a university in the United States participated. Eleven (2.8%) and 9 (2.3%) of the women reported having once been diagnosed with or treated for anorexia nervosa and bulimia nervosa,	HMPS-SPP	BULIT-R	0.36	0.27, 0.44	0.38	

		respectively. Nine (2.3%) reported currently having an eating disorder, whereas 12.1% (n = 48) indicated that they thought they may have an eating disorder. **Age:** Mean age was 19.69 years (SD = 1.65). Mean self-reported actual and ideal BMIs were 23.32 kg/m2 (SD = 4.48) and 21.14 kg/m2 (SD = 2.22), respectively. 39.9% (n = 159) were 1st-year students, 27.1% (n = 108) were sophomores, 18.3% (n = 73) were juniors, 11.6% (n = 46) were seniors, 2% (n = 8) were 5th year or above, and 1% (n = 4) did not respond. **Race/Ethnicity:** 65.1% (n = 259) were Caucasian, 8.3% (n = 33) were Hispanic, 16.6% (n = 66) were African American, 0.8% (n = 3) were American Indian, 6% (n = 24) were Asian American, 3% (n = 12) specified other, and 0.3% (n = 1) did not respond. Ethnicity and SES NR.						
Chang et al., 2008	248	**Sample Type:** Participants were female undergraduate students at a large American Midwestern university. **Age:** Participants' ages ranged from 18 to 27 years (M = 19.79, SD = 1.29). Race, Ethnicity and SES NR.	HMPS-SPP	BULIT-R	0.31	0.19, 0.42	0.32	
Downey & Chang, 2007	310	**Sample Type and Age:** Female college students aged 18 to 38 (M=19.4, SD=2.0) enrolled in psychology courses at a large Midwestern university participated. Body Mass Index (BMI) ranged from 15.34 to 38.73 (M = 21.95, SD = 3.21). **Race/Ethnicity:** 61% of the sample self-identified as White, 28.9% of one of several minority ethnic groups, and 10.1% as Other. Ethnicity and SES NR.	HMPS-SPP	EDI-Bullimia	0.32	0.22, 0.42	0.33	

Downey et al., 2014	Men: 134; Women: 272	**Sample Type:** Participants were 480 students at a regional campus of a non-residential midwestern public university aged 17 to 61. Most participants were freshmen or sophomores (n = 375, 80.0%). BMI averaged 26.33 among males (SD = 6.22) and 26.76 among females (SD = 7.49). **Age:** The mean ages of 22.31 years for males (SD = 6.33) and 22.53 years for females (SD = 6.82). **Race/Ethnicity:** Participants were majority White (n = 432, 92.3%), with 13 (2.8%) Black/African American, 5 (1.1%) Asian/Asian American/Pacific Islander, 7 (1.5%) Latino/Hispanic, and 3 (0.6%) Native American/Alaska Native participants (8, or 1.7%, indicated Other). Ethnicity and SES NR.	HMPS-SPP	EDE-Q	Men: 0.28; Women: 0.33	Men: 0.12, 0.43; Women: 0.22, 0.43	Men: 0.29; Women: 0.34	
Dryer et al., 2016	158	**Sample Type and Age:** Participants were males between the ages of 18 years and 36 years (Mean age = 26.94, SD = 5.50) who were recruited from metropolitan areas of Australia. A mean BMI of 25.45 (SD = 3.82) was obtained, with 2.5% of the sample classified as underweight, 54% were of healthy weight, 37% were overweight, and 6.5% meeting the criteria for obesity. Examination of the Eating Disorder Inventory (EDI)-3 Eating Disorder Risk scales indicated elevated levels of drive for thinness in 30.40% of the participants, bulimia in 24.68% of the participants, and body dissatisfaction in 2.53% of the participants. The majority of participants (88%) reported being in paid employment (part-time and full-time), with only 12% identified	HMPS-SPP	EDI-Bulimia	0.36	0.22, 0.49	0.38	

		themselves as being higher education students. 45% of the participants reported their highest educational achievement as having completed a university degree, 22% reported it as having completed vocational training, and 25% had secondary school qualifications. A large proportion of the participants reported being exclusively heterosexual (76%), 15% exclusively homosexual, and the remaining 9% reported being bisexual. Race, Ethnicity and SES NR.						
Esposito et al., 2019	716	**Sample Type:** 513 females, 202 males, 1 gender unknown from different parts of Italy **Age:** Mean age = 26.7, SD = 8.8. Race, Ethnicity and SES NR.	HMPS-SPP	EDE-Q	0.27	0.20, 0.34	0.28	
Garcia-Villamisar et al., 2012	216	**Sample Type:** Participants were 216 female undergraduate students enrolled in the General Psychopathology course at Complutense University in Madrid (Spain). **Age:** Ages of participants ranged from 19 to 30 with a mean age of 21.41 (SD = 2.54). Most students (93.3%) were in their second year of Faculty, and most (92.6%) were single and never married. Race, Ethnicity and SES NR.	HMPS-SPP	EAT-40	0.37	0.24, 0.48	0.38	
Hewitt et al., 1995	81	**Sample Type:** Female undergraduates attending introductory psychology classes. Most subjects were single (74%) and (52%) were in their first year of university. **Age:** Mean age = 20.92. Race, Ethnicity and SES NR.	HMPS-SPP	BULIT-R	0.32	0.11, 0.50	0.33	

Hurst & Zimmer-Gembeck, 2019	21	**Sample Type:** Participants were 21 Australian female adolescents aged 12–17 years. **Age:** Mean age = 14.9 years, SD = 1.2 years) from an urban area. Adolescents were consecutively referred to a specialist outpatient child and adolescent eating disorder service and diagnosed with AN according to the DSM-IV. Race, Ethnicity and SES NR.	HMPS-SPP	EDI	0.66	0.32, 0.85	0.79	
Macedo et al., 2007	Males: 399; Females: 764	**Sample Type:** 1163 university undergraduate students of the Faculty of the Medicine, and Humanities of University of Coimbra, aged between 17 and 25 years participated. Based on self-reports of weight and height, the women's mean body mass index was 20.9 (SD = 2.3) and the men's was 22.7 (SD = 2.6). The mean weight, height and BMI were significantly higher in males than in females. **Age:** Males and females mean age was respectively 19.7 (SD = 1.68) and 19.3 (SD = 1.54). Race, Ethnicity and SES NR.	HMPS-SPP	EAT-40	Males: 0.20; Females: 0.26	Males: 0.11, 0.30; Females: 0.20, 0.33	Males: 0.21; Females: 0.27	
Merwin et al., 2021	263	**Sample Type:** Participants recruited through flyers (45.2%), online classified ads (19.4%), word of mouth (17.1%), or the psychology subject pool (16.3%). **Age:** Mean age = 21.37, SD = 1.89. **Race/Ethnicity:** Most participants identified their sex as female (79.8%) and Caucasian/White (78.3%). Other self-reported races were African Canadian/Black (2.3%), Asian (7.7%), First Nations (0.8%), Hispanic (2.7%), Middle Eastern (1.1%), and Other (6.5%). Participants resided in either	HMPS-SPP	BES	0.06	-0.06, 0.18	0.06	

		Nova Scotia (60.5%) or Québec (39.5%). Ethnicity and SES NR.						
Mushquash & Sherry, 2012	317	**Sample Type:** 317 undergraduates (247 women; 70 men) from Dalhousie University participated. Most participants reported being single (51.4%) or in a dating relationship (42.6%). Average body mass index (BMI) was 23.37 (SD = 4.68) for women and 24.16 (SD = 3.66) for men. **Age:** On average, participants were 20.32 years old (SD = 4.34) **SES:** Participants had 1.72 years (SD = 0.91) of university education. Most participants were in their first (50.3%) or second (35.7%) year of university, with 7.4% in their third year, 5.7% in their fourth year, and 0.9% in their fifth year or above. **Race/Ethnicity:** 82.3% of participants reported their ethnicity as Caucasian, 5.4% as Asian, 3.8% as Black, 3.6% as more than one ethnicity, and 4.9% as other ethnicities (e.g., Aboriginal). Ethnicity and SES NR.	HMPS-SPP	EDI-Binge Eating	0.32	0.22, 0.42	0.33	
Mushquash & Sherry, 2013	109	**Sample Type and Age:** Daughters for a mother-daughter dyad study (mean age = 19.99, SD = 3.15). On average, daughters were enrolled in their second year of university. On average, mothers were 50.06 years old (SD=4.92) and had 15.76 years of education (SD=3.01). **Race/Ethnicity:** Most daughters were Caucasian (91.7%), born in Canada (94.0%), and reported being single (51.8%) or dating (36.2%). Most mothers were Caucasian (90.4%), born in Canada (84.4%).	HMPS-SPP	EDI-Bulimia	0.24	0.05, 0.41	0.24	

		SES: Most mothers reported their relationship status as married/common-law (82.6%) or separated/divorced (14.2%). For daughters, 72.5% were from intact families (i.e., parents married), 26.6% had divorced or separated parents, and 0.9% had a single mother.						
Peixoto-Placido et al., 2015	276	**Sample Type:** Women attending a nutritional appointment for weight loss treatment in a public hospital care setting (Figueira da Foz Hospital, Portugal), between July and December 2011 were recruited. Female outpatients with a BMI higher than 24.9 kg/m2 were taking part in the treatment **Age:** Mean age = 43.85, SD = 11.89. **SES:** Most participants were married (76.3%), 16% were single and the other 8.2% had other marital status. 62.2% of the woman were employed, 20.0% were unemployed and 13.7% were retired. Race and Ethnicity NR.	HMPS-SPP	EDE-Q	0.34	0.23, 0.44	0.36	
Pratt et al., 2001	219	**Sample Type and Age:** Participants were aged between 18 and 65 (Mean age and SD NR). 32 females meeting criteria for BN, 127 females meeting criteria for BED, 60 from an overweight non-eating disordered group. 78% of the entire sample was White, 12% Hispanic, 6% Black, 3% Asian, and 1% Native American. **SES:** Most of the sample was employed (70%) and had attended college (79%). Ethnicity NR.	HMPS-SPP	BES	0.37	0.25, 0.48	0.39	
Reilly et al., 2016	333	**Sample Type:** Participants were female undergraduates at a medium-sized university in the Midwestern United States. The sample was comprised of	HMPS-SPP	EAT-26	0.30	0.20, 0.39	0.31	

		38.4% freshmen, 24% sophomores, 11.4% juniors, and 11.4% seniors. **Age:** Mean age = 19.63 years, SD = 1.13) **Race/Ethnicity:** The university is comprised primarily of white students. Ethnicity and SES NR.						
Sherry & Hall, 2009	566	**Sample Type:** Undergraduate females taking psychology courses. 46.1% of students were in first-year university, 32.5% were in second year, 12.4% were in third year, and 9.0% were in fourth year or higher. **Age:** Mean age = 19.53, SD = 2.60. **Race/Ethnicity:** Most participants (i.e., 93.6%) reported they were single. 45.4% were Asian, 45.4% were European, 3.4% were mixed race, 2.8% were East Indian, 1.2% were Middle Eastern, and 1.8% classified as "Other". Ethnicity and SES NR.	HMPS-SPP	Binge Eating (BULIT-R, EDI-B, EDDS)	0.25	0.17, 0.33	0.26	
Soares et al., 2009	T1: 382, T2: 206	**Sample Type:** At the initial assessment the female sample comprised undergraduate students of Medicine and Humanities Faculties, of Coimbra University. From these initial 764 females, 382 (50%) subjects participated in the study at T1 (baseline mean age = 19.20 years; SD = 1.40; range = 17–25) and 206 (27%) participated at T2 (baseline mean age = 18.79 years; SD = 1.04; range 17–23). Most of these students were single (99.5% in both samples). The timepoints were separated by about 1 year. **Age:** Mean age = 19.32; SD = 1.54; Range = 17–25. Race, Ethnicity and SES NR.	HMPS-SPP	EAT-40	T1: 0.19; T2: 0.20	T1: 0.09, 0.28; T2: 0.07, 0.33	T1: 0.19; T2: 0.20	

Stoeber et al., 2017	393	**Sample Type:** Female undergraduates recruited via Kent University's School of Psychology's research participation scheme. **Age:** Mean age = 19.6, SD = 3.5. Race, Ethnicity and SES NR.	HMPS-SPP	EAT-26	0.32	0.23, 0.41	0.33	
Tissot & Crowther, 2008	277	**Sample Type:** Female undergraduates aged between 18 and 29 years of age enrolled in General Psychology at a public, American Midwestern University participated. Participants had a mean BMI of 23.10 (SD = 3.5, Range = 14.90-34.90). Majority were college freshmen (77%, n = 214) and never married (99.6%, n = 276). 5.4% (n = 15) previously had an eating disorder diagnosis including Anorexia Nervosa (2.5%, n = 7), Bulimia Nervosa (2.5%, n = 7), and Binge Eating Disorder (0.4%, n = 1). **Age:** Mean age = 18.70, SD = 1.40; Range: 18-27. **Race/Ethnicity:** 87% (n = 241) reported their race as Caucasian, 9% identified as African-American (n = 25), 1.8% (n = 5) as Biracial, 1.1% (n = 3) as Hispanic/Latina and 1.1% (n = 3) as Asian America/Pacific Islander. Ethnicity NR.	HMPS-SPP	EDI-Bulimia	0.22	0.11, 0.33	0.22	
Fitzsimmons-Craft et al., 2012	406	**Sample Type:** Female undergraduates at a Midwestern university enrolled in introductory psychology courses **Age:** Participants ranged in age from 17 to 25 (M = 18.60 years, SD = 0.97 years). **Race/Ethnicity:** The majority identified as Caucasian (92.4%). Ethnicity and SES NR.	HMPS-SPP	TFEQ-R	0.16	0.06, 0.25	0.16	

Bergunde & Dritschel, 2020	421	**Sample Type:** Participants were all female University students **Age:** Mean age = 20.95, SD = 3.30. **Race/Ethnicity:** Participants self-described their race as White (86.9%), Asian (6.0%), Mixed (4.0%), Black (1.4%) and Other (1.2%). Ethnicity and SES NR.	HMPS-SPP	EAT-26	0.29	0.20, 0.38	0.30	SCS and EAT-26 r = -.0.41; CI: -0.49, -0.33, Z: -0.44 SCS & HMPS-SPP: r = -0.31; CI: -0.39, -0.22; Z: -0.32
Ferrand et al., 2007	33	**Sample Type:** French female adolescent synchronized swimmers competing for Division 1 clubs **Age:** Mean age = 17.30 years, SD = 2.20. Race, Ethnicity and SES NR.	HMPS-SPP	DEBQ-R	0.06	-0.29, 0.40	0.06	
Flett et al., 2011	94	**Sample Type:** Female undergraduate students from York University in Toronto, Ontario participated in the study. **Age:** Mean age of the participants was 20.29 years (SD = 4.13) and most were in their first year of university. Race, Ethnicity and SES NR.	HMPS-SPP	BAT	0.40	0.21, 0.56	0.42	
Tng & Yang, 2021	167	**Sample Type:** Female students aged 18 to 26 from the social sciences faculty (comprising Psychology, Sociology, and Political Science majors) of a local university participated in the study. Mean BMI = 20.69; SD = 2.56. **Age:** Mean age = 21.60 years; SD = 0.52. Race, Ethnicity and SES NR.	HMPS-SPP	EDE-Q	0.21	0.06, 0.35	0.21	
Welch et al., 2009	520	**Sample Type:** Female undergraduates drawn from different faculties at a medium sized university located in southern Ontario, Canada. **Age:** Mean age = 20.89, SD = 4.43. **Race/Ethnicity:** 53.5% of participants were White/Caucasian, 14.2% were	HMPS-SPP	EAT-26	0.29	0.21, 0.37	0.30	

		South Asian, 11.7% were Chinese, 4.4% were Black, 3.1% were Arab/West Asian, 1.7% were Korean, 1.5% were South-East Asian, 0.8% were Latin-American, 0.6% were Filipino, 0.2% were Japanese, and 8.3% classified as "Other". SES NR.						
Arcelus et al., 2015	281	**Sample Type:** Female participants aged 12-20 were recruited via their schoolteachers from two professional dance conservatories in Spain. The mean body mass index was above 20 (M = 20.27; SD = 3.10) and varied according to the dance type; Ballet (M = 19.54; SD = 1.81), Contemporary (M = 18.73; SD = 1.99), Flamenco (M = 21.41; SD = 2.87), Spanish folk dancers (M = 20.80; SD = 2.66). **Age:** Mean = 15.28; SD = 2.32. Race, Ethnicity and SES NR.	FMPS-CM	EAT-26	0.58	0.50, 0.65	0.66	
Aruguete et al., 2012	258	**Sample Type:** Participants were recruited during psychology and research methods classes at a community college in California. Mean BMI was 24.33 (SD = 6.44). **Age:** Participants had an average age of 22.45 years (SD = 6.70). **Race/Ethnicity:** There were 106 Asian/Pacific Islanders, 52 Whites, 37 Latinos, 32 African-Americans, 7 of mixed race, 13 of other racial groups, and 11 of unknown race. Ethnicity and SES NR.	FMPS-CM	EDI-Drive for Thinness	0.29	0.17, 0.40	0.30	
Bernert et al., 2013	204	**Sample Type:** 139 females were diagnosed with BN Purging type, 4 with BN Non-purging type, 32 with Subclinical BN, 29 with Subjective BN. **Age:** Mean age = 25.67, SD = 8.85.	FMPS-CM	EDE-Q	0.30	0.17, 0.42	0.31	

		Race/Ethnicity: The ethnic composition of the sample was: 90.7% Caucasian, 2.5% African American, 1.5% Hispanic, 3.4% Asian, and 2.0% other/unknown. Ethnicity and SES NR.						
Boone et al., 2014	566	**Sample Type:** 165 adolescent boys and 401 girls from two secondary schools in Belgium. Each timepoint was separated by about 6 months. **Age:** Mean age = 13.28, SD = 0.89 **Race/Ethnicity:** All participants were Caucasian, 79% came from intact families, 20% had divorced parents, and 1% came from a family in which one of the parents had died. Ethnicity and SES NR.	FMPS-CM + FMPS-DA	EDI-II	T1: 0.39; T2: 0.37; T3: 0.31	T1: 0.32, 0.46; T2: 0.30, 0.44; T3: 0.23, 0.38	T1: 0.41; T2: 0.39; T3: 0.32	
Brannan et al., 2009	204	**Sample Type:** Female collegiate athletes from three Division 1 universities in the United States participated. 26.5% {n = 54) were first year students, 28.4% (n = 58) were sophomores, 27.5% (n - 56) were juniors, 15.7% (n = 32) were seniors, and 2% (n = 4) were 5th year or above. **Age:** The mean age was 20.16 years (SD = 1.31). **Race/Ethnicity:** 75.5% (n = 154) were Caucasian. 12.7% (n = 26) were Hispanic. 5.4% were African American, 0.5% were American Indian, and 1.5% (n = 3) were Asian American; 4.4% (n = 9) specified other. Ethnicity and SES NR.	FMPS-CM	BULIT-R	0.42	0.29, 0.52	0.44	
Brosof & Levinson, 2017	300	**Sample Type:** Undergraduate women from a Midwestern university in the United States. T2 was taken about two months after T1 and T3 was taken six months after T1.	FMPS-CM	EDI-II	T1: 0.26; T2: 0.33; T3: 0.37	T1: 0.15, 0.36; T2: 0.23, 0.43; T3: 0.27, 0.46	T1: 0.27; T2: 0.34; T3: 0.39	

		Age: Participants reported a median age of 18.00 (SD = 1.05). **Race/Ethnicity:** The majority of participants were Caucasian (n = 182, 60.7%), and other ethnicities reported included Asian (n = 82, 27.3%), Black (n = 12, 4.0%), Hispanic (n = 8, 2.7%), multi-racial (n = 15, 5.0%), and ethnicity not listed, reported by one participants. Ethnicity and SES NR.						
Campbell et al., 2018	608	**Sample Type:** 608 adolescent boys (41%) and girls (59%) attending secondary school in Belgium. The timepoints were separated by about 6 months. **Age:** Mean age = 16.19, SD = 0.79. **Race/Ethnicity:** All participants were Caucasian. **SES:** All participants came from a middle-class background. 81% came from a two-parent household. Ethnicity and SES NR.	FMPS-CM	EDI-II	T1: 0.37; T2: 0.35	T1: 0.30, 0.44; T2: 0.28, 0.42	T1: 0.39; T2: 0.37	
Davies et al., 2009	107	**Sample Type:** 107 females participated in the study, including 56 clinical participants – 30 who met the DSM-IV criteria for Anorexia Nervosa and 26 for Bulimia Nervosa. Fifty-one control participants were recruited from the local community using adverts placed in local libraries, leisure centres and supermarkets. Current BMI of the AN group was 15.5 (SD = 1.3), BN group was 25.3 (SD = 4.7), and Control group was 23.1 (SD = 3.8). **Age:** Mean age of AN group was 26.8 (SD = 8.3), BN group was 27.8 (SD = 6.1), and Control group was 29.4 (SD = 9.6). Race, Ethnicity and SES NR.	FMPS-CM	EDE-Q	0.73	0.62, 0.80	0.92	

Donovan et al., 2014	167	Female first-year psychology students were studying at the University of Queensland, Brisbane, Australia, and 82% of participants were born in Australia. **Age:** Mean age = 19.22, SD = 1.79. All students Race, Ethnicity and SES NR.	FMPS-CM	WRCQ	0.42	0.29, 0.54	0.45	
Levinson et al., 2019	732	**Sample Type:** Participants were required to meet the criteria for AN under the DSM-IV diagnosis of AN, excluding the amenorrhea criterion; (b) low weight less than 5th percentile of BMI for age and gender, AN onset before age 25; aged between 13 and 65; and (f) the diagnosis of AN must have been met at least 3 years before study entry. A large percentage (54.36%; n = 393) had a comorbid diagnosis of OCD. Other diagnoses were generalized anxiety disorder (n = 99; 13.62%), agoraphobia (n = 21; 2.89%), major depressive disorder (n = 516; 72.27%), panic disorder (n = 99; 13.62%), post-traumatic stress disorder (n = 120; 17.12%), social phobia (n = 153; 21.22%), and specific phobia (n = 72; 9.99%). **Age:** Participants had an average age of 26.12 (SD = 7.81) years. **Race/Ethnicity:** Only Caucasian participants were included. SES: Most participants were employed (61.6; n = 451), had completed some college (74.18%; n = 543), and were never married (67.36%; n = 483). Ethnicity NR.	FMPS-CM	EDI-II Drive for Thinness	0.39	0.33, 0.45	0.41	
Mackinnon et al., 2011	200	**Sample Type:** Participants were Undergraduate females taking psychology courses at a Canadian	FMPS-CM	EDDS-BE	T1: 0.38; T2: 0.11; T3: 0.04	T1: 0.25, 0.49; T2: -0.03, 0.25; T3: -0.10, 0.18	T1: 0.40, T2: 0.11; T3: 0.04	

		university. The timepoints were separated by about 7 days. **Age:** Mean age = 19.86, SD = 3.02. **Race/Ethnicity:** Participants self-identified as Caucasian (88.0%), Asian (3.0%), Black (2.5%), multiracial (3.5%), or "other" (3.0%). **SES:** These women averaged 15.01 years of formal education (SD = 1.43) and 2.10 years of education in the university setting (SD = 1.16); 25.6% of participants reported their major was undeclared, 25.5% majored in psychology, 10.0% reported double majors, 10.0% majored in nursing, 7.5% majored in neuroscience, 5.5% majored in kinesiology, and 15.9% reported other majors. Most women were either single (47.0%) or dating (40.5%), with 8.5% cohabitating and 4.0% married. Ethnicity NR.						
Minarik & Ahrens, 1996	39	**Sample Type:** Participants were undergraduate women enrolled in introductory psychology courses at an American University. **Age:** Mean age was 19.33 years (SD = 1.2). Race, Ethnicity and SES NR.	FMPS-CM	EAT-26	0.43	0.13, 0.66	0.46	
Penniment & Egan, 2012	142	**Sample Type:** The participants were female dancers whose primary training was ballet and jazz. Participants had a BMI of 20.9 (SD = 3.05, range: 15.6–32.9), which was determined via self-report. In addition, 22.5% of the sample may be classified as underweight, with a BMI under 18.5 kg/m2. **Age:** Mean age of participants were 22.33 years old (SD = 3.66, range: 18–30).	FMPS-CM	EDE-Q	0.80	0.73, 0.85	1.1	

		Race/Ethnicity: Most participants were Caucasian (93%). **SES:** A large proportion of participants had a dance related profession, which included being professional dancers and dance teachers (34.5%) and 36.6% were university students. 80% of participants identified themselves as having an average SES while 8.5% identified with low SES and 11.2% with high SES. Ethnicity NR.						
Rand-Giovannetti et al., 2022	280	**Sample Type:** Participants comprised a sample of undergraduate psychology students from a large, public university in the Pacific Islands region. English-speaking men and women between the age of 17 and 26 were eligible to participate. **Age:** Mean age = 20.5 years, SD = 1.92. **Race/Ethnicity:** Participants were racially and ethnically diverse (16% Caucasian, 59% Asian, 8% Multiracial, 2% Hispanic/Latino, 10% Native Hawaiian/Other Pacific Islander, 2% Black/African American, 1% as "Other", and less than 1% as American Indian/Alaska Native). Ethnicity and SES NR.	FMPS-CM	EAT-26	0.37	0.26, 0.47	0.39	SCS and EAT-26 r = -.17; CI: -0.28, -0.05, Z: -0.17 FMPS-CM and SES Self-Compassion r = -.0.30; CI: -0.40, -0.19 Z: -0.31
Redden et al., 2022	76	**Sample Type:** 76 (94.7% female) university students were enrolled in the study 39 in the treatment group and 37 in the waitlist control group. 37 females (94.9%) were in the treatment group, and 35 (94.6%) were in the control group. **Age:** Mean age of the treatment group was 20.10 (SD = 6.09), and Mean age of the control group was 18.89 (SD = 1.31). In the treatment group.	FMPS-CM	EAT-26	-0.1	-0.32, 0.13	-0.1	

		Race/Ethnicity: 27 (69.2%) were White, 4 were Black (10.3%), 4 (10.3%) were Hispanic, 3 (7.7%) were Asian or Pacific Islander, and 1 classified as Other (2.6%). In the control group, 26 (70.3%) were White, 10 (27%) were Hispanic, and 1 (2.7%) was Asian or Pacific Islander. Ethnicity and SES NR.						
Ruggiero et al., 2008	35	**Sample Type:** University students without EDs were recruited. Nobody was underweight (BMI lower than 17.5) or overweight (BMI higher than 25). **Age:** Mean age = 22.85±3.04 years. Race, ethnicity and SES NR.	FMPS-CM	EDI Drive for Thinness	0.49	0.19, 0.71	0.53	
Slof-Op't et al., 2016	826	**Sample Type:** 844 female ED patients for the first part of the study - 381 had AN (190 restricting, 120 binge-eating/purging, 71 subtype not available), 146 patients had BN, 56 patients had a binge-eating disorder (BED) and 261 patients had an ED not otherwise specified (EDNOS; 119 belonged to the AN-spectrum and 51 to the BN-spectrum). Patients with a diagnosis of AN or BN were invited to participate in the second part of the study, 229 patients (135 AN, 94 BN) consented. **Age:** The age of the patients ranged from 16 to 61 years, with a mean age of 27.9 years (SD = 5.94). Race, Ethnicity and SES NR.	FMPS-CM	EDE-Q	0.39	0.33, 0.44	0.41	
Steele & Wade, 2008	48	**Sample Type:** All but one of the participants was female. All participants met DSM-IV criteria for BN or eating disorder - not otherwise specified with binge eating [objective or subjective] or purging at least once per week.	FMPS-CM	EDE-Q	0.38	0.11, 0.60	0.40	

		Age: Participants ranged in age from 17 to 39 years, with no age differences among treatment groups (Perfectionism: M = 24.65 years, SD = 5.51; Traditional: M = 25.73, years, SD = 5.64; Placebo: M = 27.75 years, SD = 6.36). **SES:** 65%, 60% and 50% in the perfectionism, traditional and placebo conditions, respectively, were not partnered. 47%, 20% and 31% in the perfectionism, traditional and placebo conditions, respectively, attained tertiary education. 59%, 80% and 56% in the perfectionism, traditional and placebo conditions, respectively, had paid work. Race and Ethnicity NR.						
van der Kaap-Deeder et al., 2016	53	**Sample Type:** Participants were female patients treated for an ED in a specialized inpatient treatment unit Alexian Brothers Psychiatric Hospital. The mean duration of the ED was 4-5 years (range = 0.5–15). Based on a diagnostic interview by an experienced psychiatrist conducted at intake, 25 (47%) were diagnosed with anorexia nervosa-restrictive type, 6 (11%) with anorexia nervosa-purging type, 7 (14%) with bulimia nervosa, and 15 (28%) with eating disorder not otherwise specified. The timepoints were separated by about 2 weeks. **Age:** Range = 14.6–44.3; Mean age = 21.1; SD = 5.5. Race, Ethnicity and SES NR.	FMPS-CM + FMPS-DA	EDI Drive for Thinness	T1: 0.22; T2: 0.25; T3: 0.09	T1: -0.05, 0.46; T2: -0.02, 0.49; T3: -0.18, 0.35	T1: 0.22; T2: 0.26; T3: 0.09	
Wade et al., 2015	926	**Sample Type:** Schoolgirls from 12 participating schools were from Grades 7 and 8 across 12 schools; ten schools were co-educational, while two were girls-only. The schools were public (n =	FMPS-CM	EDE-Q	0.47	0.42, 0.52	0.51	

		3); private (n = 4) and Catholic (n = 5) and **Age:** Mean age = 13.00, SD = 0.75. **Race/Ethnicity:** Participants were composed typically of Caucasian students. Ethnicity and SES NR.						
Shu et al., 2020	267	**Sample Type:** Participants were females who resided in Australia and were a community sample. n = 67 (25%) were recruited online and n = 200 (75%) were undergraduate students. **Age:** Participants were aged 14 to 19 years (Mean = 17.8, SD = 1.48). Race, Ethnicity and SES NR.	FMPS-CM	EDE-Q	0.25	0.13, 0.36	0.25	
Vall & Wade, 2017	40	**Sample Type:** Participants were 37 Females, 2 Males, 1 Unknown. Thirty-six (90%) of the participants had the AN restrictive subtype; the remaining four were diagnosed as AN-binge/purge subtype. **Age:** The average age was 15.40 years (SD = 1.01, minimum 14 years, maximum 17 years). **Race/Ethnicity:** The sample was predominantly Caucasian (n = 37, 92.5%). Ethnicity and SES NR.	FMPS-CM	EDE-Q	0.58	0.32, 0.75	0.66	
Vall & Wade, 2015	51	**Sample Type:** Participants in the clinical sample were consecutive, unique admissions to an adult inpatient hospital programme at a public hospital (n = 53), in the 12 month period between August 2013 and September 2014. The programme specialises in the treatment of eating disorder patients who are medically stable. Although patients were not formally assessed for the presence of comorbid anxiety or depression, review of charts revealed that 41 (80.4%) had been prescribed and that 40 (78.4%)	FMPS-CM	EDE-Q	0.66	0.58, 0.73	0.80	

		were currently taking some form of antidepressant medication. The clinical sample consisted of both AN (n = 28) and BN (n = 23) cases. The AN group contained 18 cases that met the restrictive subtype and 9 who met the binge/purge subtype. **Age:** Mean age = 20.43. Race, Ethnicity and SES NR.						
Smith et al., 2017	200	**Sample Type:** Undergraduate women recruited from Dalhousie University's Department of Psychology participant pool. The timepoints were separated by about a week. **Age:** Participants had a mean age of 19.9 years (*SD* = 3.0). **Race/Ethnicity:** 88% were of European descent. Race, Ethnicity and SES NR.	FMPS-CM	EDI-B	T1: 0.35; T2: 0.34; T3: 0.37; T4: 0.37	T1: 0.22, 0.47; T2: 0.21, 0.46; T3: 0.24, 0.48; T4: 0.24, 0.48	T1: 0.37; T2: 0.35; T3: 0.39; T4: 0.39	
Bardone-Cone et al., 2017	441	**Sample Type:** The sample were Undergraduate females. The timepoints were separated by about 14 months. **Age:** Mean age = 18.70 at Time 2, SD = 1.02. **Race/Ethnicity:** Majority were non-Hispanic Caucasian/White (69.1%), 7.6% as African American/Black, 11.4% as Hispanic/Latina, 5.5% as Asian, and 6.4% as multiple race/ethnicities. **SES:** Highest parental education attained, used as a proxy for socio-economic status, was a mean of 17.13 years (SD = 2.71), which reflects about 5 years of postsecondary education. Ethnicity NR.	FMPS-CM	EAT-26	T1: 0.52; T2: 0.50	T1: 0.45, 0.59; T2: 0.43, 0.57	T1: 0.58; T2:0.55	
Bernabeu & Marchena-Giraldez (2022)	312	**Sample Type:** 190 were women (60.9%) and 122 were men (39.1%). 137 were Single (43.9%), 97 were in a relationship (31.1%), 69 were Married (22.1%), 9 were separated (2.9%).	FMPS-CM	BES	0.41	0.31, 0.50	0.44	

		Age: Mean age = 32.04 (SD = 11.86). **SES:** 84 were Students (26.9%), 42 were Unemployed (13.5%), 33 were Self-Employed (10.6%), and 153 were earning Salaries (49.0%). Race and Ethnicity NR.						
Boone et al., 2011	708	**Sample Type:** A total of 708 adolescents were recruited from two Flemish high schools in Belgium. The sample was 57% female. **Age:** The sample had a mean age of 13.9 years (SD = 0.92) at initial assessment. Race, Ethnicity and SES NR.	FMPS-CM + FMPS-DA	EDI-B	0.29	0.22, 0.36	0.3	
Boone et al., 2012 – 1	275	**Sample Type:** Adolescent boys (n = 137; 49.8%) and girls (n = 138; 50.2%). Participants were recruited via undergraduate students of psychology, who were asked to approach and invite two adolescents to participate in a diary study on a voluntary basis. **Age:** The sample had a mean age of 16.51 years (SD = 1.18; range = 13.20–19.53 years). Race, Ethnicity and SES NR.	FMPS-CM + FMPS-DA	EDI-II	0.27	0.16, 0.38	0.28	
Boone et al. 2012 – 2	100	**Sample Type:** A total of 100 university students from different faculties at Ghent University in Belgium (e.g., psychology and educational science, law, bioscience engineering, political and social science, physical education) participated. Inclusion criteria were being female within an age range of 18–30 years. The sample had a mean BMI of 22.04 (SD = 2.98). **Age:** The mean age of the sample was 20.6 years (SD = 2.24). **Race/Ethnicity:** All participants were White and of Belgian nationality.	FMPS-CM + FMPS-DA	EDE Binge Eating	0.44	0.27, 0.59	0.47	

		SES: 47% of participant's fathers and 58% of the mothers had obtained post high school education (of which 15% and 12% obtained a university degree), and 8% and 10%, respectively, had not obtained a high school diploma.						
Brytek-Matera et al., 2022	Italian Sample: 320; Polish Sample: 286	**Sample Type:** The study group consisted of 286 (47.2%) Polish and 320 (52.8%) Italian psychology students, respectively, recruited from different universities located in Poland (e.g., Silesian region, Upper Silesia region) and Italy (e.g., northern Italy). Mean BMI of the Italian sample = 21.43 (SD = 3.07). Mean BMI of the Polish sample = 22.69 (SD = 4.33). 255 (79.7%) of the Italian Sample were women and 65 were men (20.3%). 236 (82.5%) of the Polish Sample were women and 50 were men (17.5%). 289 (90.3%) participants in the Italian Sample were single compared to 53 (18.5%) in the Polish Sample. **Age:** Mean age of the Italian Sample = 21.98, SD = 2.09, Mean age of the Polish Sample = 22.33 (SD = 2.38). Race and SES NR.	FMPS-CM + FMPS-DA	EHQ	Italian Sample: 0.21; Polish Sample: 0.09	Italian Sample: 0.10, 0.31; Polish Sample: -0.02, 0.20	Italian Sample: 0.21; Polish Sample: 0.09	
Coughtrey et al., 2018	120	**Sample Type:** Participants had to be aged over 18 years, fluent in English and score one standard deviation above the published norm of the 'concern of mistakes' subscale of the Frost Multidimensional Perfectionism Scale (Frost et al., 1990), i.e., a score of≥29 (Suddarth & Slaney, 2001). Scores on this subscale ranged between 29 and 40. In total, 120 participants (82% female) participated. 28% were currently receiving treatment for a mental health disorder including medication.	FMPS-CM	EDE-Q	0.16	-0.02, 0.33	0.16	

		Age: The sample was aged between 18 and 58 years (M = 28.92, SD = 7.98). Race, Ethnicity and SES NR.						
Egan et al., 2017	368	**Sample Type:** The population was adults over the age of 18 years who participated in a diverse range of sport and exercise, and exercise twice or more per week. The sample comprised 368 participants; 50% females, 37% males (gender was not reported by 13% of the sample). Participants engaged in a mean of 1.63 sports (SD= 1.14, range 1–9 sports). **Age:** The sample were aged 18–65 years (Mean = 32.24, SD = 10.49). Race, Ethnicity and SES NR.	FMPS-CM	EDE-Q	0.47	0.38, 0.54	0.51	
Jones et al., 2007	42	**Sample Type:** Forty-two female students at the University of Birmingham participated in the study. Participants had a mean BMI of 21.49 (SD = 5.45, Range = 14-31). **Age:** Participants had a mean age of 21.40 years (SD = 2.68, Range = 18-28). Race, Ethnicity and SES NR.	FMPS-CM	EDI-B	-0.02	-0.32, 0.29	-0.02	
Kim et al., 2023	73	**Sample Type:** 73 mother-daughter dyads: 71 biological and 2 adoptive pairs were recruited. 54.93 % of mother-daughter pairs resided together. **Age:** Daughters were undergraduates who averaged 19.89 years of age (SD = 3.37). **Race/Ethnicity:** Daughters (87.67 %) were predominantly White. **SES:** According to mothers, median household income was $120,000–$139,000/annum. Ethnicity NR.	FMPS-CM	EDDS-Binge Eating	Daughters: 0.33, Mothers: 0.23	Daughters: 0.11, 0.52; Mothers: -0.00, 0.44	Daughters: 0.34; Mothers: 0.23	
Schwartz et al., 2021	122	**Sample Type:** 122 women were recruited from a private, nonprofit	FMPS-CM	EDE-Q	0.42	0.33, 0.50	0.45	

		university in a large metropolitan city. Students were required to be at least 18 years old and self-reported as female to participate. The average body mass index (BMI) was 23.51 kg/m2, which falls within the normal BMI range (range = 16.44–37.86 kg/m2, SD= 4.44). **Age:** The mean age of participants was 21.53 years (range = 18–50 years, SD = 4.90). **Race/Ethnicity:** The sample identified as White, non-Hispanic (31.1%), Hispanic (22.1%), Asian (25.4%), Black/African American (9.8%), Middle Eastern (7.4%), two or more races (2.5%), American Indian or Alaska Native (0.8%), and other (0.8%). Ethnicity and SES NR.						
Short et al., 2013	317	**Sample Type:** Undergraduates (247 women; 70 men) were recruited from the Department of Psychology participant pool at Dalhousie University. The timepoints were separated by about a day. **Age:** Participants averaged 20.32 years of age (SD = 4.34) **Race/Ethnicity:** Most participants were Caucasian (82.3%) and born in Canada (84.5%). **SES:** Participants averaged 1.72 years of university education (SD = 0.91).	FMPS-CM	EDDS-Binge Eating	Wave 1: 0.34, Wave 2: 0.34	Wave 1: 0.24, 0.43; Wave 2: 0.24, 0.43	Wave 1: 0.35; Wave 2: 0.35	
Stoeber & Yang, 2015	Sample 1: 169; Sample 2: 390	**Sample Type:** Sample 1 comprised 171 female students attending a large university in the eastern coastal region of China. Sample 2 comprised 393 female students attending a large university in the south-east of the United Kingdom.	FMPS-CM	EDI	Sample 1: 0.28; Sample 2: 0.42	Sample 1: 0.13, 0.41; Sample 2: 0.33, 0.50	Sample 1: 0.29; Sample 2: 0.45	

		Age: Mean age of participants in Sample 1 was 20.5 years (SD = 1.4). Mean age of participants in Sample 2 was 19.6 years (SD = 3.5). Race, Ethnicity and SES NR.						
Cella et al., 2020	1156	**Sample Type:** 640 females and 516 males aged between 13 and 20 years. In the current sample, 26 (2.2%) adolescents were underweight, 829 (71.7%) adolescents had normal weight, 227 (19.6%) were overweight, and 74 (6.4%) were obese. **Age:** Mean = 15.61, SD = 1.56. **SES:** Most participants (N = 591, 51.1%) fell into the high to the middle socio-economic category. About 80% of parents held a diploma of higher education or less. Race and Ethnicity NR.	FMPS-CM	EDI-III	0.29	0.24, 0.34	0.30	
Goel et al., 2020	1173	**Sample Type:** Undergraduate women from a public university in the southeastern United States participated. Over half (57.4%) were in their first year (n = 673), 18.0% second year (n = 211), 12.9% third year (n = 151), 10.8% fourth year (n = 126), and 0.1% fifth year or greater (n = 11). Average body mass index (BMI; kg/m2) was 24.64 (SD = 6.26); 6.6% had a BMI classified as underweight (n = 77), 59.0% normal weight (n = 690), 19.8% overweight (n = 232), and 14.6% obese (n = 171). **Age:** The sample had a mean age of 19.24 years (SD = 1.69). **Race/Ethnicity:** The sample included 43.0% identifying as White (n = 505), 20.4% as Black (n = 240), 7.00% as Latina (n = 82), 17.9% as Asian/Hawaiian/Pacific Islander (n =	FMPS-CM	EDE-Q	0.39	0.34, 0.44	0.42	

		210), and 11.6% (n = 136) identifying as more than one racial/ethnic group. Of the 136 women, 110 (80.9%) identified as White, 71 (52.2%) identified as Black, 44 (32.4%) identified as Latina, 48 (35.3%) identified as Asian, 2 (1.5%) as Hawaiian, 9 (6.6%) as Pacific Islander, and 20 (14.7%) as Native American. Ethnicity and SES NR.						
Lloyd et al., 2015	HC Parent: 20; AN Parent: 21	**Sample Type:** Forty-one participants took part in this pilot study: 21 unaffected mothers of individuals with AN and 20 Healthy Control mothers. BMI of HC mothers was 24.06 (SD = 2.11) and HC mothers was 23.20 (SD = 2.99). **Age:** Mean age of HC Mothers was 49.01 (SD = 4.12) and AN Mothers was 49.21 (SD = 3.94). Race, Ethnicity and SES NR.	FMPS-CM	EDE-Q	HC Mothers: 0.14, AN Mothers: 0.16	HC Mothers: -0.32, 0.55; AN Mothers: -0.30, 0.56	HC Mothers: 0.14; AN Mothers: 0.16	
Martini et al., 2021	260	**Sample Type:** 146 patients seeking treatment at the Eating Disorders Center of the "Città della Salute e della Scienza" Hospital of the University of Turin, Italy, and 140 Healthy Controls (HCs) were recruited. Patients were both hospitalized and partially hospitalized in patients with AN, whereas HCs comprised university students, medical residents and individuals from the general population all coming from the same catchment area as the patients. The final sample was 260 individuals: 139 inpatients and partially hospitalized patients with AN (99 AN restricting, 40 AN binge-purging subtype) and 121 HCs. Three patients were in partial remission at the time of the assessment (Body Mass Index [BMI] >19, still	FMPS-CM	EDI Bulimia	0.28	0.16, 0.39	0.29	

		fulfilling the other AN criteria). 93.46% identified as females. Average BMI = 17.48 (SD = 3.84). **Age:** Mean age of the sample = 24.15 (SD = 5.95). **SES:** 144 were students, 61 employed, 27 unemployed, and 28 unknown. 119 of them have a university education, 80 with a high school education, 32 with a primary school education, and 39 unknown. Race and Ethnicity NR.						
Pentz & Rados, 2017	66	**Sample Type:** The study was conducted at the Clinic for Children and Adolescent Gynaecology at the Department of Obstetrics & Gynaecology, University Hospital Centre Sisters of Mercy, Zagreb, and at a private polyclinic in Zagreb. Three groups of adolescent girls and young women participated in the study: (1) participants with functional hypothalamic amenorrhea (FHA group); (2) a control group with organic causes of irregular menstrual cycle (organic anovulation); and (3) a control group with regular menstrual cycle (eumenorrheic group). **Age:** Median age of the FHA group was 21, 23 for the Organic anovulation group, and 24 for the Eumenorrheic group. **SES:** 6 (24%) participants from the FHA attended secondary school, 13 (52%) are attending university and 6 (24%) are employed. 5 (20%) of them live in rural areas, whilst 20 of them (80%) live in urban areas. 2 (8%) are considered having below average SES, 17 (68%) with average SES, and 6 (24%) with	FMPS-CM	EAT-26	0.20	-0.04, 0.42	0.20	

		above average SES. 3 (14.3%) participants from the organic anovulation group attended secondary school, 9 (42.9%) are attending university and 9 (42.9%) are employed. 3 (14.3%) of them live in rural areas, whilst 18 of them (85.7%) live in urban areas. 2 (9.5%) are considered having below average SES, 16 (76.2%) with average SES, and 3 (14.3%) with above average SES. 10 (50%) participants from the Eumenorrheic group are attending university and 10 (50%) are employed. 1 (5%) of them live in rural areas, whilst 19 of them (85%) live in urban areas. 1 (5%) are considered having below average SES, 15 (75%) with average SES, and 4 (20%) with above average SES. Race and Ethnicity NR.						
Phillipou et al., 2022	Control Group: 20	**Sample Type:** All participants were required to be female, English-speaking and over 18 years of age. Healthy Controls were required to have no history of an eating disorder or other diagnosed mental illness. Mean BMI was 23.38 (SD = 3.20). **Age:** Mean age of the HC sample was 24.05 (SD = 4.39). Race, Ethnicity and SES NR.	FMPS-CM	EDE-Q	0.51	0.09, 0.78	0.57	
Schaumberg et al., 2020	204	**Sample Type:** 204 females who met criteria for full or subthreshold BN using DSM-IV diagnostic criteria participated in the study. Participants were recruited from five academic centres in the Midwestern United States through community advertising and local eating disorder clinics. Participants were mostly single (75% not married).	FMPS-CM	EDE-Q	0.40	0.28, 0.51	0.43	

		Age: Their ages ranged from 18 years to 57 years (M = 25.7 years, SD = 8.9). **Race/Ethnicity:** The majority (90.7%; n = 185) of participants self-identified as White, and a small proportion of participants identified as other races, including Asian (3.4%; n = 7), Black (2.5%; n = 5), Hispanic (1.5%; n = 3), and Mixed or Other" (2.0%; n = 4). **SES:** Participants had some college education (67% attended at least some college). Ethnicity NR.						
Ralph-Nearman et al., 2023	397	**Sample Type:** The sample consisted of 397 individuals with a current eating disorder diagnosis. Most participants were female (94.7%, n = 376), 18 participants were male (4.5%, n = 18), and 3 participants reported their gender as "other." Regarding diagnoses, most participants had anorexia nervosa (43.1%, n = 171), 12.3% had a diagnosis of bulimia nervosa (n = 49), 4.8% had a diagnosis of binge eating disorder (n = 19), 39.3% had a diagnosis of other specified feeding or eating disorder (n = 156), and 0.5% had a diagnosis of avoidant/restrictive food intake disorder (n = 2). **Age:** Participants were between the ages of 14 and 66 (M = 27.99, SD = 10.01). **Race/Ethnicity:** Most participants were White (82.6%, n = 328), 3.5% of participants were Hispanic (n = 14), 1.0% of participants were Black (n = 4), 2.0% of participants identified with two or more races (n = 8), and 1.5% of participants were Asian (n = 6). Two participants reported that their race was	FMPS-CM	EDE-Q	0.45	0.37, 0.53	0.48	

		not listed, and 35 participants did not report their race. Ethnicity and SES NR.						
Delaquis et al., 2023	140	**Sample Type:** Inpatients diagnosed with AN (137 Female, 8 Male) were recruited from 11 inpatient eating disorder treatment facilities in France between April 2009 and May 2011. The sample consisted of n = 78 (53.8%) participants with AN binge purge subtype (AN-BP) and n = 67 (46.2%) with AN-R. Sixteen percent (n = 22) of the sample had a premenarchal onset of AN. The average age of AN onset was 15.3 (SD = 3.2) years old, and the average duration of illness was 2.9 (SD = 2.5) years. **Age:** The average age at hospital admission was 18.2 (SD = 3.1) years old, and n = 78 (53.8%) of the sample was under the age of 18. Race, Ethnicity and SES NR.	FMPS-CM	EDE-Q	0.50	0.36, 0.61	0.55	
Turk et al., 2021 – 1	Time 2: 184	**Sample Type:** Of the 274 women who consented and participated at baseline (Time 1), 184 (67.1%) completed at Time 2 (3 months post-baseline), and 169 (61.7%) completed the final stage (Time 3 – 6 months post-baseline. **Age:** Participants' ages ranged from 18 to 70 years (Mean = 29.50 years, SD = 9.09). **SES:** 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). **Race/Ethnicity:** They self-identified as belonging to the following racial groups: 62% white; 13.5% mixed/multiple ethnic groups; 10.2% South Asian/Asian British; 4%	LOSC Internalized Self-Criticism	EDE-Q	0.39	0.26, 0.51	0.41	SCS and EDE-Q r = -.0.28; CI: -0.41, -0.14, Z: -0.29 LOSC-SC and SCS r = -.0.63; CI: -0.71, -0.53 Z: -0.74

		Black/African/Caribbean/Black British; and 10.2% other. **SES:** They had a range of employment statuses (43.4% employed, 48.2% students, 4.7% self-employed). Ethnicity NR.						
Turk et al., 2021 – 2	Men: 201; Women: 369	**Sample Type:** Out of 570 adults from the community – 369 self-identified as women and 201 self-identified as men. **Age:** Participants' ages ranged from 18 to 79 years (M = 29.78 years, SD = 9.7). **Race/Ethnicity:** 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. **SES:** 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 had a range of employment statuses (42.3 % employed, 48.4 % students, 9.3 % other). Ethnicity NR.	LOSC Internalized Self-Criticism	EDE-Q	Men: 0.27; Women: 0.40	Men: 0.17, 0.36; Women: 0.31, 0.48	Men: 0.28; Women: 0.42	Men: SCS and EDE-Q r = -.0.34; CI: -0.46, -0.21 Z: -0.35 Women: SCS and EDE-Q r = -.0.48; CI: -0.55, -0.40 Z: -0.52 Men: LOSC-SC and SCS r = -.0.64; CI: -0.72, -0.55 Z: -0.76 Women: LOSC-SC and SCS r = -.0.67; CI: -0.72, -0.61 Z: -0.81
Duarte & Pinto-Gouveia, 2017	Men: 109, Women: 222	**Sample Type:** Participants in our study were Portuguese college students (102 men; 205 women) and participants recruited from the community (7 men; 17 women). The overall sample comprised 331 participants (109 men and 222 women). Regarding relationship status, 308 (93.1%) were single, 18	FSCRS	BES	Men: 0.47; Women: 0.43	Men: 0.31, 0.60; Women: 0.26, 0.57	Men: 0.51; Women: 0.46	

		(5.4%) were married or partnered, 3 (.9%) were divorced, and 2 (.6%) did not provide information on relationship status. Of the men in our study, 2.7% (n = 3) presented low weight, 76.2% (n = 83) presented normal weight, 18.3% (n = 20) were overweight, and 2.7% (n = 3) were obese. In women, 8.1% (n = 18) of the participants presented low weight, 81.1% (n = 180) normal weight, 9.4% (n = 21) were overweight, and 1.4% (n = 3) were obese. **Age:** Participants' ages ranged from 18 to 60 years-old (Mean = 22.83, SD = 6.98). **SES:** Most participants were either in or had completed higher education (309; 93.6%), 5 (1.3%) participants completed secondary education, 1 (.3%) completed basic education; 16 (4.8%) student participants did not report their completed years of education. **Race/Ethnicity:** 327 (98.79%) participants were Caucasian; 4 (1.21%) participants were Black.						
Duarte et al., 2019	724	**Sample Type:** Participants were women attending a diet and lifestyle commercial weight management programme in the United Kingdom. The sample's mean (SD) BMI was 32.81 (6.40), with a range of 25.06–66.14. About 41.3% had a BMI between 25 and 29.99, 30.2% between 30 and 34.99, 15.4% between 35 and 39.99, and 13.1% > 40. **Age:** Participants' mean (SD) age was 44.89 (11.30), with a range of 19–65. Race, Ethnicity and SES NR.	FSCRS	BES	0.55	0.50, 0.60	0.62	FSCRS-RS and BES r = -.45; CI: -0.51, -0.39, Z: -0.48 FSCRS- IS and FSCRS-RS r = -0.53; CI: -0.58, -0.48; Z = -0.59
Duarte et al., 2016	119	**Sample Type:** A total of 119 adolescent and adult female eating disorders	FSCRS	EDE-Q	0.38	0.21, 0.52	0.40	

		outpatients seeking-treatment at Portuguese public hospitals were enrolled in the study. Thirty-four patients presented Anorexia Nervosa, 34 Bulimia Nervosa, and 51 Binge Eating Disorder. The diagnoses followed DSM-5 criteria for eating disorders and were established through the Eating Disorder Examination 17.0D. Regarding BMI, the AN patients' BMI ranged from 13.32 to 17.50 (M = 16.04; SD = 1.19); BN values ranged from 17.81 to 47.33 (M = 24.94; SD = 7.19); BED patients' BMI ranged from 20.83 to 50.32 (M = 35.52; SD = 8.10). **Age:** Patients with AN had ages ranging from 13 to 36 (Mean = 19.85; SD = 4.96). Patients with BN presented ages ranging from 15 and 49 years old (M = 26.91; SD = 9.23). Patients meeting the diagnosis for BED presented ages between 20 and 57 years old (M = 38.48; SD = 10.47). **SES:** Patients with AN presented 7 to 18 years of education (M = 12.15; SD = 3.03), and the majority were single (91.2%). Patients with BN presented 6 to 17 years of education (M = 11.88; SD = 3.25), with 73.5% being single and 20.6% married/living with a partner. Patients meeting diagnosis for BED presented 4 to 19 years of education (M = 13.20; SD = 4.30), with 64.7% being married/living with a partner and 29.4% were single. Race, Ethnicity and SES NR.						
Duarte et al., 2020	468	**Sample Type:** The sample included 67.1% female (n = 314) and 32.9% male (n = 154) participants from the general	FSCRS	EDE-Q	0.26	0.17, 0.34	0.27	FSCRS-RS and EDE-Q r =

		community. Concerning marital status 59.8% of the participants were single and 27.8% were married. The participant's BMI mean was 23.63 (SD = 3.59). **Age:** Ages ranged from 18 to 60 years. The sample presented a mean age of 32.58 years (SD = 11.49). **SES:** The sample presented a mean of 13.72 (SD = 3.12) years of education. Race, Ethnicity and SES NR.						-.21; CI: -0.30, -0.12, Z: -0.21 FSCRS- IS and FSCRS-RS r = -0.26; CI: -0.34, -0.17; Z = -0.27
Duarte et al., 2014	329	**Sample Type:** Participants 221 college students attending different courses and grades, and 108 women from the general population working in private and public corporations. Participants' Body Mass Index (BMI) mean was 22.85 (SD = 3.78). In regard to binge eating, 92.7% (n = 305) of the participants presented mild to no binge eating; 5.2% (n = 17) moderate binge eating; and 2.1% (n = 7) with severe binge eating. **Age:** The participants' age ranged from 18 to 57 years old, with a mean of 23.30 (SD = 10.41) **SES:** Participants' years of education ranged from 6 to 22, presenting a mean of 13.81 (SD = 2.40). Race, Ethnicity and SES NR.	FSCRS	BES	0.40	0.31, 0.49	0.42	
Duarte et al., 2015	609	**Sample Type:** Portuguese adolescent girls attending schools from the central region of Portugal: 112 (18.4%) were attending 3 public middle/high schools situated in urban areas of Viseu (inland central region of the country); 35 (5.7%) attended a public middle/high school from a semi-urban area of Covilha (inland central region); 43 (7.1%) were recruited in 2 public middle schools	FSCRS	EDE-Q	0.53	0.47, 0.58	0.59	FSCRS-RS and EDE-Q r = -.35; CI: -0.42, -0.28, Z: -0.37 FSCRS- IS and FSCRS-RS r = -0.24; CI: -

		from urban areas of Coimbra (central region); 51 (8.4%) attended 2 public middle/high schools situated in semi-urban areas of Coimbra; 53 (8.7%) attended a private middle/high school in an urban area of Coimbra; 59 (9.7%) attended a public middle school in a rural area of Coimbra; and 256 (42%) were recruited in 2 public middle/high schools from semi-urban areas of Coimbra. Participants' Body Mass Index varied from 13.12 to 35.14, with a mean of 20.90 (SD = 3.29). Two participants (0.3%) presented severe thinness, 12 (2%) presented thinness, 427 (70.2%) presented a normal weight, 139 (22.8%) were overweight, and 29 (4.7%) were obese. **SES:** Regarding socioeconomic status, 47.7% of the participants belonged to a low, 29.9% to a medium and 22.4% to a high socioeconomic status. Participants' years of education ranged from 8 to 12 (M = 8.89; SD = 1.05). **Age:** The participants' age ranged from 12 to 18 years old, with a mean of 14.10 (SD = 1.16). **Race/Ethnicity:** 99.18% of the participants were Caucasian. Race NR.						0.31, -0.16; Z = -0.24
Ferreira et al., 2014	191	**Sample Type:** 94 women were recruited from the general population and 97 female patients were diagnosed with eating disorders. Participants from the general population comprised a convenience sample recruited through the cooperation of undergraduate Psychology students. Patients with the diagnosis of an eating disorder were recruited in Portuguese public hospitals,	FSCRS	EDE	0.64	0.55, 0.72	0.76	

		and in private clinics. Race, Ethnicity and SES NR.						
Gois et al., 2018	552	**Sample Type:** A total of 552 women from the general Portuguese population were enrolled in the study. Concerning marital status, 408 participants reported to be single (73.9%), 132 married (23.9%) and 12 divorced or separated (2.2%). Regarding participants' BMI, women presented a mean of 23.14 kg/m2 (SD ¼ 4.33). Thirty-eight women (6.9%) were underweight (BMI < 18.5 kg/m2), 382 (69.2%) presented normal weight (18.5 kg/m2 < BMI< 25.0 kg/m2), 94 (17%) were overweight (25.0 kg/m2 < BMI < 30.0 kg/m2), and 38 (6.9%) participants were obese (BMI > 30 kg/m2). **Age:** Participants' age ranged from 18 to 40 years old, with a mean age of 25.47 years (SD = 5.86). **SES:** Participants had on average 14.84 (SD = 2.39) years of education. Race and SES NR.	FSCRS	EDE-Q	0.60	0.54, 0.65	0.69	
Kelly & Carter, 2013	74	**Sample Type and Age:** Participants were 18–55 years of age, with a mean of 27.5 years (SD = 9.3), and most (97%) were women. The admission Body mass index in our full sample ranged from 12.5 to 35, with a mean of 19.7 (SD = 5.2). At the time of admission, 29.2% of participants met DSM-IV criteria for the restricting subtype of AN (AN-R), 18.5% met criteria for the binge-purge subtype of AN (AN-BP), 29.2% met criteria for BN, and 23.1% had an eating disorder not otherwise specified (EDNOS).	FSCRS	EDE-Q	0.70	0.56, 0.80	0.87	

		Race/Ethnicity: The ethnic makeup of our sample was as follows: 79.1% Caucasian, 4.5% East Asian, 1.5% South Asian, 2.9% African Canadian, 10.5% Latin, and 1.5% mixed race. Race and SES NR.						
Palmeira et al., 2017	125	**Sample Type:** Portuguese women seeking nutritional treatment in Coimbra were invited to participate. According to DSM-V, 54 participants (43.2%) presented with Binge Eating Disorder and 73 participants did not. Sample's average Body Mass Index (BMI) was 34.44 (SD = 5.51). Concerning marital status, 62.4% were married and 20.8% were single. **Age:** Participants' mean age was 41.14 (SD = 8.72). **SES:** The majority came from low to medium socio-economic status with an average of 14.96 (SD = 3.15) years of education. (87.21%). Race NR.	FSCRS	BES	0.42	0.26, 0.55	0.45	FSCRS-RS and BES r = -.52; CI: -0.64, -0.38, Z: -0.58 FSCRS-IS and FSCRS_RS r = -.42; CI: -0.55, -0.26, Z: -0.45
Porter et al., 2022	1261	**Sample Type:** Sample 1 was recruited using the research subject pool at a small, private university in the northeastern United States (N = 717). Sample 2 was recruited using ResearchMatch.org, a free online research recruitment tool where individuals around the United States and Canada can sign up to volunteer to participate (N = 910). The final sample consisted of 1,261 total participants (594 from Sample 1; 667 from Sample 2). **Race/Ethnicity:** The final sample identified as follows: 79% college-attending, 74.2% female, 67.9% White, 24.0% Asian or Asian American, 5.4% Black, 8.3% Latinx, 68.2% heterosexual,	FSCRS	EDE-Q	0.54	0.50, 0.58	0.60	

		13.6% bisexual, 5.3% homosexual, 5% pansexual, and 4.5% as other sexual orientation.						
Rodrigues et al., 2022	103	**Sample Type:** Participants were outpatients recruited at a Portuguese hospital unit. Body mass index (BMI) ranged from 11.72 to 39.44 (M = 20.1, SD = 5.4, median = 18.04, IQR = 5.9). Most participants were single (n = 71; 69.6%) and 23.5% were married or cohabiting (n = 24). Participants were diagnosed by a staff psychiatrist, according to the DSM–V criteria. Thirty-eight participants met criteria for anorexia nervosa restricting type (AN-R; 36.9%), 10 for anorexia nervosa binge eating/purging type (AN-BP; 9.7%), 28 for BN (27.2%), 8 for binge-eating disorder (BED; 7.8%) and 19 for other specified feeding/eating disorder (OSFED; 18.4%). Twenty-seven participants (26.7%) reported a current treatment duration up to 24 months, while 54 participants (53.5%) reported a longer treatment duration. Finally, 79 participants (76.7%) reported current use of psychiatric medication. **Age:** Participants' ages ranged from 14 to 60 years old (M = 28.0, SD = 10.5, median = 25.0, interquartile range [IQR] = 14.0). **SES:** Forty-five participants (44.1%) completed high school, while 36 (35.3%) completed or were currently attending a college level degree. Race NR.	FSCRS	ED-15	0.62	0.48, 0.73	0.73	FSCRS-RS and ED-15 r = -.50; CI: -0.63, -0.34, Z: -0.55 FSCRS_IS and FSCRS_RS r = -.0.68; CI: -0.77, -0.56 Z: -0.83
Thew et al., 2017	78	**Sample Type:** 26 meeting criteria for Major Depressive Disorder, 26 meeting criteria for ED, 26 with no current or	FSCRS	EDE-Q	0.63	0.47, 0.75	0.74	

		historical mental health difficulties (university student and staff populations) were recruited. 81% of participants in the depression group was female, 100% in the eating disorder group, but only 51% of the control group was female. **Age:** Mean age of the depression group was 45 (SD = 13), the eating disorder group was 28 (SD = 7) and control group was 26 (SD = 12). **SES:** The proportion of participants not currently employed or studying was higher in the depression (50%) and eating disorder (50%) groups compared with controls (8%). Race and Ethnicity NR.						
Aktas et al., 2023	430	**Sample Type:** Turkish-speaking undergraduate students from different grades and departments at Mersin University were recruited. Of the participants, 285 were females (66.3%), and 145 were males (33.7%). **Age:** The sample were aged between 18 and 30 years (M = 21.76,SD = 1.99). Race and SES NR.	FSCRS	TFEQ	0.25	0.16, 0.34	0.26	
Conceicao et al., 2022	341	**Sample Type:** 341 participants aged between 18 and 59 years participated in the study. Participants included 246 (72.1%) women and 95 (27.9%) men. Mean current, highest, and lowest BMI was 22.91 (SD = 4.40), 24.47 (SD = 4.98), and 20.75 (SD = 3.61)kg/m2, respectively. **Age:** Mean = 23.21, SD = 6.02. **SES:** Within the sample, 58 (17%) participants attended their 1st year of college, 78 (22.9%) attended their final (5th) year, 173 (50.7%) spread through the 2nd and 4th year, and 32 (9.4%)	FSCRS	ED-15	0.54	0.46, 0.61	0.60	

		were doctoral or postgraduate students. The majority of participants, 285 (83.6%), were students, 45 (13.2%) were student-workers, and 11 (3.2%) identified as other. Race and Ethnicity NR.						
Kaleji et al., 2021	Men: 159; Women: 154	**Sample Type:** 313 students with an age range of 18 - 40 years participated in the study. The mean body mass index (BMI) of the participants was 23.32 ± 3.49. Among the participants, 159 (50.8%) were men, and 154 (49.2%) were women. The mean BMI of the participants was 23.35 ± 3.49 (23.89 ± 3.61 in men and 22.54 ± 3.22 in women). In addition, 274 (87.54%) participants were single, and 39 (12.46%) were married. **Age:** The sample had a mean age of 27.64 ± 3.87 years. The age range of men was 18 - 36 years with a mean age of 27.01 ± 3.73 years, while the age range of women was 18 - 40 years with a mean age of 23.35 ± 4.49 years. **SES:** 208 (66.45%) participants had a bachelor's degree, 88 (28.11%) had a master's degree, and 17 (43.5%) had a PhD. Race and Ethnicity NR.	FSCRS	BESS	Men: 0.29; Women: 0.61	Men: 0.14, 0.43; Women: 0.50, 0.70	Men: 0.30; Women: 0.71	
Matos et al., 2023	291	**Sample Type:** Women from the Portuguese general population, aged between 18 and 62 years old. Most of the participants reported being single (79.4%; n = 231), 17.9% married or in a long-term relationship (n = 52) and 2.7% divorced or separated (n = 8). Participants' Body Mass Index (BMI) mean ranged from 15.62 to 49.60, with a mean of 22.78 kg/m2 (SD = 4.27). Twenty-eight (9.62%) participants were	FSCRS	EDE-Q	0.65	0.58, 0.71	0.78	

		considered underweight (BMI <18.5 kg/m2), 209 (71.82%) presented a normal weight (18.5 kg/m2 < BMI <24.9 kg/m2), 40 (13.75%) presented as overweight (25.0 kg/m2 < BMI <29.9 kg/m2), and 14 (4.81%) presented as obese (BMI >30 kg/m2). **Age:** The sample had a mean age of 27.52 years (SD = 10.22). **SES:** The sample had a mean of 14.62 years of education (SD = 2.49; range = 6–32) were involved. 41.2% (n = 120) of the participants lived in an urban area, 33.7% (n = 98) in a rural one, and 25.1% (n = 73) in a semi-urban/periphery. Race and Ethnicity NR.						
Lethbridge et al., 2011	Clinical sample: 238, Community sample: 248	**Sample Type:** The clinical sample comprised 238 females with primary diagnoses of anorexia nervosa (n = 41, 17%; restricting n = 25, 5%; binge/purge n = 16, 3%), bulimia nervosa (n = 101, 42%; purging n = 93, 19%; non-purging n = 8, 2%), and eating disorder not otherwise specified (n = 96, 40%; atypical anorexia nervosa n = 51, 10%; atypical bulimia nervosa n = 20, 4%; purging n = 13, 3%; unspecified n = 12, 2%). The mean body mass index (BMI) was 20.73 (SD = 4.06) kg/m2, 53% were employed, and 32% were married or de facto. The proportion with Axis I comorbidity was 22%, most commonly a depressive (17%) or anxiety disorder (12%). For the resulting community sample (N = 248), the mean BMI was 24.19 (SD = 5.23) kg/m2. **Age:** The mean age of the clinical sample was 26.02 (SD = 9.10) years.	EDI-P-SPP	EDE-Q	Clinical Sample: 0.16; Community Sample: 0.10	Clinical Sample: 0.03, 0.28; Community Sample: 0.04, 0.28	Clinical Sample: 0.16; Community Sample: 0.16	

		The mean age was 31.42 (SD = 11.48) years for the community sample. **SES:** 89% were employed, and 53% were married or de facto. Race and Ethnicity NR.						
Sherry et al., 2003	Men: 110; Women: 110	**Sample Type:** The sample were all University students: 110 women and 110 men. **Age:** Mean age of women = 23.34, SD = 5.25. Mean age of men = 24.05, SD = 6.58. Race, Ethnicity and SES NR.	EDI-P-SPP	EAT-26	Men: 0.13; Women: 0.42	Men: -0.06, 0.31; Women: 0.25, 0.56	Men: 0.13; Women: 0.45	
Watson et al., 2011	201	**Sample Type:** The study participants comprised 201 women with a DSM-IV ED diagnosis [17% AN (11% restricting type; 6% binge/purge type), 42% BN (40% purging type; 2% non-purging type), 41% ED not otherwise specified (EDNOS; 22% atypical AN; 9% atypical BN; 8% purging type; 1% BED; 1% unspecified type)]. The sample was derived from a larger clinic sample of 214 individuals with EDs who had been consecutively assessed at a specialist ED outpatient program. **Age:** The average age of participants was 26.33 (SD = 9.35). Race, Ethnicity and SES NR.	EDI-P-SPP	EDE-Q	0.14	0.00, 0.27	0.14	
Dunkley et al., 2006	236	**Sample Type:** Participants were a consecutively evaluated series of 236 treatment-seeking overweight (BMI > 25) adults who met DSM-IV criteria for BED. Mean body mass index (BMI: weight (kg) divided by height (m2)) was 36.2 (SD = 8.9, range = 19.2–64.2). **Age:** Participants' mean age was 43.14 years of age (SD = 9.29). **Race/Ethnicity:** The participant group was predominantly Caucasian (84%).	EDI-P-SPP	EDE-Q	0.28	0.15, 0.39	0.28	

		77% (N = 182) attended or finished college. Ethnicity and SES NR.						
Castro et al., 2004	71	**Sample Type:** The group of patients comprised 71 female adolescents who fulfilled DSM-IV diagnostic criteria for anorexia nervosa at the moment of starting treatment at the Eating Disorders Unit of the Child and Adolescent Psychiatry and Psychology Department of the Hospital Clinic Universitario in Barcelona. **Age:** The sample was aged 11 to 19 years (Mean = 15.3; SD = 1.7) Race, Ethnicity and SES NR.	CAPS-SPP	EAT-26	0.24	0.01, 0.45	0.24	
Castro-Fornieles et al., 2007	ED Patients: 108; Psychiatric Patients: 86; Healthy Control: 213	**Sample Type:** 108 female participants who met criteria for AN (N = 75) or BN (N = 33) starting treatment at three different psychiatric units, 86 female patients from the psychiatric control group, and 213 female participants from the healthy control group. **Age:** The mean age of ED Patients was 16.5 (SD = 4.1), 17.5 (SD = 4.3) in the Psychiatric Patients and 16.7 (SD = 4.5) in the Healthy Control group. **SES:** 57.4% of Eating Disorder patients had medium SES levels, 39% with high SES levels, and 7% with low SES levels. 63% had elementary education, 25.9% with high school education, and 11.1 % with University education. 48.8% of Psychiatric Controls had medium SES levels, 40.7% with high SES levels, and 10.5% with low SES levels. 53.5% had elementary education, 24.4% with high school education, and 22.1 % with University education. 56.8% of Healthy Controls had medium SES levels, 40.4% with high SES levels, and 2.8% with low	CAPS-SPP	EDI-II	ED Patients: 0.40; Psychiatric Patients: 0.43; Healthy Controls: 0.42	ED Patients: 0.23, 0.55; Psychiatric Patients: 0.24, 0.59; Healthy Controls: 0.30, 0.53	ED patients: 0.42; Psychiatric Patients: 0.46; Healthy Controls: 0.45	

		SES levels. 57.8% had elementary education, 24.4% with high school education, and 17.8 % with University education. Race and Ethnicity NR.						
Magson et al., 2019	510	**Sample Type:** A total of 510 (50.3% male) Year 6 students attending Australian primary schools participated in the current study. **Age:** Mean age across the total sample was 11.2 (SD = 0.59) years. **Race/Ethnicity:** Just over 90% of participants were born in Australia, with 81.8% reporting having a Caucasian background. English was reported as the first language by 96.4% of the sample. **SES:** The majority (~ 80%) came from middle to high SES families.	CAPS-SPP	ChEAT	0.20	0.12, 0.28	0.20	
Rosewall et al., 2020	169	**Sample Type:** Participants were 169 preadolescent girls aged between 10 and 12 years recruited from schools in Christchurch, New Zealand. Effort was made to recruit participants from both private and public schools from a range of socioeconomic areas. Thirteen schools were invited to participate, and seven local primary schools agreed to participate: one private all girls' school and six state schools. **SES:** The decile ratings (a government measure of socioeconomic status [SES] of students) of the participating schools ranged from 5 to 10, indicating that, on average, the children were from moderate to high socioeconomic communities. Race and Ethnicity NR.	CAPS-SPP	EAT-26	0.34	0.20, 0.47	0.35	
Teixeira et al., 2016	575	**Sample Type:** Girls from four secondary schools (grades 7-12) in the urban area of Coimbra, Portugal,	CAPS-SPP	ChEAT	0.18	0.09, 0.25	0.18	

		participated in the study. Three groups were also formed on the basis of school grades: 7th-9th (n = 93, 16.2%); 10th-11th (n = 279, 48.5%); and 12th (n = 203, 35.3%). The mean BMI was 20.43 kg/m2 (range: 14.03-31.99). Three age groups were formed: 11-13 years (n = 112, 19.5%); 14-16 years (n = 237, 41.2%); and 17-18 years (n = 226, 39.3%). **Age:** The mean age was 15.78 years (range: 11-18). Race, Ethnicity and SES NR.						
Bento et al., 2010	997	**Sample Type:** The sample comprised middle and high school students from two public establishments, selected to minimize sample bias in terms of social and cultural background. One of the institutions is situated in a predominantly urban area (Coimbra, n = 424, 42.5%), and the other is located in a predominantly rural area (Cantanhede, n = 573, 57.5%), both in the centre of Portugal. Based on self-reports of weight and height, the girls' mean body mass index (BMI) was of 20.62 (SD = 3.075) and the boys' of 21.75 (SD = 2.958). The mean weight, height and BMI were significantly higher in boys than in girls. **Age:** Girls and boys mean age was respectively of 16.34 (SD = 1.77) and of 16.43 (SD = 1.21). Race, Ethnicity and SES NR.	CAPS-SPP	EAT-26	0.23	0.17, 0.29	0.24	
Mathisen & Sundgot-Borgen, 2019	T1: 33; T2: 22; T3: 22	**Sample Type:** The study recruited participants through a webpage distributed via social media, targeting both FA (Fitness female athletes), and by contacting all registered coaches officially listed within the Norwegian	CAPS-SPP	EDE-Q	T1: 0.40; T2: 0.41; T3: 0.59	T1: 0.07, 0.65; T2: -0.02, 0.71; T3: 0.22, 0.81	T1: 0.42; T2: 0.43; T3: 0.67	

		Federation of Fitness and Body Building. All responding FA planning to participate in the upcoming Norwegian competition period and initiating an energy-restricted diet for such attendance, aged 18–40 years, were included. Mean BMI = 22.6 (SD = 2.0). 9 (28%) had a previous eating disorder and 2 (6%) had a current eating disorder. T1 and T2 were separated by about 3 months, and T2 and T3 were separated by about a month. **Age:** Mean age of the FA group = 28.4 (SD = 5.6). Race and SES NR.						
Mathisen et al., 2022	T1: 124; T2: 68; T3: 67	**Sample Type:** A total of 76 dance students at school 1 and 48 dance students at school 2 were included in this study (Females = 110, Males = 14). They represented the two dance genres jazz dance and contemporary dance within the 1st, 2nd, and 3rd year of a bachelor study. Whereas students from school-1 receives a bachelor's in dance with pedagogy, the students from school-2 receive a bachelor's in jazz dance or in contemporary dance. 6 Months separated T2 and T3. **Age:** The dancers had a mean age of 20.66. Race, Ethnicity and SES NR.	CAPS-SPP	EDE-Q	T1: 0.16; T2: -0.22; T3: 0.50	T1: -0.01, 0.33; T2: -0.44, 0.02; T3: 0.30, 0.66	T1: 0.17; T2: -0.22; T3: 0.55	
Pamies-Aubalat et al., 2022	Men: 734; Women: 896	**Sample Type:** Nine Secondary Schools in the province of Alicante were used for recruitment. A sample of 1630 students was obtained comprising 896 girls and 734 boys. **Age:** Ages ranged from 12 to 18, the average age in both cases being 14 (SD = 1.34). Race, Ethnicity and SES NR.	CAPS-SPP	EAT-40	Men: 0.29; Women: 0.37	Men: 0.22, 0.36; Women: 0.31, 0.42	Men: 0.30; Women: 0.39	
Shanmugam & Davies, 2015	192	**Sample Type:** The sample had 108 male athletes and 84 female athletes. 15% of	DAS-SC	EDE-Q	0.31	0.18, 0.43	0.32	

		the sample competed at an elite standard (e.g., international and national level) while the remaining athletes competed at university 1st team (41%), club level (17.7%), university 2nd team and below (19.3%), and county/regional level (6.3%). Most athletes engaged in team sports such as football, netball and hockey (65%). On average, athletes had been participating in their sport for 9.10 years (SD = 5.97) and trained on average 7.52 h (SD = 4.98) a week. **Age:** Mean age of males = 21.44, SD = 3.90, Mean age of females = 20.93, SD = 2.14. **Race/Ethnicity:** Most the athletes were White-English (74%). SES NR.						
Shanmugam et al., 2014	Athletes: 152; Non-Athletes: 147	**Sample Type:** This sample was composed of 152 British athletes (94 women, 58 men). The sample had a mean body mass index (BMI) of 22.59 (SD = 3.12). Eighteen percent of athletes competed at the elite level (international and national), 23% at the county or regional standard, 18% at the club level, 35% for university teams, and 5% did not specify a performance level. 60% competed in team sports and 40% competed in individual sports. Athletes had been competing in their sports for an average of 8.77 years (SD = 4.31) and trained an average of 8.40 hr per week (SD = 6.03). They had been training with their coaches for an average of 1.71 years (SD = 2.83) and trained an average of 5.21 hr per week (SD = 3.95) with their coaches. Almost 74% of athletes identified their coaches as male, whereas	DAS-SC	EDE-Q	Athletes: 0.23; Non-Athletes: 0.33	Athletes: 0.07, 0.38; Non-Ahletes: 0.18, 0.47	Athletes: 0.23; Non-Athletes: 0.34	

		26% of athletes identified their coaches as female. This sample also consisted of 147 non-athletes (109 women, 38 men) with a BMI of 22.44 (SD = 4.89). Although nonathletes did not engage in an organized sport, 29% regularly attended the gym, spending an average of 3.57 hrs (SD = 1.83) in training each week. **Age:** The athlete sample had a mean age of 20.08 years (SD = 2.27, range = 18 to 31 years). The non-athlete sample had a mean age of 20.78 years (SD = 3.64, range = 18 to 39 years). **Race/Ethnicity:** The athlete sample was predominantly White British (95%). The non-athlete sample was predominantly British White (84%). SES NR.						
Shanmugan et al., 2013	411	**Sample Type:** The current sample consisted of 411 (159 males and 252 females) British athletes. 33% of the athletes competed at the elite standard (international or national standard), while the remaining 67% competed at the county, regional, club or university level. The athletes represented a range of sports, with 53% of the athletes engaging in individual sports (e.g., cycling, swimming, equestrian, judo and triathlon), while the remaining 47% of the athletes competed in team sports (e.g., cricket, rugby, basketball, football and hockey). The athletes had been participating in their chosen sport for an average of 8.66 years (SD = 5.15) and trained an average of 8.79 hours (SD = 5.66) per week. The athletes had been training with their respective coaches for an average of 2.77 years (SD = 3.95), of	DAS-SC	EDE-Q	0.35	0.26, 0.43	0.37	

		which 81% of the athletes identified their coach as male and 19% identified their coach as female. The athletes had been training with their current teammate for an average of 2.89 years (SD = 3.04), of which 45% of the athletes identified their teammate as male and 55% as female. The athletes spent an average of 5.93 (SD = 5.01) and 6.35 (SD = 6.29) hours per week training with their coach and teammates, respectively. **Age:** The sample had a mean age of 20.95 years (SD = 3.67, range 16-36). **Race/Ethnicity:** 88% of the athletes were British white, 3.9% were British black, 4.4% were British Asian, 2.4% were British mixed-race and 1% specified British other. SES NR.						
Shanmugam et al., 2011	588	**Sample Type:** The current sample consisted of 588 (242 males and 346 females) British athletes. The sample had a mean Body Mass Index (BMI) of 22.72 (SD = 3.10). 31% were elite athletes competing at the international or national level, while the remaining 69% were nonelite athletes competing for county/regional (20%), club (19%), or university teams (30%). Athletes represented a range of coactive and interactive sports, with 53% of athletes engaging in coactive sports (e.g., swimming, cycling, fencing), and the remaining 47% of athletes competing in interactive sports (e.g., football, hockey, rugby). Athletes had been participating in their chosen sport for an average of 8.49 years (SD = 5.02) and trained an average of 8.64 hours per week (SD =	DAS-SC	EDE-Q	0.31	0.24, 0.38	0.32	

		5.47). Athletes had trained with their respective coaches for an average of 2.80 years (SD = 3.81), of which 82% of athletes identified their coach as male and 18% identified their coach as female. **Age:** The sample had a mean age of 20.75 (SD = 3.44) years. **Race/Ethnicity:** 88% percent of the athletes were British White, 4.4% were British Black, 3.4% were British Asian, 2.9% were British Mixed-race and 1% responded British-Other. SES NR.						
Egan et al., 2014	52	**Sample Type:** The sample consisted of 58% females. 54% of participants met current criteria for one or more diagnoses; 29% Generalized Anxiety Disorder; 15% Major Depression, 12% Social Phobia, 6% Bulimia Nervosa, 6% Panic Disorder with/without Agoraphobia, 4% Obsessive-Compulsive Disorder, and 2% Hypochondriasis. **Age:** The sample ranged between 20-65 years (M = 39.88, SD = 11.88). Race, Ethnicity and SES NR.	DAS-SC	EDE-Q	0.19	-0.09, 0.44	0.19	
de Valle & Wade, 2022	130	**Sample Type:** Participants were recruited by advertisements through Flinders University from the psychology student participant pool. Most identified as women (n = 116, 89.2%), the remainder as men (n = 9, 6.9%) and nonbinary (n = 5, 3.8%). **Age:** Participants were aged 17–25 years (Mean = 19.29, SD = 1.88). **Race/Ethnicity:** The sample were mostly Oceanian (n = 69, 53.1%), followed by North-West European (n = 17, 13.1%), Southern or Eastern	DEQ-SC	EDE-Q	0.60	0.48, 0.70	0.69	

		European (n = 8, 6.2%), Southern and Central Asian (n = 5, 3.8%), South-East Asian (n = 3, 2.3%), North-East Asian (n = 2, 1.5%), and North African or Middle Eastern (n = 2, 1.5%). Another 24 participants (18.5%) did not identify with these groups. Ethnicity and SES NR.						
Fennig et al., 2008	81	**Sample Type:** Participants were 81 adolescent female inpatients treated at an eating disorders clinic of a major medical centre in Israel. Chart diagnoses based on the ICD were as follows: 55 with Anorexia Nervosa, restrictive type (AN-R), 9 with Anorexia Nervosa, purging type (AN-P), and 17 with Bulimia (BL). **Age:** Age range: 11–23; Mean age = 15.3, SD = 2.12. Race, Ethnicity and SES NR.	DEQ-SC	EDI-II Bulimia	0.19	-0.03, 0.39	0.19	
Sherry et al., 2016	524	**Sample Type:** The sample were 229 Canadian Undergraduates (177 women, 45 men, 7 unreported) and 295 British Undergraduates (248 women, 44 males, 3 unreported). **Age:** Mean age of Canadian sample = 20.07, SD = 2.22; Mean age of the British sample = 20.10, SD = 4.63. **Race/Ethnicity:** 73.4% of Canadian undergraduates were European in ethnicity, 10.0% Asian, 7.0% Arab, 7.4% belonged to other groups, and 2.2% did not indicate their race. 75.0% of British undergraduates were European in ethnicity, 10.2% Asian, 9.8% Black, 4.7% belonged to other groups, and 0.3% did not indicate their race. **SES:** The Canadian sample on average had 2.15 years of education (SD = 1.23),	DEQ-SC	EDI-B	0.34	0.26, 0.41	0.35	

		whilst the British sample had on average 1.29 years of university education (SD = 0.55).						
Solomon-Krakus et al., 2022	207	**Sample Type:** The sample were Female Undergraduates. **Age:** Mean age = 19.15, SD = 1.27. **Race/Ethnicity:** Participants self-identified as East/Southeast Asian (39.6%), South Asian (19.8%), White/European (17.4%), multi-ethnic (6.8%), West Asian/Middle Eastern (5.8%), Black or of African American or Black Caribbean descent (5.3%), or Hispanic or Latino (1.9%). Seven participants (3.4%) selected "Other" race. Ethnicity and SES NR.	DEQ-SC	EPSI-BR	0.23	0.10, 0.36	0.23	
Steele et al., 2011	39	**Sample Type:** Data were collected from 39 females receiving treatment for an eating disorder, either the Weight Disorders Unit at the Flinders Medical Centre or the Flinders University Services for Eating Disorders. Individuals met diagnostic criteria for anorexia nervosa, bulimia nervosa, or an eating disorder not otherwise specified, as outlined in the DSM-IV. **Age:** The average age was 25.2 years (SD = 8.7 years). Race, Ethnicity and SES NR.	DEQ-SC	EDE-Q	0.65	0.42, 0.80	0.78	
Zelkowitz & Cole, 2020	251	**Sample Type:** Participants included 251 students (79.5% female, 19.5% male, and 0.4% transgender) recruited from a mid-sized private university in Tennessee, United States. **Age:** Average age was 19.07 years (SD = 1.23). **Race/Ethnicity:** The sample was 65.7% Caucasian, 11.2% African American, 24.3% Asian or Asian American, 7.6%	DEQ-SC	EDE-Q	0.10	-0.02, 0.22	0.1	

		Hispanic or Latino, and 1.6% another (participants could select more than one option). Ethnicity and SES NR.						
Kelly & Tasca, 2016	78	**Sample Type:** Participants were 78 patients with a DSM-IV-TR eating disorder admitted to the Toronto General Hospital's day hospital (72.2%) or inpatient (27.8%) treatment program. Among them 27.2% had anorexia nervosa restrictive subtype (AN-R), 18.5% had anorexia nervosa binge-purge subtype (AN-BP), 29.6% had bulimia nervosa (BN), and 24.7% had an eating disorder not otherwise specified (EDNOS). Participants were mostly (97%) female. **Age:** The mean age was 28 years (SD = 5.96). **Race/Ethnicity:** The sample were mostly Caucasian (79.2%), with 10.8% of participants identifying as Latin-American, 4.5% as East Asian, 2.8% as African-Canadian, 1.5% as mixed race, and 1.4% as South Asian. Ethnicity and SES NR.	SCS	EDE-Q	0.68	0.54, 0.78	0.83	SCS and EDE-Q r = -.54; CI: -0.68, -0.36, Z: -0.60 SCS Self-Criticism and SCS Self-Compassion r = -0.59; CI: -0.72, -0.42; Z = -0.68
Lucena-Santos et al., 2017	294	**Age:** The sample presented a mean age of 41.87 years old (SD= 11.47), and a 32.38 (SD= 5.25) mean BMI. 34% (n= 100) were single, 54.8% (n= 161) were married/cohabiting, 9.9% (n= 29) divorced and 1.4% (n= 4) were widowed. **SES:** The sample had an average of 14.66 (SD= 3.54) years of education. Majority of participants were employed (70.1%, n= 206), followed by unemployed (18.7%, n= 55) and retired (11.2%, n= 33). Gender, Race and Ethnicity NR.	SCS	BES	0.49	0.40, 0.57	0.54	SCS and BES r = -.0.39; CI: -0.48, -0.29, Z: -0.41 SCS Self-Criticism and SCS Self-Compassion r = -0.52; CI: -0.60, -0.43; Z = -0.58

Pullmer et al., 2019	58	**Sample Type:** Participants were 58 female adolescents (M = 15.45, SD = 1.49, range = 12–18) who were receiving specialized eating disorder treatment. The majority of adolescents reported living with their mother and father (69%, n = 40), 27.6% (n = 16) reported living primarily with their mother, and 3.4% (n = 2) reported other living situations (e.g., living with their grandparents or adult caregiver(s)). 100% of the sample who reported sex and gender identity (n = 57) self-identified with their assigned sex at birth. **Race/Ethnicity:** With respect to ethnic-cultural background, 62.1% (n = 36) of participants self-identified as Caucasian, 20.7% (n = 12) as Asian, 13.8% (n = 8) with more than one ethnic-cultural background, and 3.4% (n = 2) as First Nations or Hispanic. Ethnicity and SES NR.	SCS	EDE-Q	0.61	0.42, 0.75	0.71	SCS and EDE-Q r = -.0.68; CI: -0.80, -0.51 Z: -0.83 SCS-Self-Criticism and SCS Self-Compassion r = -.0.67; CI: -0.79, -0.50 Z: -0.81
Roy, 2010	176	**Sample Type:** 176 individuals affiliated to the University of East Anglia received emails inviting them to participate in the study. The sample presented with a varied population of British and international affiliates studying and working at various educational levels. Of the 176 participants, 81% were female. **Age:** The age of participants ranged between 18 and 62 with an average of 26. Race, Ethnicity and SES NR.	DEQ-SC	EDE-Q	0.41	0.28, 0.53	0.44	
Barrow, 2007	76	**Sample Type:** Seventy-six female participants attending for assessment at a specialist outpatient eating disorder service consented to participate in the	FSCRS-IS	SEDS-BDBS	0.05	-0.18, 0.27	0.05	FSCRS-RS and SEDS-BDBS r = -

		study. All participants had an eating disorder as defined by DSM-IV. The most frequent diagnosis was bulimia nervosa or EDNOS. **Age:** Participants' ages ranged from 18 to 60 years, with a mean age of 29.3 years (SD = 9.18). **Race/Ethnicity:** 70 participants (92%) were white European, three (3.9%) described their ethnic background as Indian, one participant (1.3%) described themselves as black (other) and two participants (2.6%) indicated their ethnic background as 'other'. Ethnicity and SES NR.						0.04; CI: -0.26, 0.19; Z: -0.04
Muehlhauser, 2017	102	**Sample Type:** Participants were recruited from a medium-sized American public university. They were enrolled in an Introductory Psychology course and received research credit in their class by volunteering to participate. The sample was comprised of 105 female, mostly freshman (49.5%) and sophomore (25.7%) students, **Age:** The sample had a mean age of 20.33 (SD = 5.31, range = 18-59). **Race/Ethnicity:** 74.3% of the sample identified as Caucasian, 19% as African American, 1.9% as Asian, 1.9% as Hispanic, and 2.9% as "Other". Ethnicity and SES NR.	FSCRS-IS	EAT-26	0.51	0.35, 0.64	0.56	
Hughes, 2016	137	**Sample Type:** Participants were required to be English-speaking adults aged 18 years or over of any gender, able to access and complete an online survey and based in the United Kingdom. The sample was predominantly female (89.1%). Sixty-six participants (48.6%) currently identified	FSCRS-IS	EDE-Q	0.65	0.54, 0.74	0.78	FSCRS-RS and EDE-Q r = -0.64; CI: -0.73, -0.53; Z: -0.76

		with an eating disorder regardless of formal diagnosis A total of 58 participants (42.3%) of the 137 in total reported having received at least one formal eating disorder diagnosis in their lifetime. Forty-five (32.8%) had been diagnosed with anorexia nervosa (AN), 18 (13.1%) had been diagnosed with bulimia nervosa (BN), 3 (2.2%) had been diagnosed with binge eating disorder (BED), and 15 (10.9%) had been diagnosed with eating disorder not otherwise specified (EDNOS). **Race/Ethnicity:** The sample was predominantly white (97.8%). **SES:** Of the 137 participants, 48.2% were employed full-time and 46.7% were single. Ethnicity NR.						
Adam et al., 2021	90	**Sample Type:** Woman athletes living in Canada were invited to participate if they were 18 to 35 years with at least two years of sport-specific experience, had competed in the past 12 months, and were currently competing at a level ranging from local to international. BMI's ranged between 13.8 to 29.5 kg/m2 (Mean BMI = 19.5, SD = 3.1). **Age:** The 90 women were between 18.3 and 27.5 years old (Mage = 21.3, SD = 2.3). **Race/Ethnicity:** The sample were predominantly white (95%) and Canadian (95%). SES NR.	SCS	EDE-Q	0.67	0.54, 0.77	0.81	SCS and EDE-Q r = -.0.59; CI: -0.71, -0.44, Z: -0.68 SCS-Self-Criticism and SCS Self-Compassion r = -.0.66; CI: -0.76, -0.52 Z: -0.79
Cuesta-Zamora et al., 2022	539	**Sample Type:** 539 Spanish female university students were recruited from Castilla-La Mancha University (Spain). Undergraduate participants were voluntarily recruited from different degrees of the following subject areas:	SCS	EDE-Q	0.45	0.38, 0.51	0.48	SCS and EDE-Q r = -.0.45; CI: -0.51, -0.38, Z: -0.48

		health sciences (54.9%), social sciences (43.6%), sciences (0.6%) and engineering (0.9%). **Age:** Mean age = 20.03 years, SD = 2.22 The age range of the sample was between 17 and 30 years. Race and SES NR.						SCS-Self-Criticism and SCS Self-Compassion r = -.0.46; CI: -0.52, -0.39 Z: -0.50
Oliveira et al., 2017	400	**Sample Type:** The study's sample comprised 400 female participants from the general population, recruited through an online survey. Participants' BMI (Body Mass Index) ranged from 15.2 to 38.06, presenting a mean of 23.16 kg/m2. **Age:** Participants' ages ranged from 18 to 55 years (M = 30.55; SD = 11.04). **SES:** Regarding marital status, most of the participants were single (n = 251; 62.7%), 128 (32.1%) were married or living together, 16 (4%) divorced and only 5 (1.3%) reported to be widows. Concerning the area of residence, 40.3% (n = 161) of the subjects lived in a rural area and 59.7% (n = 239) in an urban one. Race and Ethnicity NR.	SCS	EDE-Q	0.34	0.25, 0.42	0.35	
O'Loghlen & Galligan, 2022	202	**Sample Type:** Participants were 202 females who had given birth in the last two years and resided in Australia. 31% (n = 62) of participants showed severe symptoms of depression, anxiety and/or stress, 15% (n = 31) were at high risk of an eating disorder, and 32% (n = 65) showed moderate to severe levels of binge eating. **Age:** The sample was aged 18 years and older (M = 32.83; SD = 5.36). **Race/Ethnicity:** Most participants (94%) identified as Caucasian.	SCS	EAT-26	0.48	0.37, 0.58	0.52	SCS and EAT-26 r = -.0.40; CI: -0.51, -0.28, Z: -0.42 SCS-Self-Criticism and SCS Self-Compassion r = -.0.79; CI: -0.84, -0.73 Z: -1.07

		SES: Most participants had completed a university degree (63%), were married (69%) or in a de facto relationship (22%), and were primiparous (86%).						
Perey & Koenigstorfer, 2020	250	**Sample Type:** The final sample constituted a total of 250 women, with a BMI [BMI = (weight in pounds/height in inches2) × 703] between 14.88 and 55.08 (M =26.99, SD = 6.62). 4.8% were underweight (BMI less than 18.5), 40.8% normal weight (BMI between 18.5 and 24.9), 26% overweight (BMI between 25 and 29.9), and 28.4% obese (BMI of 30 and higher). **Age:** The sample aged between 23 and 73 years (Mean age = 42.66, SD = 12.24) **Race/Ethnicity:** The ethnic background of most participants was White/Caucasian(85.2%), followed by Black/African American (6.4%), Asian (3.2%),Hispanic/Latino (2.8%), and other ethnicities (2.4%). **SES:** Participants' highest completed education level was some bachelor's degree (44.8%), college (33.2%), master's degree (10.8%), high school degree or less (9.2%), or doctorate (2.0%). Ethnicity NR.	SCS	EDE-Q	0.59	0.50, 0.67	0.68	SCS and EDE-Q r = -.0.50; CI: -0.59, -0.40, Z: -0.55 SCS-Self-Criticism and SCS Self-Compassion r = -.0.88; CI: -0.91, -0.85 Z: -1.38
Beadle et al., 2021	728	**Sample Type:** There were 127 males and 592 females (9 stated other/rather not say) who took part. Current BMI statistics ranged from 13.32-66.48 kg/m2 (M= 24.74, SD = 5.86). **Age:** All participants were aged from 16 to 76 years (M= 28.38, SD = 11.92). **Race/Ethnicity:** The majority of participants identified themselves as White British or European and the	SCS	EDE-Q	0.49	0.43, 0.54	0.54	

		majority of participants were also from the UK or USA, most were single, had A levels or equivalent, and were in education (the majority full-time). There were 59 participants who indicated that they considered they had a disability.						
Perkins et al., 2020	92	**Sample Type:** Participants in this study were 92 adults with EDs who were recruited from treatment facilities throughout the U.S. Using diagnostic criteria from the DSM-V, approximately one-third of the sample (n = 32) had AN/subthreshold AN, 40% of the sample (n = 37) had BN/subthreshold BN, and the rest of the sample had BED/subthreshold BED (n = 12), purging disorder (n = 3), night eating syndrome (n = 7), and unspecified feeding/eating disorder (n= 1). 96% of the sample were female. The timepoints were separated by about 2 months. **Age:** The sample ranged in age from 18–62 (M = 32.35; SD = 11.35). **Race/Ethnicity:** The sample primarily identified as White (93.5%). Ethnicity and SES NR.	SRS	EDI-II Drive for Thinness	T1: 0.39; T2: 0.26	T1: 0.20, 0.55; T2: 0.06, 0.44	T1: 0.41; T2: 0.27	
Porter et al., 2018	186	**Sample Type:** Participants included 186 students recruited from the research subject pool at a mid-sized southern private university. 79% of participants were female. **Age:** Average age of the group was 19.21 (SD = 1.89). **Race/Ethnicity:** The sample was 63% White, 22% Asian or American-Asian, 12% Black, 10% Hispanic, and 3% other. Ethnicity and SES NR.	SRS	EDE-Q	0.44	0.32, 0.55	0.47	
Kinkel-Ram et al., 2021	164	**Sample Type:** Participants were undergraduate women (N = 164) who	SRS	EDE-Q	0.45	0.32, 0.56	0.48	

		self-reported elevated DE symptoms. Participants had to be at least 18 years old. BMI Mean = 22.26, SD = 3.68. **Race/Ethnicity:** 102 identified as White (62.2%), 7 Asian (4.27%), 4 Black (2.44%), 12 Others (4.27%), 39 Not reported (23.78%), 5 Hispanic (3.05%), 125 Not Hispanic (76.22%), and 39 unlisted (23.78%). Age, Ethnicity and SES NR.						

Note: SES = Socioeconomic status; NR = Not reported; DEQ-SC = Depressive Experiences Questionnaire – Self-Criticism Subscale; DAS-SC = Dysfunctional Attitudes Scale – Self-Criticism Subscale; FMPS-CM = Frost Multidimensional Perfectionism Scale – Concerns Over Mistakes Subscale; FMPS-DA = Frost Multidimensional Perfectionism Scale – Doubts about Actions Subscale; HMPS-SPP = Hewitt Multidimensional Perfectionism Scale – Socially Prescribed Perfectionism Subscale; CAPS-SPP = Child-Adolescent Perfectionism Scale – Socially Prescribed Perfectionism Subscale; EDI-P-SPP = Eating Disorder Inventory-2 Perfectionism subscale – Socially Prescribed Perfectionism; EPSI-BR = Eating Pathology Symptoms Inventory – Behavioural Restriction Subscale; SEDS-BDBS = Stirling Eating Disorder Scales – Bulimic Dietary Behaviour Scale; EDE-Q = Eating Disorder Examination Questionnaire; WRCQ = Weight Restriction/Control Questionnaire; EDDS-BE = Eating Disorder Diagnostic Scale – Binge Eating Subscale; TFEQ-R = Three-Factor Eating Questionnaire – Restraint Subscale; BULIT-R = Bulimia Test – Revised; EDI-B = Eating Disorder Inventory – Bulimia Subscale; EAT-26 = Eating Attitudes Test – 26; EAT-40 = Eating Attitudes Test – 40; BES = Binge Eating Scale; BESS = Binge Eating Shame Scale; EDI-II = Eating Disorder Inventory – 2; BMI = Body Mass Index; DEBQ-R = Dutch Eating Behaviour Questionnaire – Restraint; BAT = Body Attitudes Test; EHQ = Eating Habits Questionnaire; LOSC Internalized Self-Criticism = Levels of Self-Criticism - Internalized Self-Criticism Subscale; FSCRS = Forms of Self-Criticising/Attacking and Reassuring Scale; ED-15 = Eating Disorder-15 Questionnaire; ChEAT = Children's Eating Attitudes Test; SCS = Self-Compassion Scale; SRS = Self-Rating Scale; FSCRS-IS = Forms of Self-Criticizing/Attacking and Self-Reassuring Scale – Inadequate-Self Subscale; FSCRS-RS = Forms of Self-Criticizing/Attacking and Self-Reassuring Scale – Reassuring-Self Subscale; DE = Disordered Eating; DSM = Diagnostic and Statistical Manual of Mental Disorders; ICD = International Classification of Diseases.

Meta-Analytic Procedures

All studies examining the relationship between DE and self-criticism, or self-critical perfectionism reported zero-order correlation coefficients, *r*. As such, the zero-order correlation coefficients were selected as the effect size metric. Cohen's (1992) benchmarks were used to interpret small (r = .10), medium (r = .30), and large (r = .50) effects. Following recommendations, all analyses were performed using Fisher's Z scale (Borenstein et al., 2009). The online Campbell Collaboration tool (https://campbellcollaboration.org/research-resources/effect-size-calculator.html) was used to calculate Fisher's Z through inputting sample sizes and correlations.

The meta-analyses were conducted in R, a free software environment for statistical analyses (R Core Team, 2021). Multi-level meta-analyses were conducted to account for non-independence of effect sizes where more than one effect was reported from a study (e.g., male and female samples, community or clinical samples). The metafor package (Viechtbauer, 2010) was used to run the multi-level models and produce forest plots and funnel plots. Moderator analyses between clinical and non-clinical samples, self-compassion measures, self-criticism and self-critical perfectionism, and between experimental and cross-sectional studies were also conducted using the metafor package (Viechtbauer, 2010).

Heterogeneity, the indication of whether the variability in effect sizes within the included studies is greater than what would be expected due to random error alone (Cuijpers, 2016), was evaluated using the *Q* statistic, a measure of weighted squared deviations around the weighted mean effect size where a significant result suggests that variability is unlikely due to chance (Laird et al., 2017), and the I^2 statistic, whereby 25%, 50%, and 75% suggest low, medium, and high levels of heterogeneity, respectively (Higgins & Thompson, 2002). *Q* was obtained through the metafor package (Viechtbauer, 2010), and I^2 was obtained through the dmetar package (Harrer et al., 2019). Evidence of publication bias was assessed using

Egger's regression intercept (ERI) was also used to assess for publication bias (Moreno et al., 2009) using the metagen package (Möbius, 2014), with a significant result suggesting that publication bias may be present.

Results

Sample Characteristics

In total, 42,952 participants were included in the meta-analysis. Data were extracted for 151 samples from 135 articles (including 12 longitudinal studies, 14 experimental studies and 18 studies that also included self-compassion measures). Samples were based in 22 countries, with USA ($k = 30$, 23.4%), UK ($k = 20$, 15.6%), and Canada ($k = 19$, 14.8%) being the most highly represented countries. The average mean participant age was 23.49 years ($SD = 5.003$; range = 16.45–39.82). Females were highly represented, comprising a mean of 87.68% ($SD = 18.60$; range = 0–100). Where information on this was available, the included studies tended to report that most of their participants were white, comprising a mean of 75.66% ($SD = 24.20$; range = 0 – 100; $k = 65$) in combined studies. See Table 4.3 for information about each of the included articles.

Twenty-five studies used clinical samples, which included participants who were formally diagnosed with ED based on the Diagnostic and Statistical Manual of Mental Disorders (DSM-5; American Psychiatric Association, 2013) criteria or the International Classification of Diseases (World Health Organization, 2016). The average mean participant age in the clinical sample was 24.71 years ($SD = 9.76$) at T1. Females were highly represented, comprising a mean of 98.76% ($SD = 2.10$; range = 93.46–100). Where information on this was available, the included studies tended to report that most of their participants were White, comprising a mean of 86.04% ($SD = 10.30$; range = 62.1 – 100; $k = 11$), with Australia (24%; $k = 6$), USA (20%; $k = 5$), and Canada (16%; $k = 4$) being the most highly represented countries. Out of 4,530 clinical participants, nearly half (48.6%)

of participants (*n* = 2,202) were diagnosed with Anorexia Nervosa (AN; Range = 13 – 732; *k* = 21), 24.5% were diagnosed with Bulima Nervosa (BN; *n* = 1,109; Range = 4 – 204; *k* = 18), 14.2% diagnosed with Eating Disorder Not Otherwise Specified (EDNOS; *n* = 642; Range = 13 – 264; *k* = 8), 8.4% were diagnosed with Binge Eating Disorder (BED; *n* = 382; Range = 8 – 236; *k* = 6), and 3.9% were diagnosed with Other Specified Feeding and Eating Disorder (OSFED; *n* = 177; Range = 2 – 156; *k* = 3).

Measures Utilized

A range of measures examining DE behaviours were also used across the included studies, the most utilised measures being the global score of the Eating Disorder Examination Questionnaire (EDE-Q) which measures ED psychopathology (Fairburn & Beglin, 2008; *n* = 56, 41.5%), the Eating Disorder Inventory (EDI) which examines the presence of ED (Garner, 1991; *n* = 26, 19.3%) and the Eating Attitudes Test (EAT) which examines people's attitudes, feelings, and behaviours towards eating (Garner et al., 1982; *n* = 16, 11.9%). The most utilised self-criticism measure were the self-criticism subscales of the Fear of Self-Criticizing/Attacking and Self-Reassuring Scale (FSCRS; Gilbert et al., 2004; *n* = 22, 44.0%), the SCS (Neff, 2003; *n* = 9, 18.0%) and the self-criticism subscale of the Depressive Experiences Questionnaire (Blatt et al., 1976; *n* = 7, 14.0%). The most utilised self-critical perfectionism measure was the Frost Multidimensional Perfectionism Scale (FMPS; Frost et al., 1990; *n* = 50, 38.2%) and Hewitt and Flett Multidimensional Perfectionism Scale (HMPS; Hewitt & Flett, 1991; *n* = 33, 25.2%). In both clinical and non-clinical samples, the most utilised self-criticism and self-critical perfectionism measures were the FSCRS (Gilbert et al., 2004; *n* = 4, 16% in clinical samples, and *n* = 16, 13% in non-clinical samples) and the FMPS (Frost et al., 1990; *n* = 10, 40% in clinical samples, *n* = 40, 32% in non-clinical samples), respectively. As self-criticism measures greatly differed between studies, the empirical evidence of the 135 studies were synthesised into ten subgroups pertaining to the

various dimensions of self-criticism/self-critical perfectionism measures. Table 4.3 indicates the subgroup(s) each study was classified under.

Quality Assessment

Potential methodological issues were considered for each study according to the EPOC RoB tool. Low RoB ratings were most common for domains “Shape of the intervention effect pre-specified”, “Selective outcome reporting”, and “Intervention independent of other changes”. Low RoB ratings were also commonly found for the “Intervention unlikely to affect data collection” domain, with some studies scored as high risk due to a change in methodology or sources of data collection due to difficulties during recruitment. The domain “Knowledge of the allocated interventions adequately prevented during the study” most frequently included unclear risk of bias scores, often due to there being insufficient information to determine whether the allocation sequence was concealed to participants. For the “Incomplete outcome data adequately”, most studies scored with an unclear risk of bias frequently because it was unclear whether all the participants were accounted for in the results or there was an absence of reports of data screening to determine if the missing outcome data was likely to bias the results. Finally, several studies scored as high risk under the “Other risks of bias” domain as they presented with biases such as allegiance bias, over-reporting bias, recall bias, or seasonality concerns. Interrater reliability with a research assistant (JD) was excellent, with 95.5% alignment.

Whilst studies at high risk of bias should be given reduced weight in meta-analyses compared to studies with a lower risk of bias (Spiegelhalter & Best, 2003), sensitivity analyses were performed to distinguish between higher and lower-quality papers. A cut-off score of five or more ‘low risk’ responses in a study based on the EPOC RoB was selected as being high quality, with a moderation analysis conducted between high- and low-quality papers. This cut-off score was selected as there would have only been one paper that scored

as low-quality if the cut-off score was four and below. It was found that there was no significant difference between high-quality (k = 114) and low-quality papers (k = 21; p = .451), and as such, papers that were deemed low-quality were not removed from the analysis. **Figure 4.2** shows a summary of EPOC RoB by domain expressed as percentages, and **Table 4.4** includes the RoB evaluation for each study.

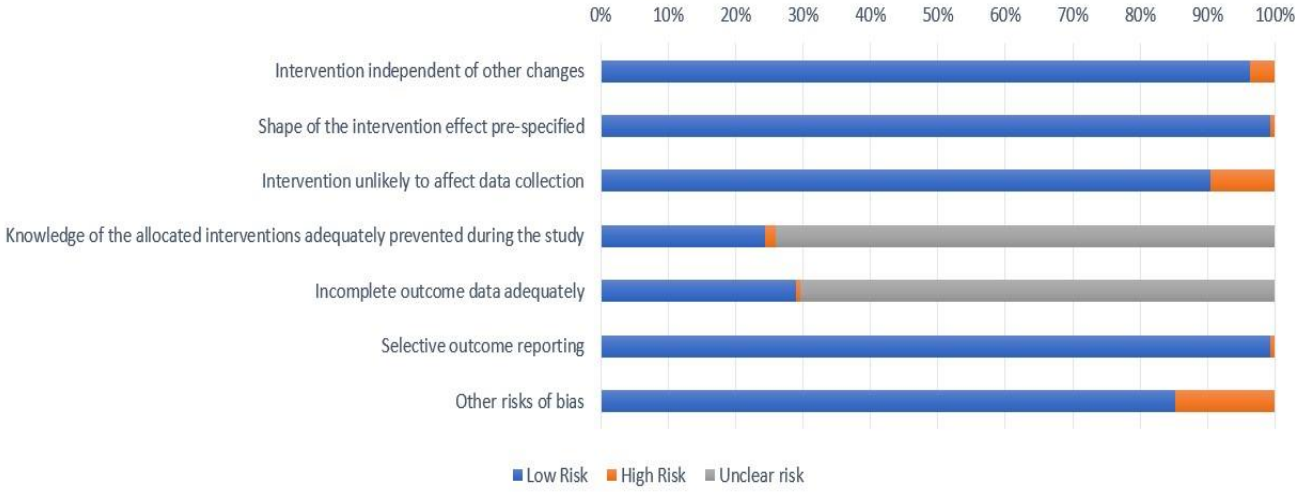


Figure 4.2. EPOC RoB expressed as percentages for each domain across all studies included in the meta-analysis.

Table 4.4

EPOC RoB for each domain across all studies included in the meta-analysis

Author(s)/Year	Intervention independent of other changes	Shape of the intervention effect pre-specified	Intervention unlikely to affect data collection	Knowledge of the allocated interventions adequately prevented during the study	Incomplete outcome data adequately reported	Selective outcome reporting	Other risks of bias
Arcelus et al., 2015	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Aruguete et al., 2012	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Bardone-Cone et al., 2008	Low Risk	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	Low Risk
Bardone-Cone et al., 2009	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	Low Risk	High Risk
Bardone-Cone, 2007	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Bento et al., 2010	Low Risk	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	Low Risk
Bernert et al., 2013	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Boone, 2013	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Brannan & Petrie, 2008	Low Risk	Low Risk	High Risk	Low Risk	Unclear Risk	Low Risk	Low Risk
Brannan et al., 2009	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Brosof & Levinson, 2017	High Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	High Risk	Low Risk
Campbell et al., 2018	Low Risk	High Risk	Low Risk	Unclear Risk	Low Risk	Low Risk	Low Risk
Castro & Lahortiga, 2004	Low risk	Low risk	Low risk	Low Risk	Unclear Risk	Low risk	Low risk
Castro-Fornieles et al., 2007	Low Risk	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	Low Risk
Chang et al., 2008	Low Risk	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	Low Risk
Davies et al., 2009	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk

de Valle & Wade, 2002	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Donovan et al., 2014	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Downey & Chang, 2007	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Downey et al., 2014	Low Risk	Low Risk	High Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Dryer et al., 2016	Low Risk	Low Risk	High Risk	Low Risk	Low Risk	Low Risk	Low Risk
Duarte & Pinto-Gouveia, 2017	Low Risk	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	Low Risk
Duarte et al., 2019	Low Risk	Low Risk	High Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Duarte et al., 2016	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Duarte et al., 2020	Low Risk	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	Low Risk
Duarte et al., 2014	Low Risk	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	Low Risk
Duarte et al., 2015	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Dunkley et al., 2006	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Egan et al., 2014	Low Risk	Low Risk	Low Risk	High Risk	Low Risk	Low Risk	High Risk
Esposito et al., 2019	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Fennig et al., 2008	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Ferreira et al., 2014	Low Risk	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	Low Risk
Fitzsimmons-Craft et al., 2012	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Garcia-Villamisar et al., 2012	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Gois et al., 2018	Low Risk	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	Low Risk
Hewitt et al., 1995	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Hurst & Zimmer-Gembeck, 2019	High Risk	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	High Risk

Kelly & Carter, 2013	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Kelly & Tasca, 2016	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Lethbridge et al., 2011	Low Risk	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	Low Risk
Levinson et al., 2019	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Lucena-Santos et al., 2017	Low Risk	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	Low Risk
Macedo et al., 2007	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Mackinnon et al., 2011	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk
Magson et al., 2019	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Merwin et al., 2021	High Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	Low Risk	Low Risk
Minarik & Ahrens, 1996	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Mushquash & Sherry, 2012	High Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Mushquash & Sherry, 2013	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	Low Risk	Low Risk
Palmeira et al., 2017	Low Risk	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	High Risk
Peixoto-Placido et al., 2015	Low Risk	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	Low Risk
Penniment & Egan, 2012	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Perkins et al., 2020	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	Low Risk	Low Risk
Porter et al., 2018	Low Risk	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	Low Risk
Porter et al., 2018	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Pullmer et al., 2019	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Rand-Giovannetti et al., 2022	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk
Redden et al., 2022	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Reilly et al., 2016	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Rodrigues et al., 2022	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk

Rosewall et al., 2020	Low Risk	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	Low Risk
Ruggiero et al., 2008	Low Risk	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	Low Risk
Shanmugam & Davies, 2015	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Shanmugam et al., 2013	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	High Risk
Shanmugam et al., 2011	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	High Risk
Shanmugam et al., 2014	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	High Risk
Sherry & Hall, 2009	Low Risk	Low Risk	High Risk	Low Risk	Unclear Risk	Low Risk	Low Risk
Sherry et al., 2003	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Sherry et al., 2016	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Shu et al., 2020	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Slof-Op't et al., 2016	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Soares et al., 2009	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	High Risk
Solomon-Krakus et al., 2022	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	Low Risk	Low Risk
Steele & Wade, 2008	Low Risk	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	Low Risk
Steele et al., 2011	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Stoeber et al., 2017	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	Low Risk	Low Risk
Teixeira et al., 2016	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Thew et al., 2017	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Tissot & Crowther, 2008	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	Low Risk	Low Risk
Turk et al., 2021	Low Risk	Low Risk	High Risk	Unclear Risk	Low Risk	Low Risk	Low Risk
Turk et al., 2021	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	High Risk
Vall & Wade, 2015	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	High Risk
Vall & Wade, 2017	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	Low Risk	Low Risk

van der Kaap-Deeder et al., 2016	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	Low Risk	Low Risk
Wade et al., 2015	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	Low Risk	Low Risk
Watson et al., 2011	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	Low Risk	Low Risk
Zelkowitz & Cole, 2020	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk
Delaquis et al., 2023	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	High Risk
Matos et al., 2023	Low Risk	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	Low Risk
Ralph-Nearman et al., 2023	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	Low Risk	Low Risk
Adam et al., 2021	Low Risk	Low Risk	High Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Aktas et al., 2023	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk
Bardone-Cone et al., 2017	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	High Risk
Beadle et al., 2021	Low Risk	Low Risk	Low Risk	Low Risk	High Risk	Low Risk	Low Risk
Bergunde & Dritschel, 2020	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Bernabeu & Marchena-Giraldez, 2022	Low Risk	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	Low Risk
Boone et al., 2012	Low Risk	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	Low Risk
Boone et al., 2011	Low Risk	Low Risk	High Risk	Unclear Risk	Low Risk	Low Risk	High Risk
Boone et al., 2012	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk
Boone et al., 2014	Low Risk	Low Risk	High Risk	Unclear Risk	Low Risk	Low Risk	Low Risk
Brytek-Matera et al., 2022	Low Risk	Low Risk	High Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Cella et al., 2020	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk
Conceicao et al., 2022	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk
Coughtrey et al., 2018	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Cuesta-Zamora et al., 2022	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	Low Risk	Low Risk

Egan et al., 2017	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	Low Risk	High Risk
Ferrand et al., 2007	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Flett et al., 2011	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Goel et al., 2020	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	Low Risk	High Risk
Jones et al., 2007	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	High Risk
Kaleji et al., 2021	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Kim et al., 2023	High Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Kinkel-Ram et al., 2021	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	Low Risk	Low Risk
Lloyd et al., 2015	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Martini et al., 2021	Low Risk	Low Risk	High Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Mathisen & Sundgot-Borgen, 2019	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	High Risk
Mathisen et al., 2022	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
O'Loghlen & Galligan, 2022	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	Low Risk	High Risk
Oliveira et al., 2017	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Pamies-Aubalat et al., 2022	Low Risk	Low Risk	High Risk	Low Risk	Unclear Risk	Low Risk	Low Risk
Pentz & Rados, 2017	Low Risk	Low Risk	Low Risk	High Risk	Unclear Risk	Low Risk	Low Risk
Perey & Koenigstorfer, 2020	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	Low Risk	Low Risk
Phillipou et al., 2022	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Pratt et al., 2001	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Schaumberg et al., 2020	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Schwartz et al., 2021	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	Low Risk	Low Risk
Short et al., 2013	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk

Smith et al., 2017	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	Low Risk	High Risk
Stoeber & Yang, 2015	Low Risk	Low Risk	High Risk	Unclear Risk	Low Risk	Low Risk	Low Risk
Tng & Yang, 2021	Low Risk	Low Risk	Low Risk	Unclear Risk	Unclear Risk	Low Risk	Low Risk
Welch et al., 2009	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	Low Risk	High Risk
Roy, 2010	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	Low Risk	Low Risk
Barrow, 2007	Low Risk	Low Risk	Low Risk	Unclear	Low Risk	Low Risk	Low Risk
Muehlhauser, 2017	Low Risk	Low Risk	Low Risk	Unclear Risk	Low Risk	Low Risk	Low Risk
Hughes, 2016	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk

Meta-Analytic Results Between Self-Criticism and DE

Overall, 133 out of 135 studies identified a positive relationship between self-criticism and DE, with greater levels of self-criticism linked with greater levels of DE. Only two studies by Redden et al. (2022) and Jones et al. (2007) identified a negative relationship between the constructs, with greater self-criticism levels linked with reduced DE symptoms. Whilst 44 studies were excluded on the basis of their authors not providing effect sizes, 17 studies did not report if there was a presence or absence of a relationship between self-criticism and DE, 17 studies did not provide an effect size but suggestive of a positive relationship between the two constructs, seven studies reported that there was a significant positive correlation but did not provide an effect size, with only three studies reporting that there was no significant correlation between self-criticism and DE.

The meta-analyses indicated that all 10 self-criticism subgroups showed significant small to large positive relationships with DE (*r*s = .20-.52; See **Table 4.5**). Self-critical perfectionism measures including the Hewitt and Flett Multidimensional Perfectionism Scale (HMPS; $k = 33$, $n = 9{,}671$), Eating Disorder Inventory Socially Prescribed Perfectionism Subscale (EDI-SPP; $k = 6$, $n = 1{,}143$), and Children and Adolescent Perfectionism Scale (CAPS; $k = 12$, $n = 4, 516$) reported small positive relationships with DE ($r = 0.29$, Fisher's $Z = 0.30$, 95% CIs = 0.26, 0.33, $p < .0001$), ($r = 0.20$, Fisher's $Z = 0.21$, 95% CIs = 0.10, 0.32, $p < .01$), and ($r = 0.29$, Fisher's $Z = 0.30$, 95% CIs = 0.23, 0.37, $p < .0001$), respectively.

Table 4.5

Average effect sizes and 95% confidence intervals for subgroups of self-criticism and sample dimensions, analysis of heterogeneity ($Q;I^2$) and publication bias (ERI) for each subgroup

Subgroup	*r*	Fisher's Z	*p* values	95% CI	Q Statistic	I^2 values	Egger's Regression
1. FMPS_CM (*k* = 50; *n* = 14,183)	0.38	0.40	*p* < .0001	0.34, 0.46	*Q*(49) = 287.20	82.90%	*t* = 0.18, *p* = 0.860
2. HMPS_SPP (*k* = 33; *n* = 9,671)	0.29	0.30	*p* < .0001	0.26, 0.33	*Q*(32) = 73.89	56.70%	*t* = 1.37, *p* = 0.181
3. EDI_SPP (*k* = 6; *n* = 1,143)	0.20	0.21	*p* < .01	0.10, 0.32	*Q*(5) = 12.32	59.40%	*t* = 0.68, *p* = 0.534
4. CAPS_SPP (*k* = 12; *n* = 4,516)	0.29	0.30	*p* < .0001	0.23, 0.37	*Q*(11) = 35.16	68.70%	*t* = 0.03, *p* = 0.975
5. SCS (*k* = 9; *n* = 2,639)	0.52	0.58	*p* < .0001	0.47, 0.70	*Q*(8) = 34.14	76.60%	*t* = 0.77, *p* = 0.464
6. Self-Rating Scale (*k* = 3; *n* = 442)	0.43	0.46	*p* < .002	0.26, 0.66	*Q*(2) = 0.32	0%	*t* = -2.05, *p* = 0.289
7. FSCRS (*k* = 22; *n* = 6,654)	0.50	0.55	*p* < .0001	0.46, 0.64	*Q*(21) = 179.95	88.30%	*t* = -0.52, *p* = 0.611
8. DEQ Self-Criticism (*k* = 7; *n* = 1,408)	0.36	0.38	*p* < .01	0.16, 0.60	*Q*(6) = 42.53	85.90%	*t* = 0.31, *p* = 0.769
9. DAS Self-Criticism (*k* = 6; *n* = 1,542)	0.31	0.33	*p* < .0001	0.26, 0.39	*Q*(5) = 2.81	0%	*t* = -1.07, *p* = 0.346
10. LOSC Internalized Self-Criticism (*k* = 3; *n* = 754)	0.36	0.38	*p* < .05	0.18, 0.57	*Q*(2) = 2.98	33.00%	*t* = -0.72, *p* = 0.604
11. Non-Clinical Samples (*k* = 126, *n* = 38,450)	0.37	0.39	*p* < .0001	0.34, 0.39	*Q*(125) = 979.45	87.20%	*t* = -0.42, *p* = 0.677
12. Clinical Samples (*k* = 25, *n* = 4,502)	0.42	0.45	*p* < .0001	0.33, 0.49	*Q*(24) = 119.20	79.90%	*t* = 0.25, *p* = 0.806
13. Cross-Sectional Samples (*k* = 136, *n* = 39,593)	0.38	0.40	*p* < .0001	0.35, 0.41	*Q*(135) = 998.56	86.50%	*t* = 0.03, *p* = 0.978
14. Experimental Samples (*k* = 15, *n* = 3,359)	0.31	0.33	*p* < .0001	0.20, 0.42	*Q*(14) = 101.39	86.20%	*t* = -1.21, *p* = 0.249
15. Combined Analysis (*k* = 151; *n* = 42,952)	0.37	0.39	*p* < .0001	0.36 0.42	*Q*(150) = 1100.05	86.40%	*t* = -0.32, *p* = 0.749

Self-criticism measures including the Self-Rating Scale (SRS; $k = 3$, $n = 442$) and Levels of Self-Criticism Internalized Self-Criticism Subscale (LOSC; $k = 3$, $n = 754$) reported medium positive relationships with DE ($r = 0.43$, Fisher's $Z = 0.46$, 95% CIs = 0.26, 0.66, $p < .01$), and ($r = 0.36$, Fisher's $Z = 0.38$, 95% CIs = 0.18, 0.57, $p < .05$), respectively. Self-criticism subscales from the Depressive Experiences Questionnaire (DEQ; $k = 7$, $n = 1,408$), and Dysfunctional Attitudes Scale (DAS; $k = 6$, $n = 1,542$) also reported medium positive relationships with DE ($r = 0.36$, Fisher's $Z = 0.38$, 95% CIs = 0.16, 0.60, $p < .01$), and ($r = 0.31$, Fisher's $Z = 0.33$, 95% CIs = 0.26, 0.39, $p < .0001$), respectively. The self-critical perfectionism measure from Frost's Multidimensional Perfectionism Scale (FMPS; $k = 50$, $n = 14,183$) reported medium positive relationships with DE ($r = 0.38$, Fisher's $Z = 0.40$, 95% CIs = 0.34, 0.46, $p < .0001$). Finally, the Self-Compassion Scale (SCS; $k = 9$, $n = 2,639$) and Fear of Self-Criticizing/Attacking and Self-Reassuring Scale (FSCRS; $k = 22$, $n = 6,654$) showed the most robust relationship between self-criticism and DE ($r = 0.52$, Fisher's $Z = 0.58$, 95% CIs = 0.47, 0.70, $p < .0001$), and ($r = 0.50$, Fisher's $Z = 0.55$, 95% CIs = 0.46, 0.64, $p < .0001$), respectively.

Separate analyses for clinical ($k = 25$, $n = 4,502$) and non-clinical studies ($k = 126$, $n = 38,450$) both indicated medium positive relationships between self-criticism and DE ($r = 0.42$, Fisher's $Z = 0.45$, 95% CIs = 0.33, 0.49, $p < .0001$), and ($r = 0.37$, Fisher's $Z = 0.39$, 95% CIs = 0.34, 0.39, $p < .0001$), respectively. Similarly, separate analyses for cross-sectional ($k = 136$, $n = 39,593$) and experimental studies ($k = 15$, $n = 3,359$) both indicated medium positive relationships between self-criticism and DE ($r = 0.38$, Fisher's $Z = 0.40$, 95% CIs = 0.35, 0.41, $p < .0001$), and ($r = 0.31$, Fisher's $Z = 0.33$, 95% CIs = 0.20, 0.42, $p < .0001$), respectively. Together, the combined effect size of all the studies found a significant medium positive relationship with self-criticism ($r = 0.37$, Fisher's $Z = 0.39$, 95% CIs = 0.36, 0.42, $p < .0001$). As only a small number of studies were considered to be outliers ($k = 7$;

Davies et al., 2009; Jones et al., 2007; Penniment & Egan, 2012; Redden et al., 2022; Kelly & Tasca, 2016; Kelly & Carter, 2013; Barrow, 2007), they were included in the analysis.

Out of the 135 studies that were utilised to examine the relationship between self-criticism and DE, moderation analyses were also conducted between clinical and non-clinical groups, between cross-sectional and experimental studies, and between self-criticism and self-critical perfectionism measures (See Table 4.5). Results found no significant difference between clinical and non-clinical samples (p = .074) nor between cross-sectional and experimental data (p = .060). However, there was a significant difference identified between self-criticism and self-critical perfectionism ($p < 0.0001$), demonstrating that constructs measuring self-criticism predicted increased DE compared to those examining self-critical perfectionism.

Longitudinal Studies

Twelve studies comprising 7,997 participants were used to examine the longitudinal impact of self-criticism on DE. The duration between time points ranged from one day to one year, with the most common follow-up time being six months (k = 4). Overall, there was a statistically significant medium positive correlation between self-criticism and DE (r = 0.32, Fisher's Z = 0.38, 95% CIs = 0.27, 0.38, $p < .001$). There was evidence of moderate heterogeneity ($Q(31) = 128.22$, $p < .01$; $I^2 = 75.80$), which was attributed to within-study variance ($I^2 = 75.90$), not between-study variance ($I^2 = 0.00$). No outliers were identified. Time between measurement points was not a significant moderator (p = .827). As there was a range of follow-up lengths between studies, a moderation analysis was also performed to explore if the link between self-criticism and DE changes with different follow-up times. A moderation analysis between studies with follow-ups less than three months and more than three months was conducted, which found that follow-ups more than three months apart

predicted increased self-criticism and DE compared to follow-ups less than three months apart ($p < .01$).

Associations between Self-Compassion, Self-Criticism, and DE

Of relevance to our second aim, 18 studies and 19 samples included measures of self-compassion, self-criticism, and DE. Only two measures were used to measure self-compassion: The Reassuring-Self Subscale of the Fear of Self-Criticizing/Attacking and Self-Reassuring Scale (FSCRS; $k = 7$, $n = 2{,}242$) and the Self-Compassion Scale (SCS; $k = 12$, $n = 2{,}966$). A significant negative small to large relationship ($r = -.04 – -.88$) between self-compassion and self-criticism was identified, indicating that greater self-compassion is linked with reduced self-criticism. All 18 studies presented a significant medium negative relationship between self-compassion and DE, with greater levels of self-compassion linked with reduced DE ($r = -0.42$, Fisher's $Z = -0.45$, 95% CIs = -0.54, -0.36, $p < .0001$).

Two further meta-analyses were conducted, which grouped together studies based on the self-compassion measure they used. Both the FSCRS and SCS showed significant medium negative relationships between self-compassion and DE ($r = -0.40$, Fisher's $Z = -0.43$, 95% CIs = -0.64, -0.22, $p < .01$), and ($r = -0.43$, Fisher's $Z = -0.46$, 95% CIs = -0.56, -0.36, $p < .0001$), respectively. As all the studies were cross-sectional and none were experimental studies, only separate analyses for clinical ($k = 4$, $n = 315$) and non-clinical studies ($k = 15$, $n = 4{,}893$) were conducted with both indicating medium negative relationships between self-criticism and DE ($r = -0.46$, Fisher's $Z = -0.50$, 95% CIs = -0.77, 0.02, $p < .05$), and ($r = -0.41$, Fisher's $Z = -0.44$, 95% CIs = -0.48, -0.34, $p < .0001$), respectively. As only two studies were considered outliers (Barrow, 2007; Pullmer et al., 2019), they were included in the analysis.

Out of the 18 cross-sectional studies that were also utilised to examine the associations between self-criticism, self-compassion and DE, moderation analyses were also

conducted between clinical and non-clinical groups and between self-compassion measures (See **Table 4.6**). However, there was no significant moderation identified between the self-compassion measures ($p = .604$) and no significant difference between clinical and non-clinical groups that used self-compassion measures ($p = .620$).

Heterogeneity

An analysis of the heterogeneity of the total weighted mean effects across the 135 studies indicated the probability of factors extraneous to sampling error were responsible for the observed variability across effect sizes ($Q(150) = 1100.05$, $p < .001$). The I^2 statistic indicated a high degree of heterogeneity (86.40%). As such, additional analyses were used to explore the heterogeneity of the 10 subgroups pertaining to the various dimensions of self-criticism and self-critical perfectionism by calculating Q and I^2 for each category separately (see Table 4.5 for Q and I^2 values for all categories). Further analyses revealed high but ultimately decreased degrees of heterogeneity, supporting the usefulness of focusing on the observed effect sizes for each ED subgroup rather than the total effect of the 135 included papers. However, the FSCRS subgroup displayed slightly greater heterogeneity than the combined analysis ($I^2 = 88.30\%$), and the non-clinical samples ($I^2 = 87.20\%$) and cross-sectional samples ($I^2 = 86.50\%$) also displayed slightly greater heterogeneity than the combined analysis. The Self-Rating Scale and DAS Self-Criticism results indicated that all variability in the observed effect sizes was due to sampling error within studies and heterogeneity was absent ($I^2 = 0\%$). **Figures 4.3 to 4.22** display the Forest Plots and Funnel Plots of each of the self-criticism subgroup analyses. **Figures 4.23 to 4.34** display the Forest Plots and Funnel Plots of each of the clinical and non-clinical, cross-sectional, and experimental, longitudinal, and combined self-criticism subgroup analyses.

Table 4.6

Average effect sizes and 95% confidence intervals for subgroups of self-compassion and sample dimensions, analysis of heterogeneity (Q;I^2) and publication bias (ERI) for each subgroup

Subgroup	*r*	Fisher's Z	*p* values	95% CI	Q Statistic	I^2 values	Egger's Regression
1. FSCRS_RS (*k* = 7; *n* = 2,242)	-0.40	-0.43	*p* < .01	-0.64, -0.22	*Q*(6) = 54.74	89.00%	*t* = -0.05, *p* = 0.963
2. SCS (*k* = 12; *n* = 2,966)	-0.43	-0.46	*p* < .0001	-0.56, -0.36	*Q*(11) = 47.70	76.90%	*t* = -0.02, *p* = 0.986
3. Clinical Samples (*k* = 4, *n* = 315)	-0.46	-0.50	*p* < .05	-0.77, 0.02	*Q*(3) = 22.43	86.60%	*t* = -0.14, *p* = 0.900
4. Non-Clinical Samples (*k* = 15, *n* = 4,893)	-0.41	-0.44	*p* < .0001	-0.48, -0.34	*Q*(14) = 80.28	82.60%	*t* = -0.01, *p* = 0.995
5. Combined Analysis (*k* = 19; *n* = 5,208)	-0.42	-0.45	*p* < .0001	-0.54, -0.36	*Q*(18) = 104.08	82.70%	*t* = -0.18, *p* = 0.859

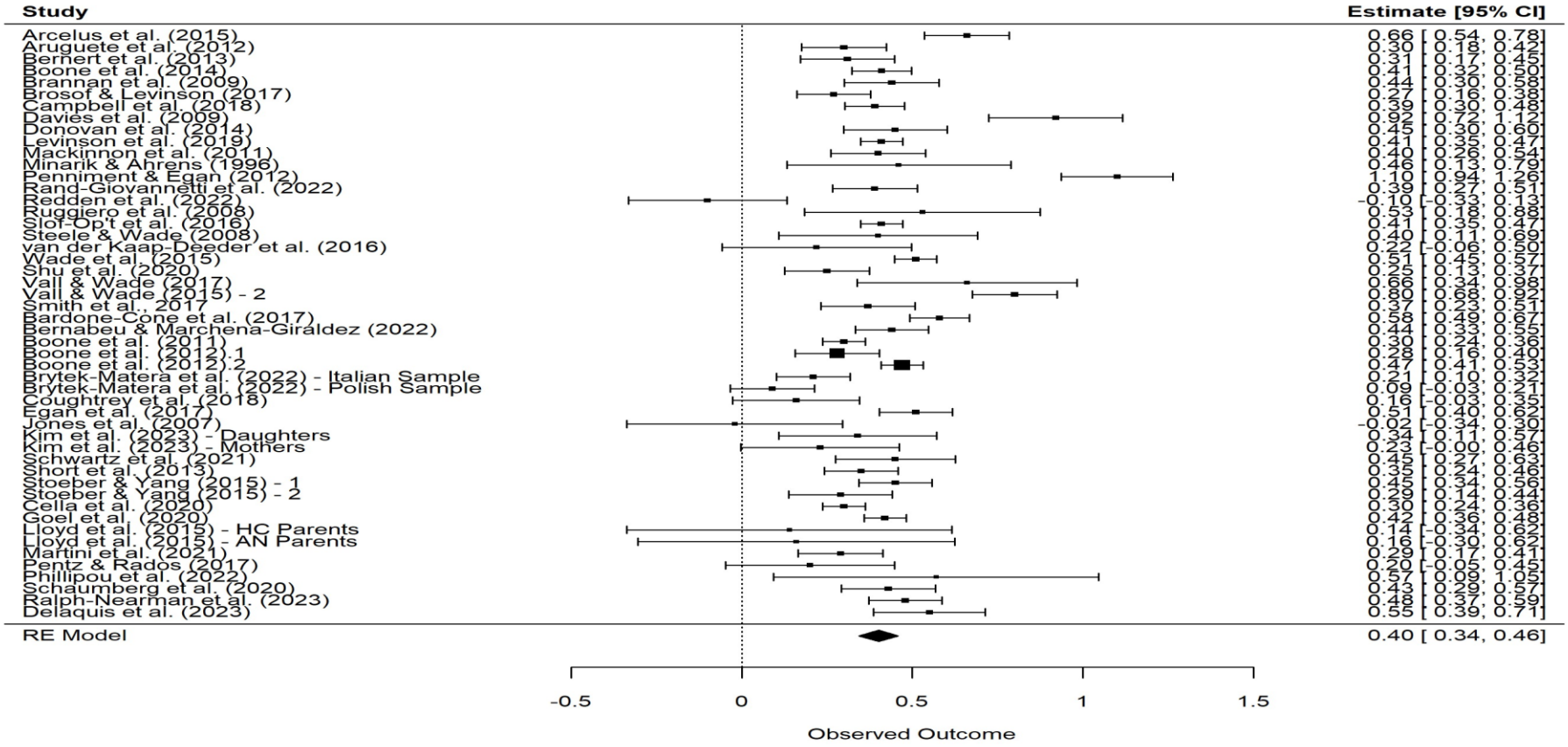


Figure 4.3. Forest Plot of the FMPS_CM Subgroup

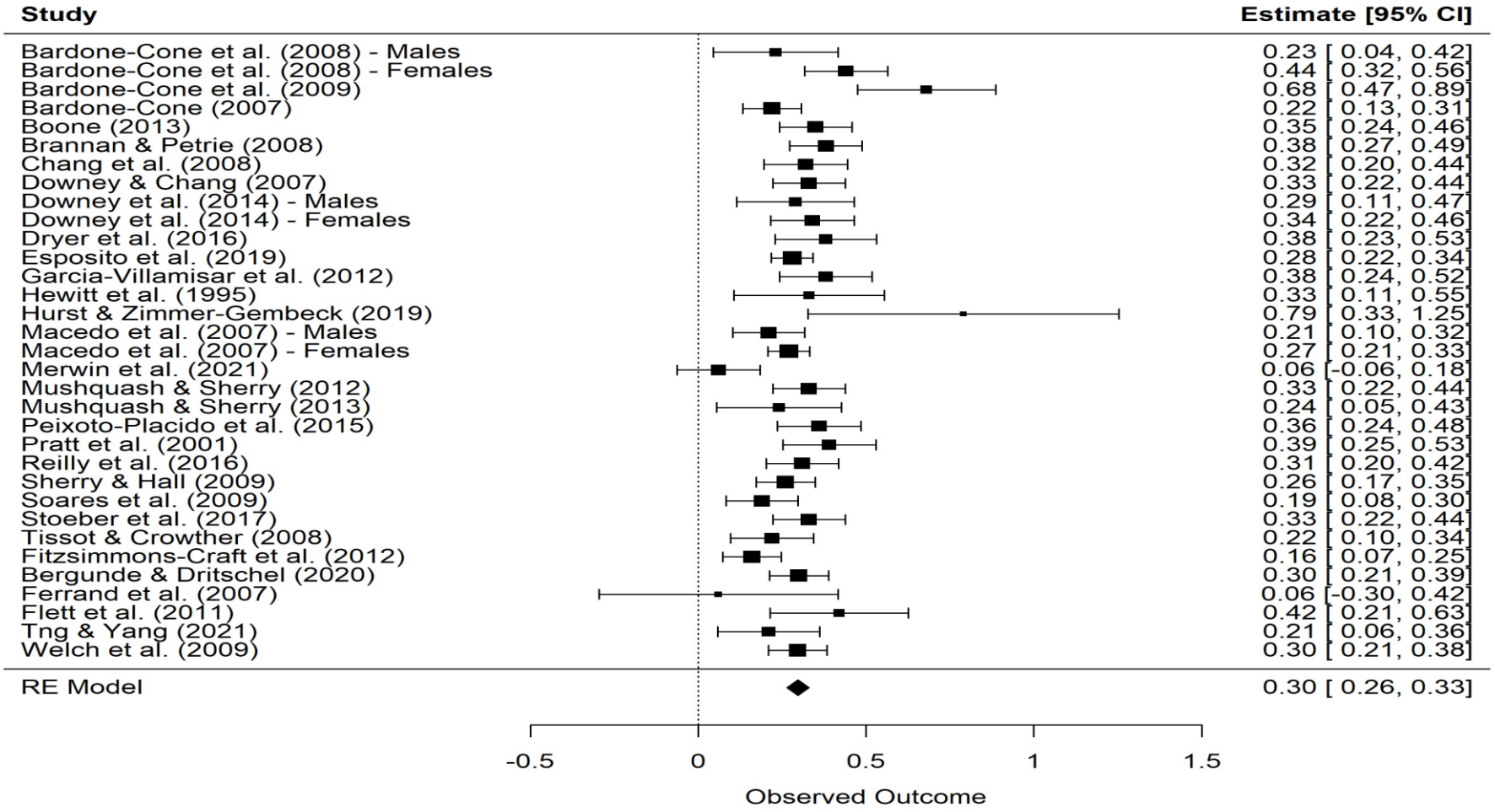


Figure 4.4. Forest Plot of the HMPS_SPP Subgroup

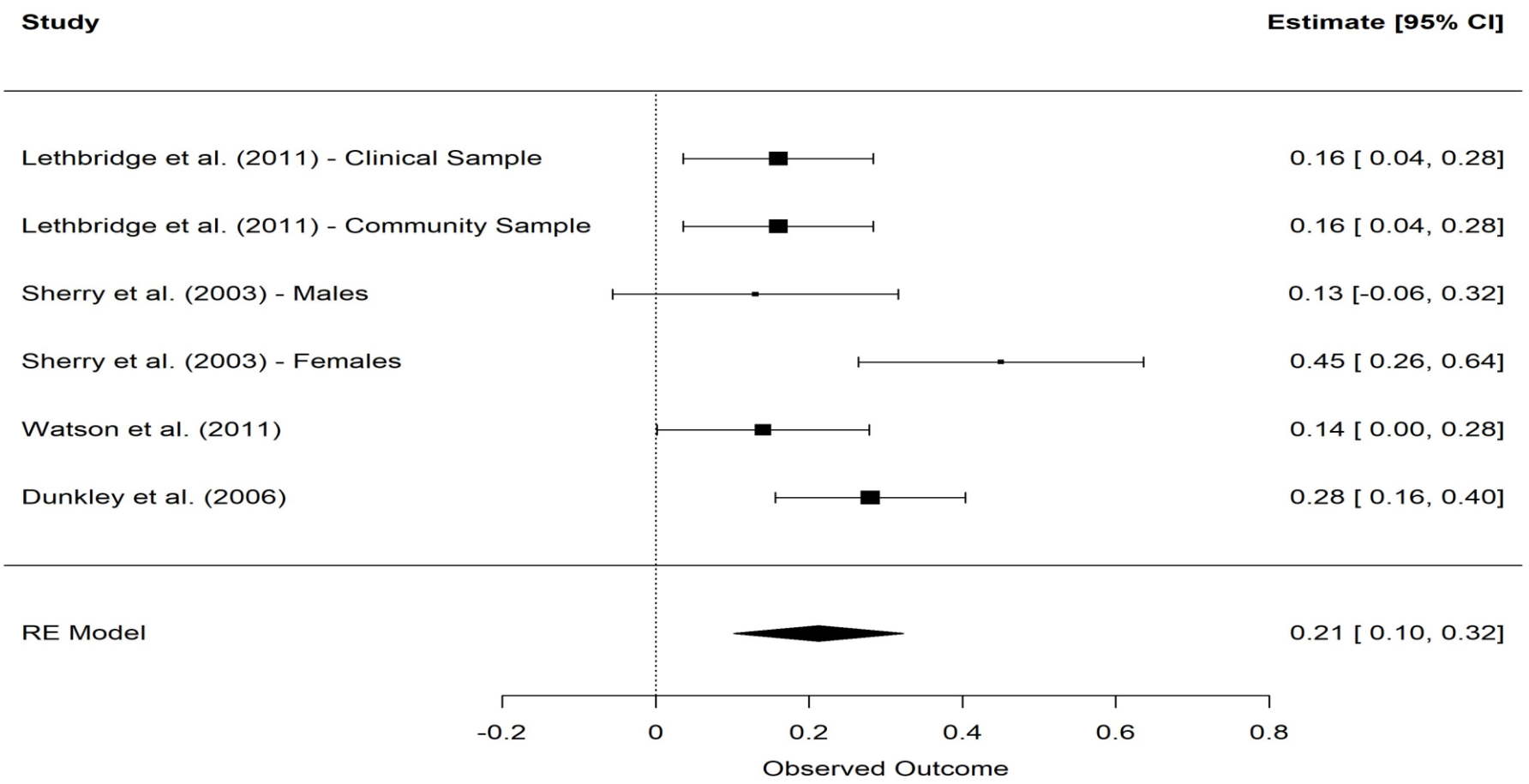


Figure 4.5. Forest Plot of the EDI_SPP Subgroup

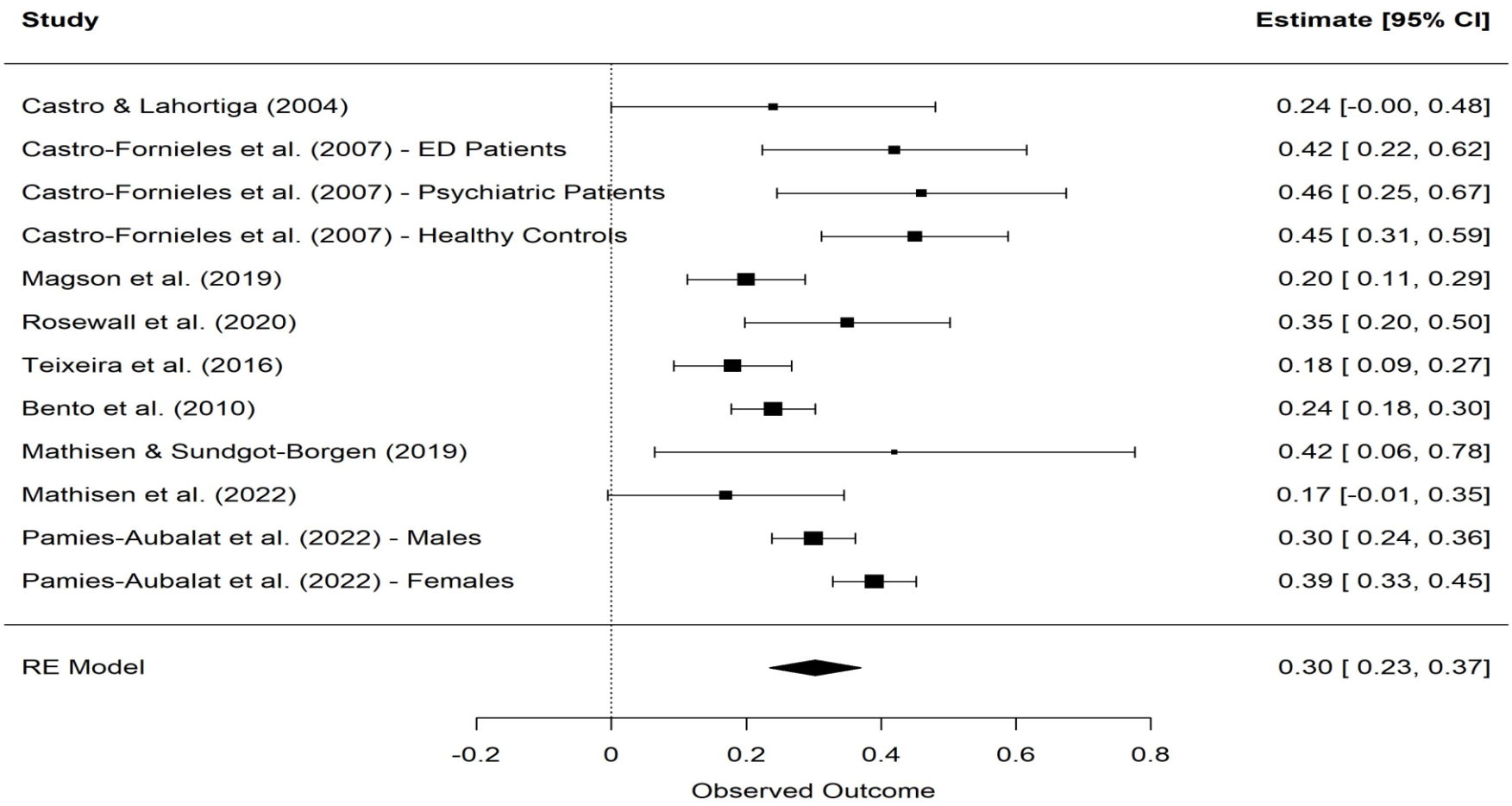


Figure 4.6. Forest Plot of the CAPS_SPP Subgroup

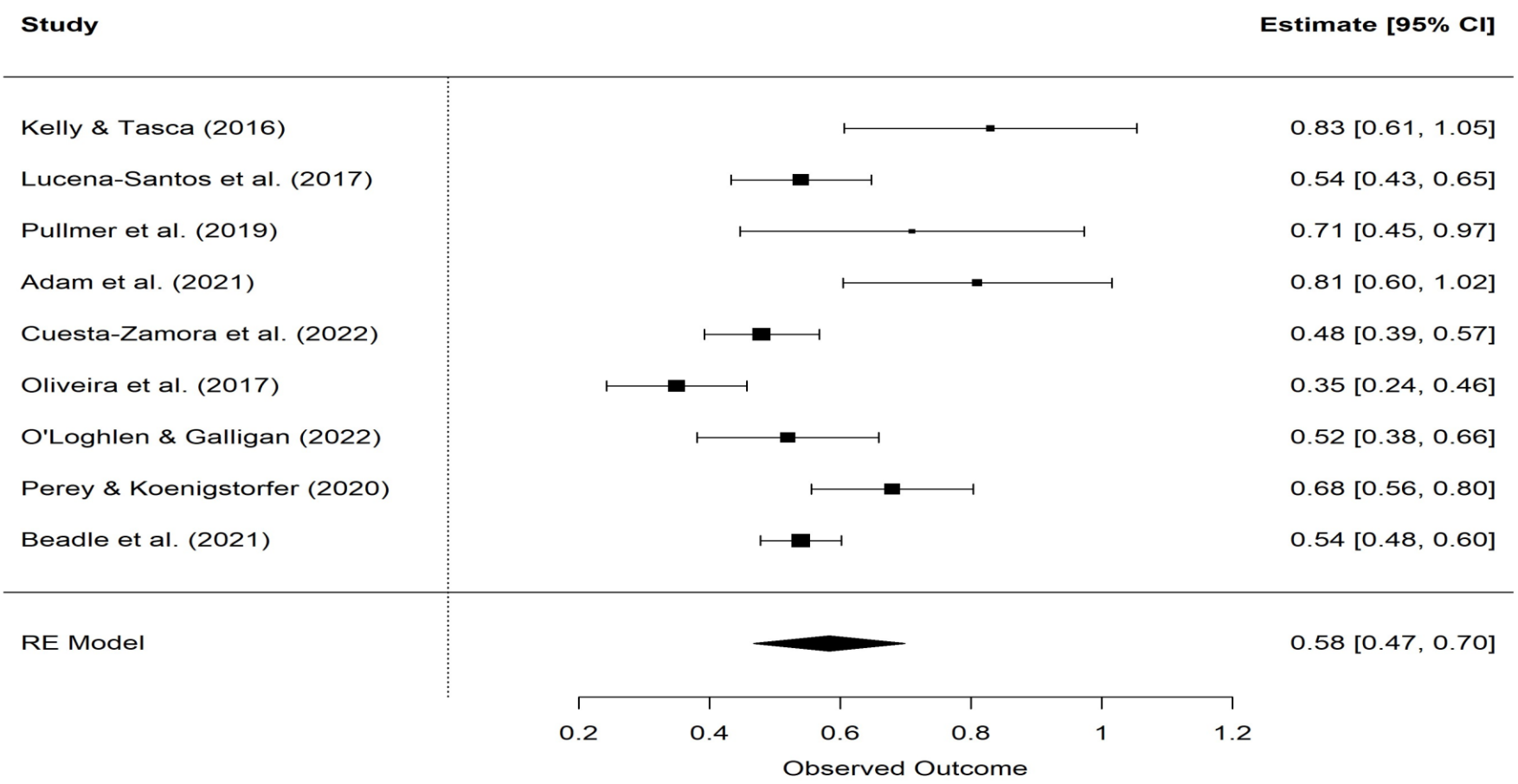


Figure 4.7. Forest Plot of the SCS Subgroup

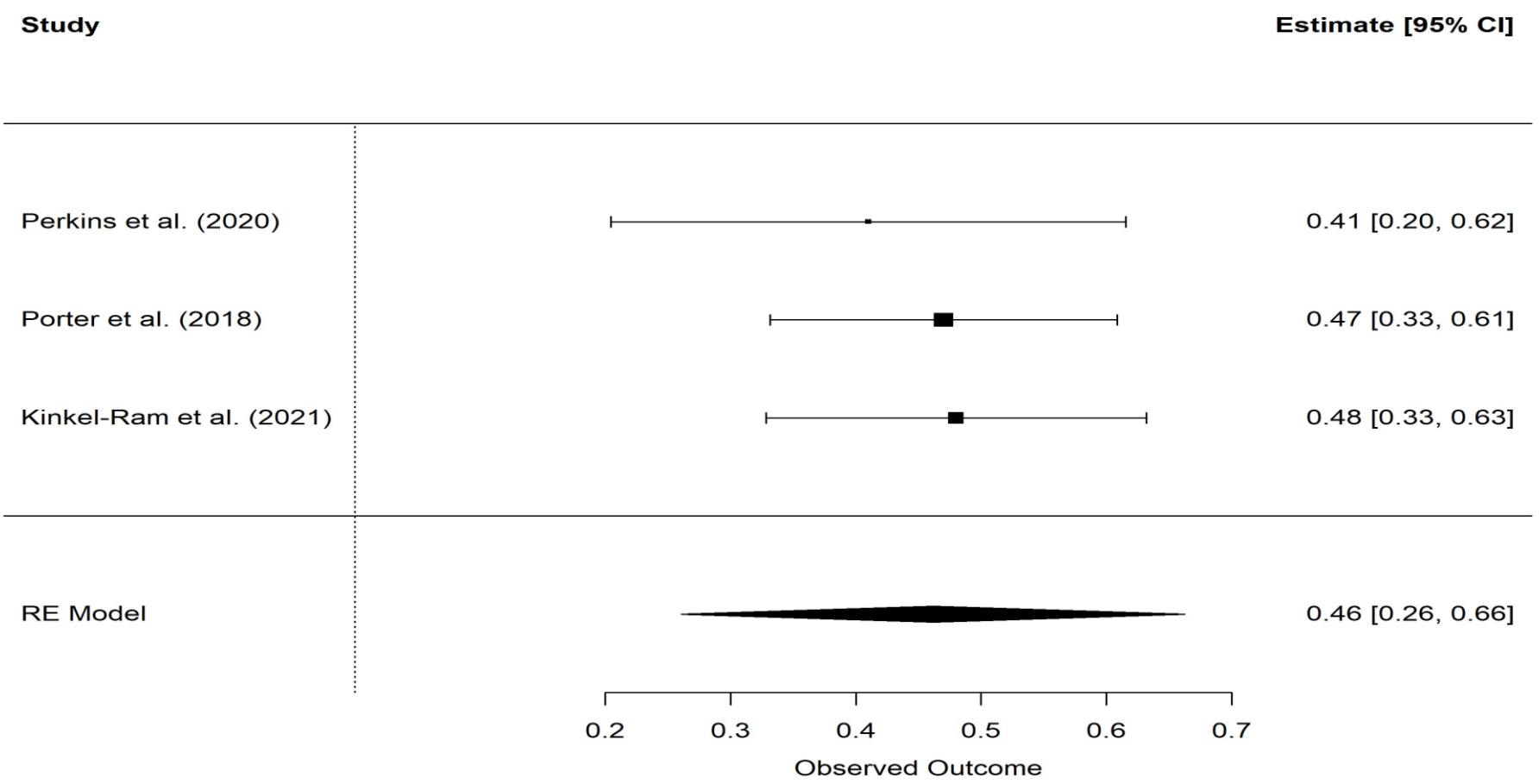


Figure 4.8. Forest Plot of the Self-Rating Scale Subgroup

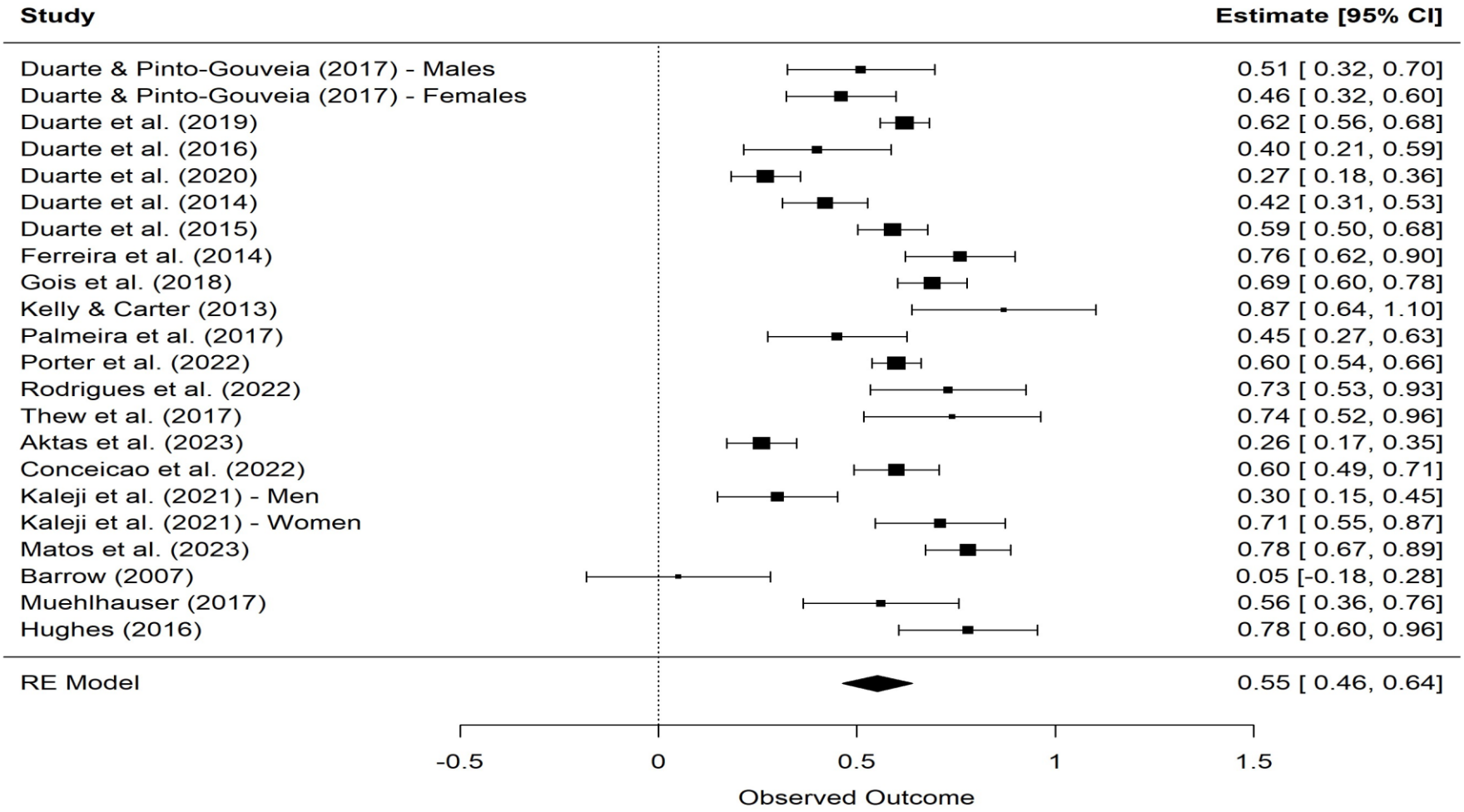


Figure 4.9. Forest Plot of the FSCRS Subgroup

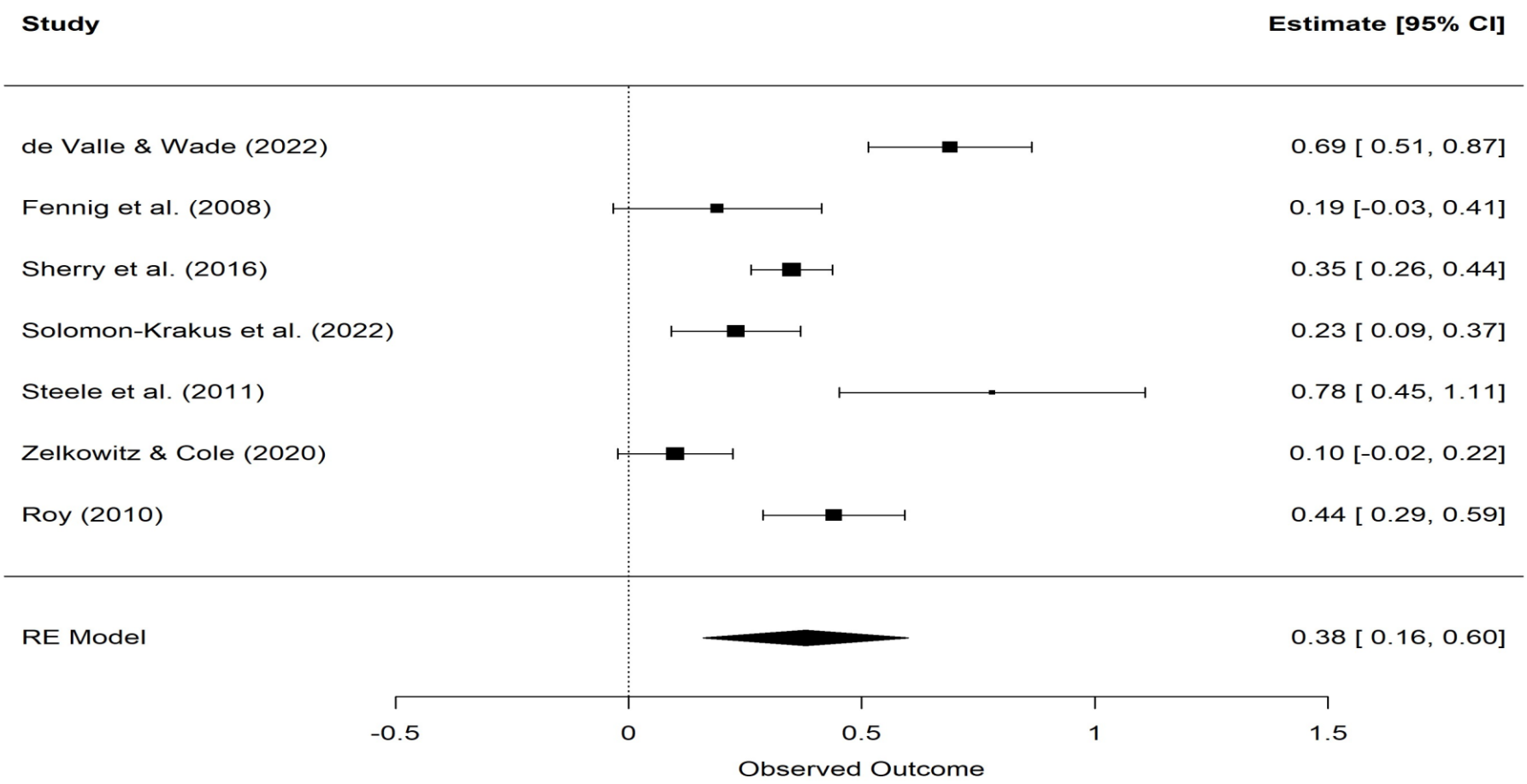


Figure 4.10. Forest Plot of the DEQ Self-Criticism Subgroup

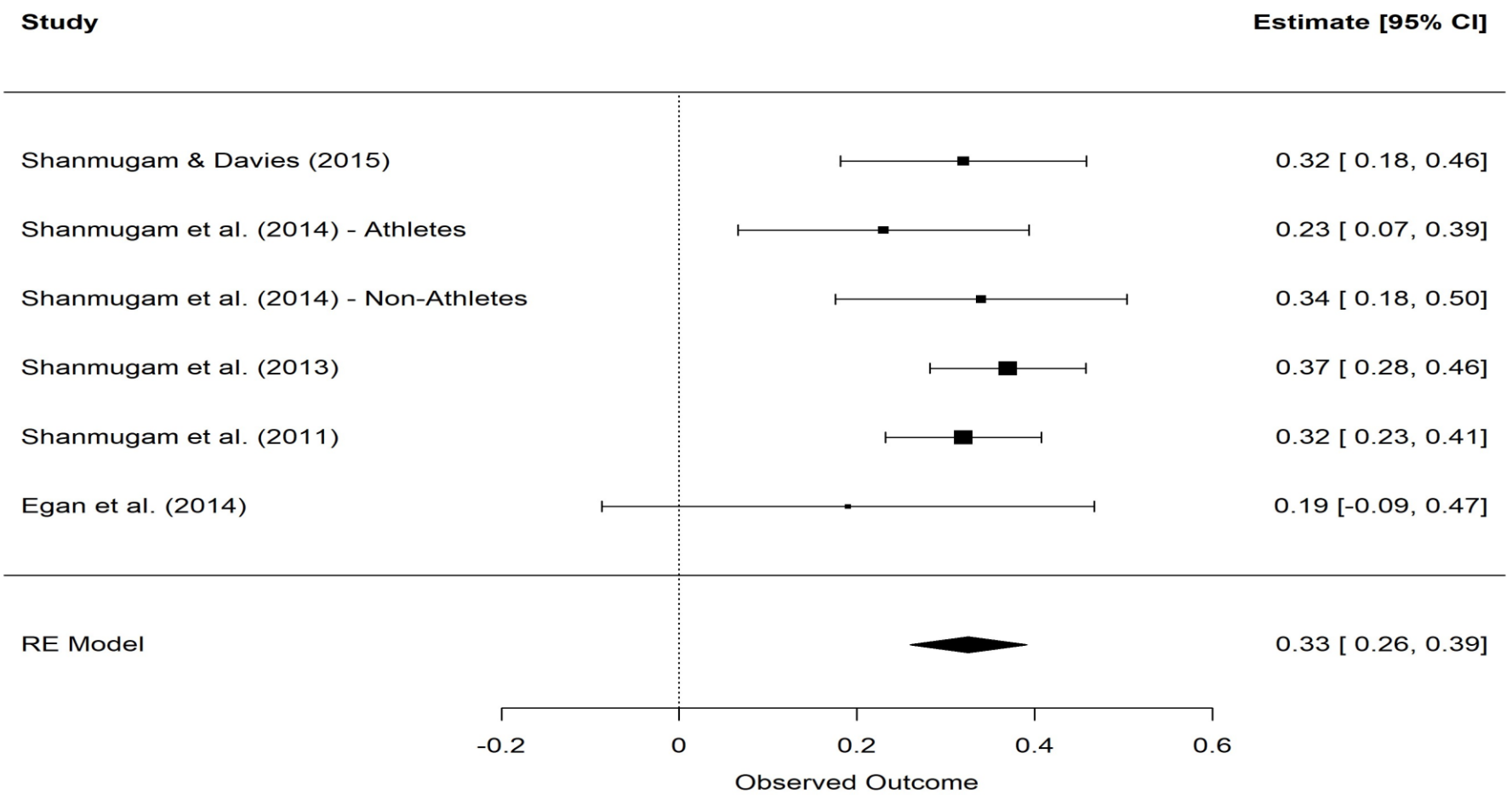


Figure 4.11. Forest Plot of the DAS Self-Criticism Subgroup

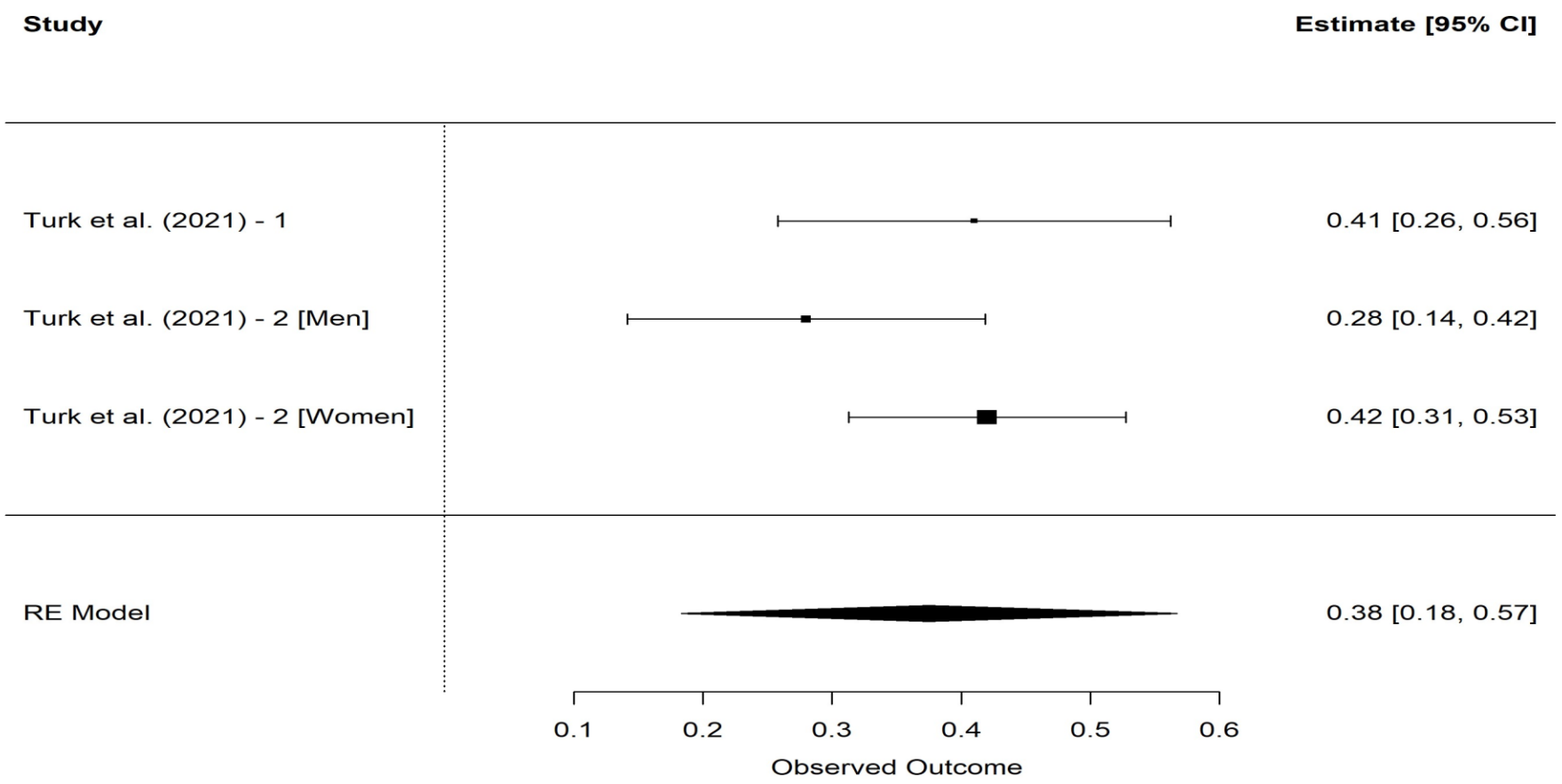


Figure 4.12. Forest Plot of the LOSC Internalized Self-Criticism Subgroup

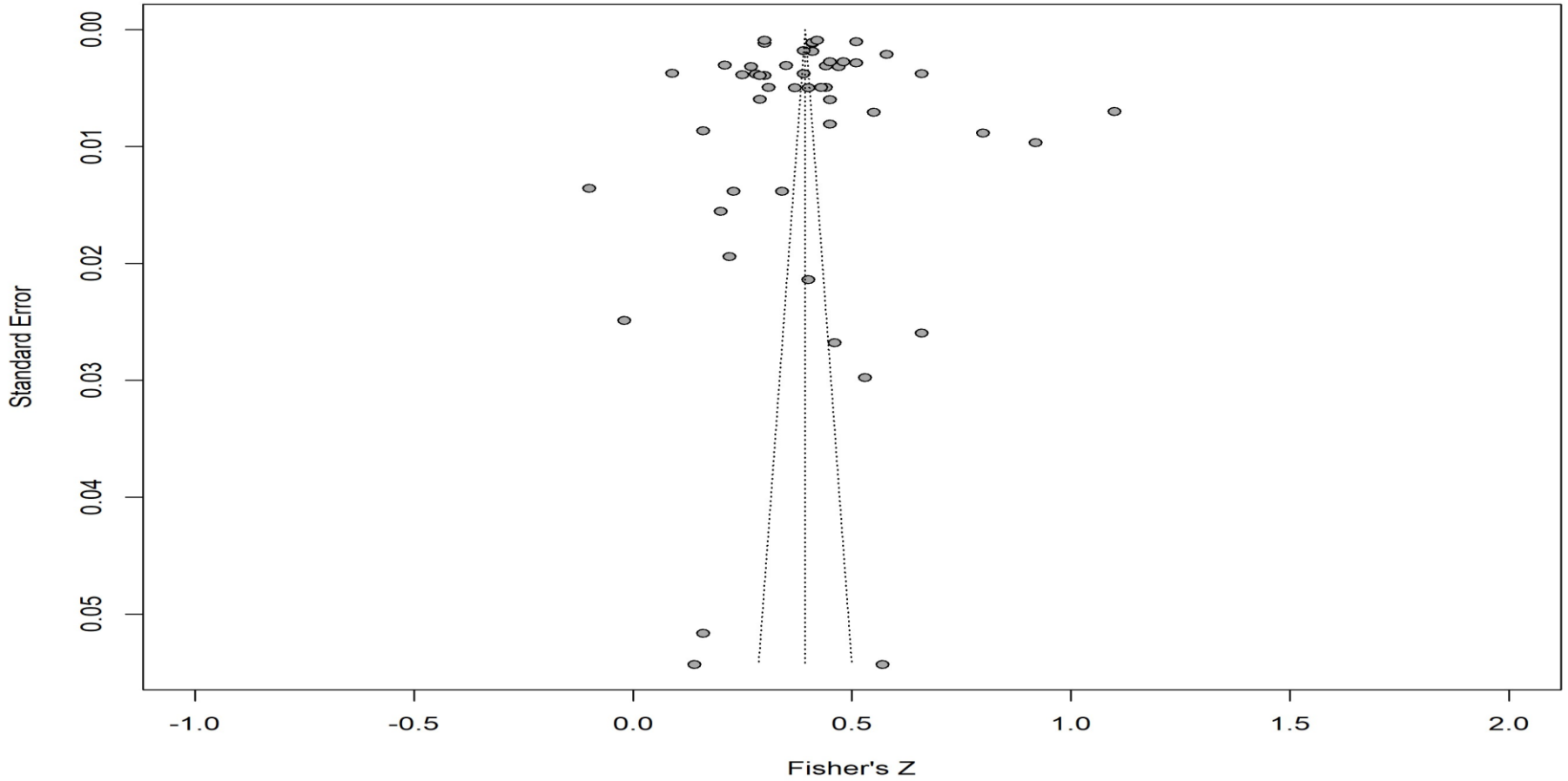


Figure 4.13. Funnel Plot of the FMPS-CM

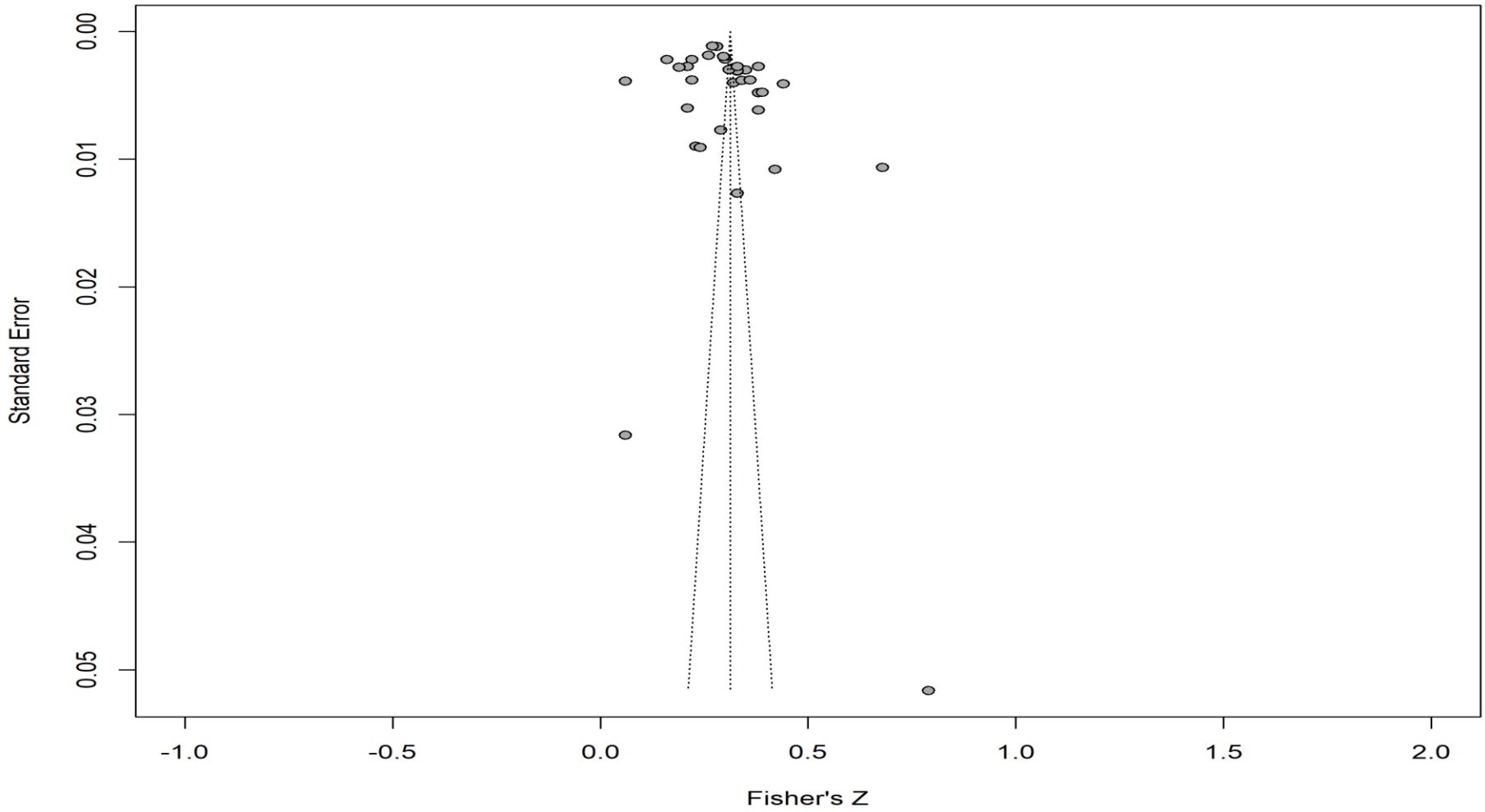


Figure 4.14. Funnel Plot of the HMPS-SPP

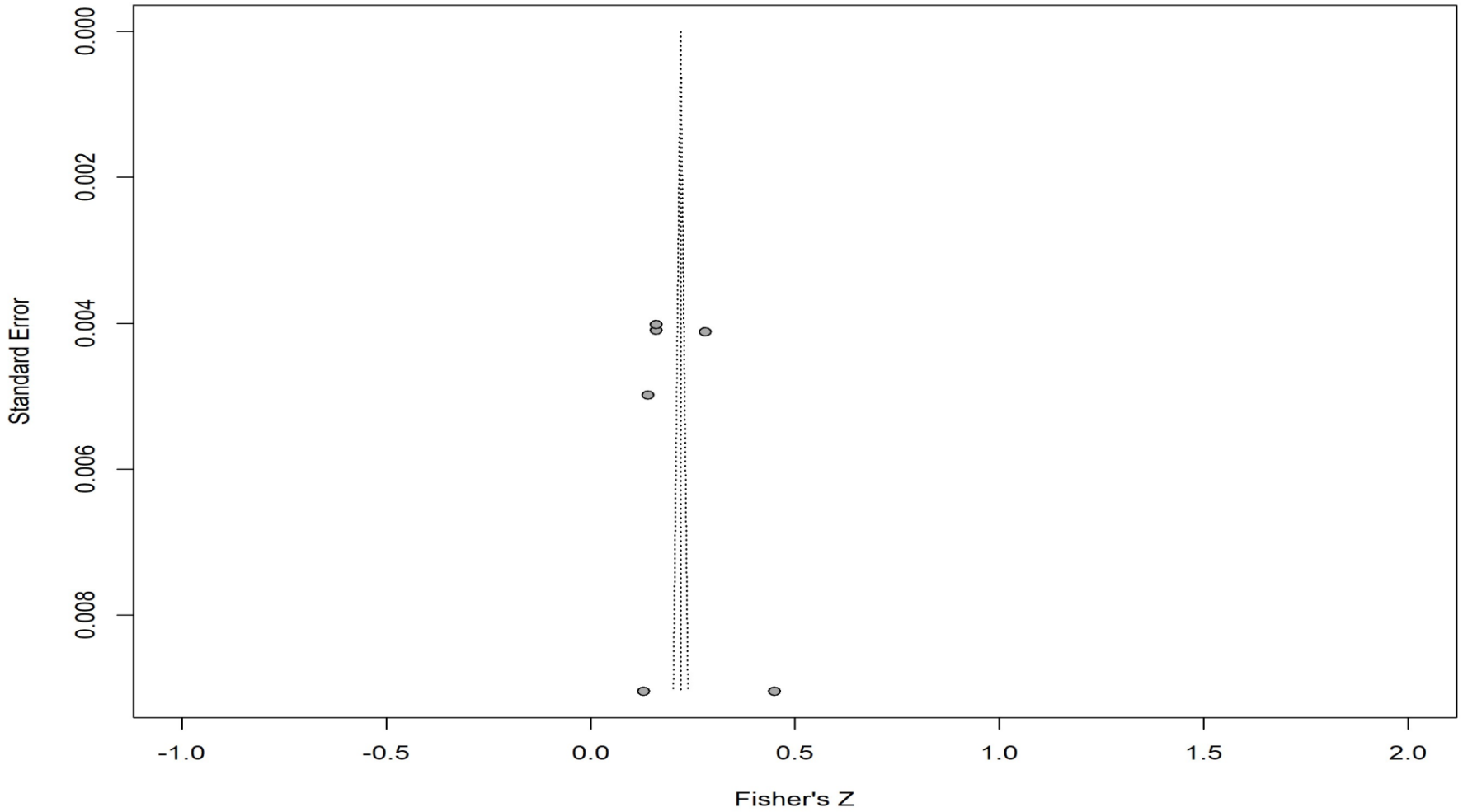


Figure 4.15. Funnel Plot of the EDI-P-SPP

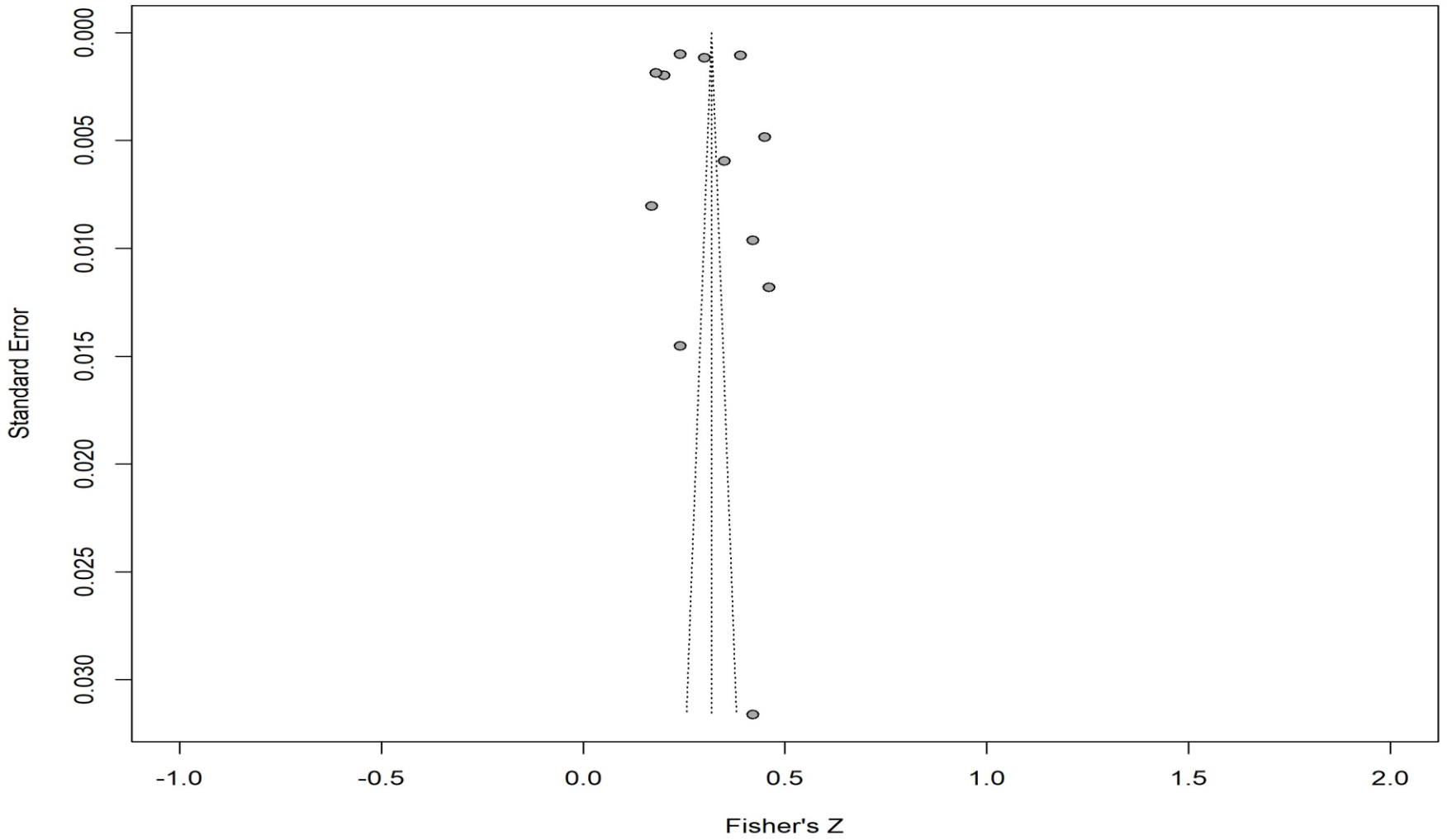


Figure 4.16. Funnel Plot of the CAPS-SPP

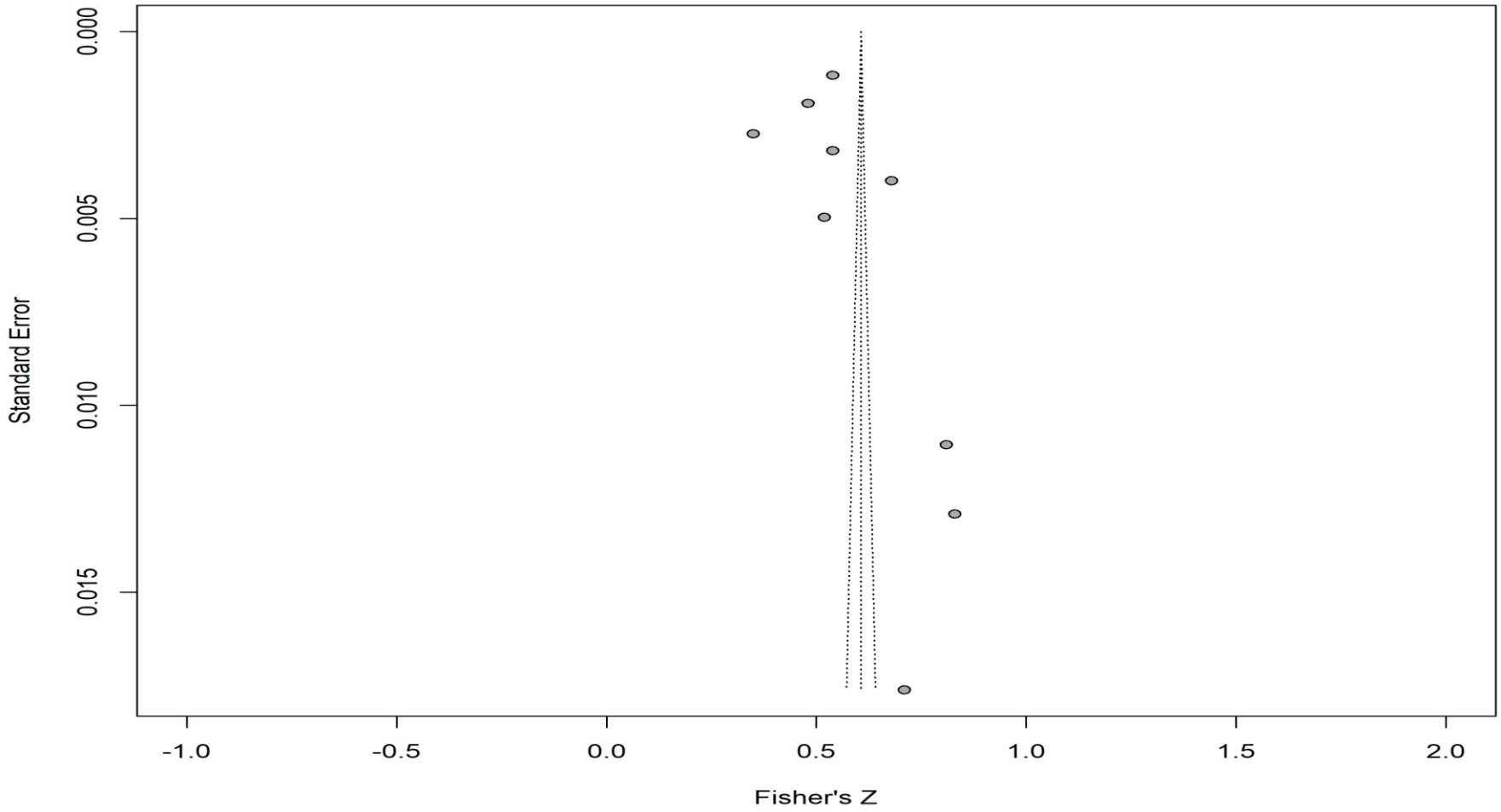


Figure 4.17. Funnel Plot of the SCS

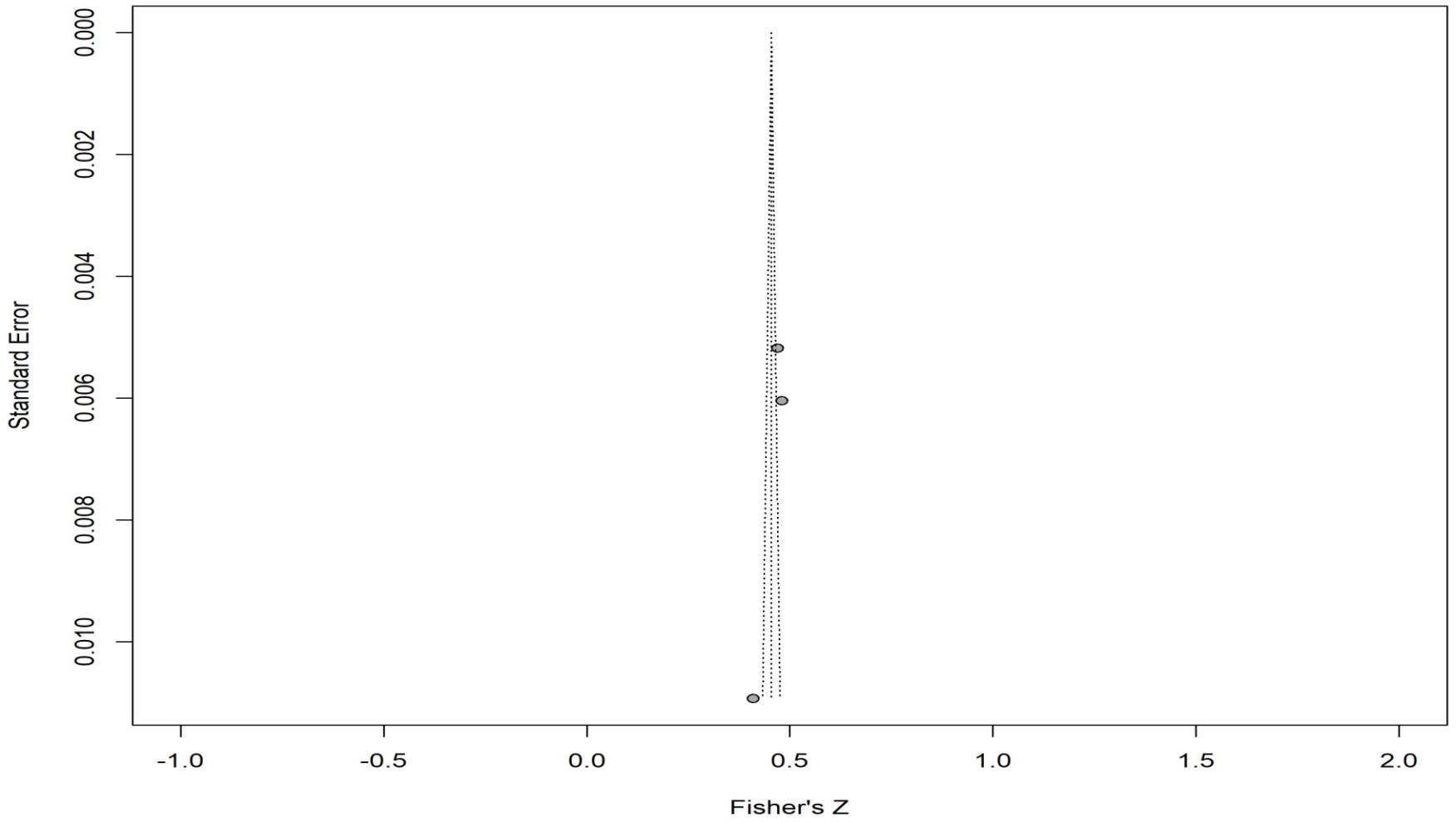


Figure 4.18. Funnel Plot of the Self-Rating Scale

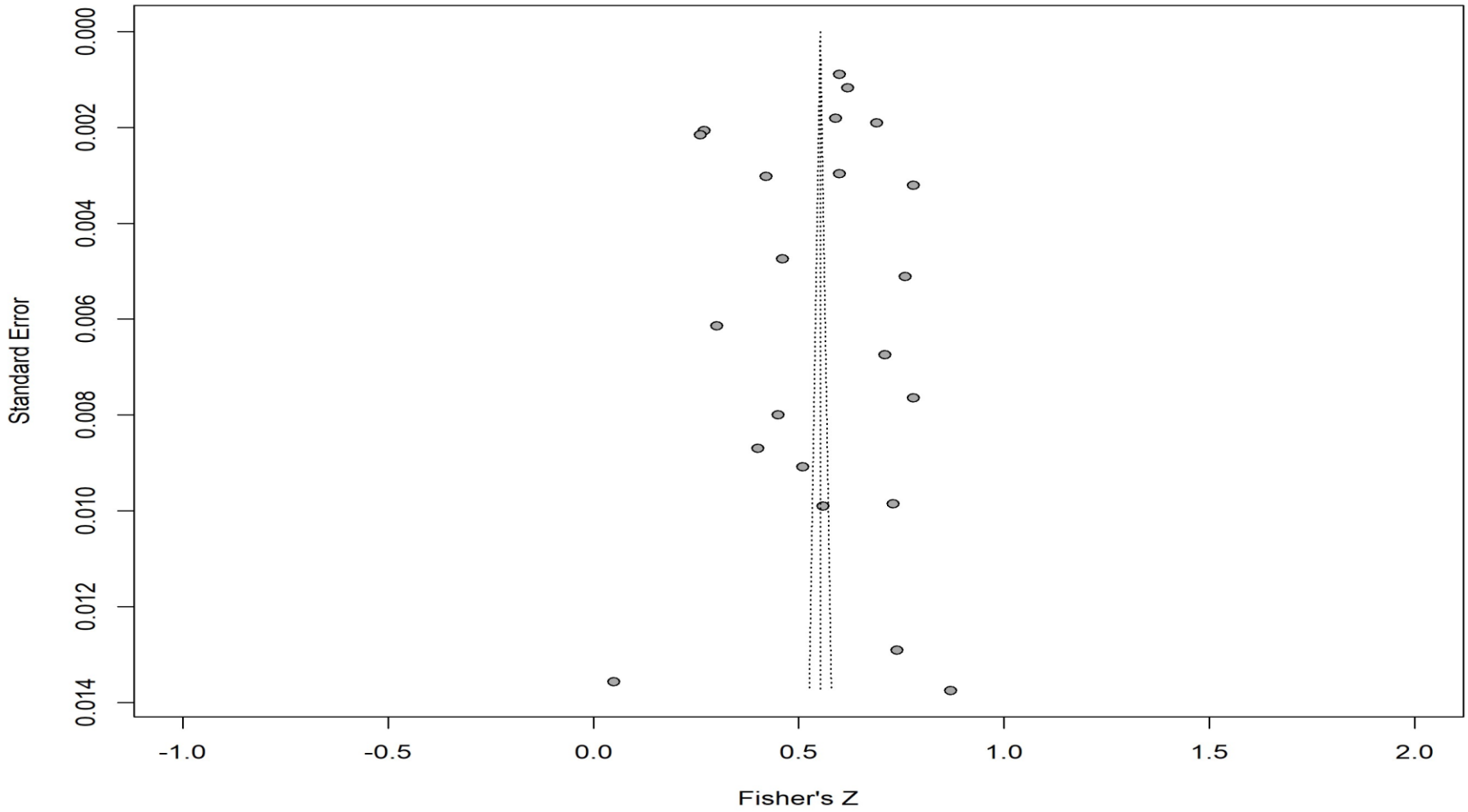


Figure 4.19. Funnel Plot of the FSCRS

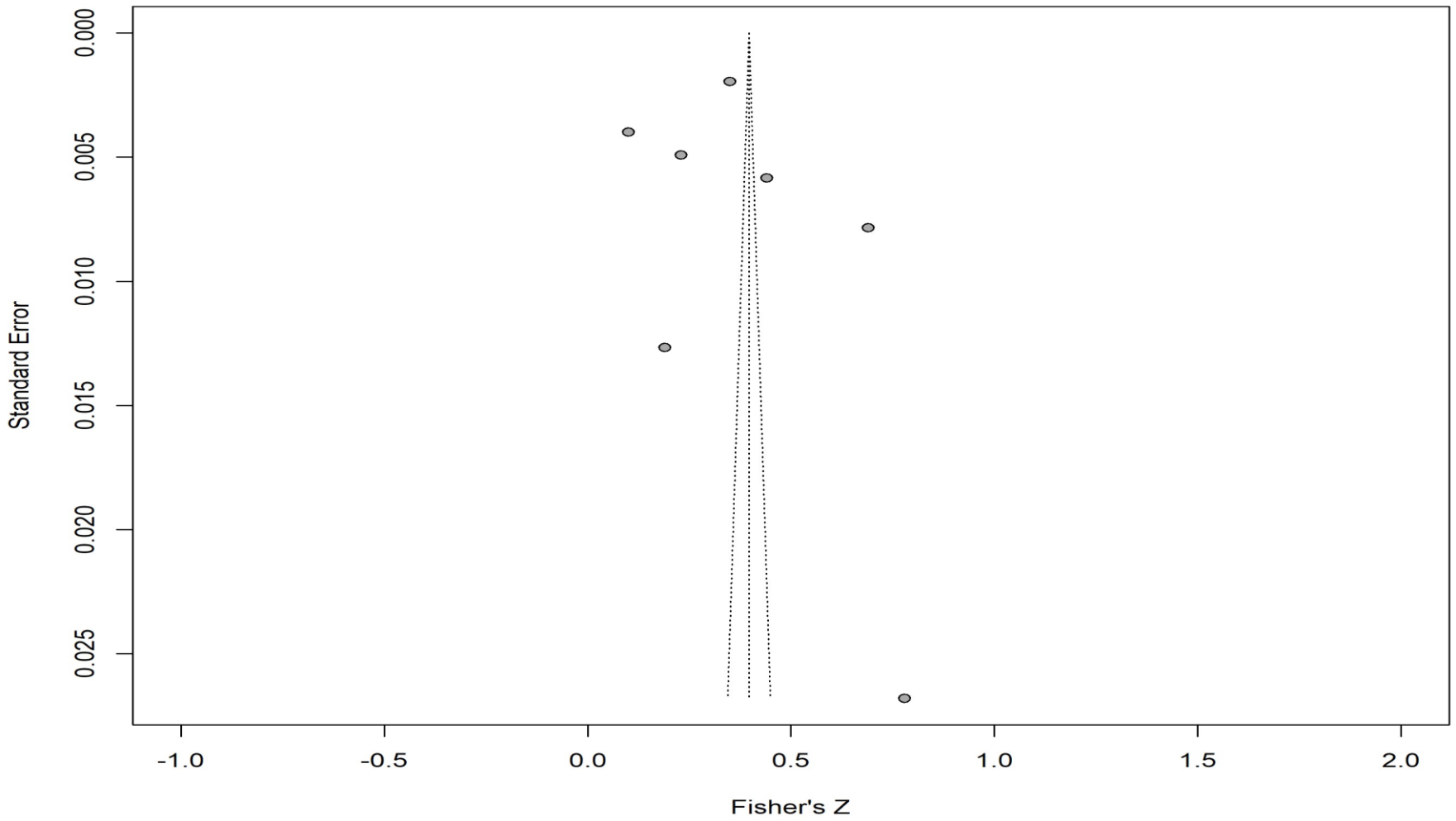


Figure 4.20. Funnel Plot of the DEQ Self-Criticism

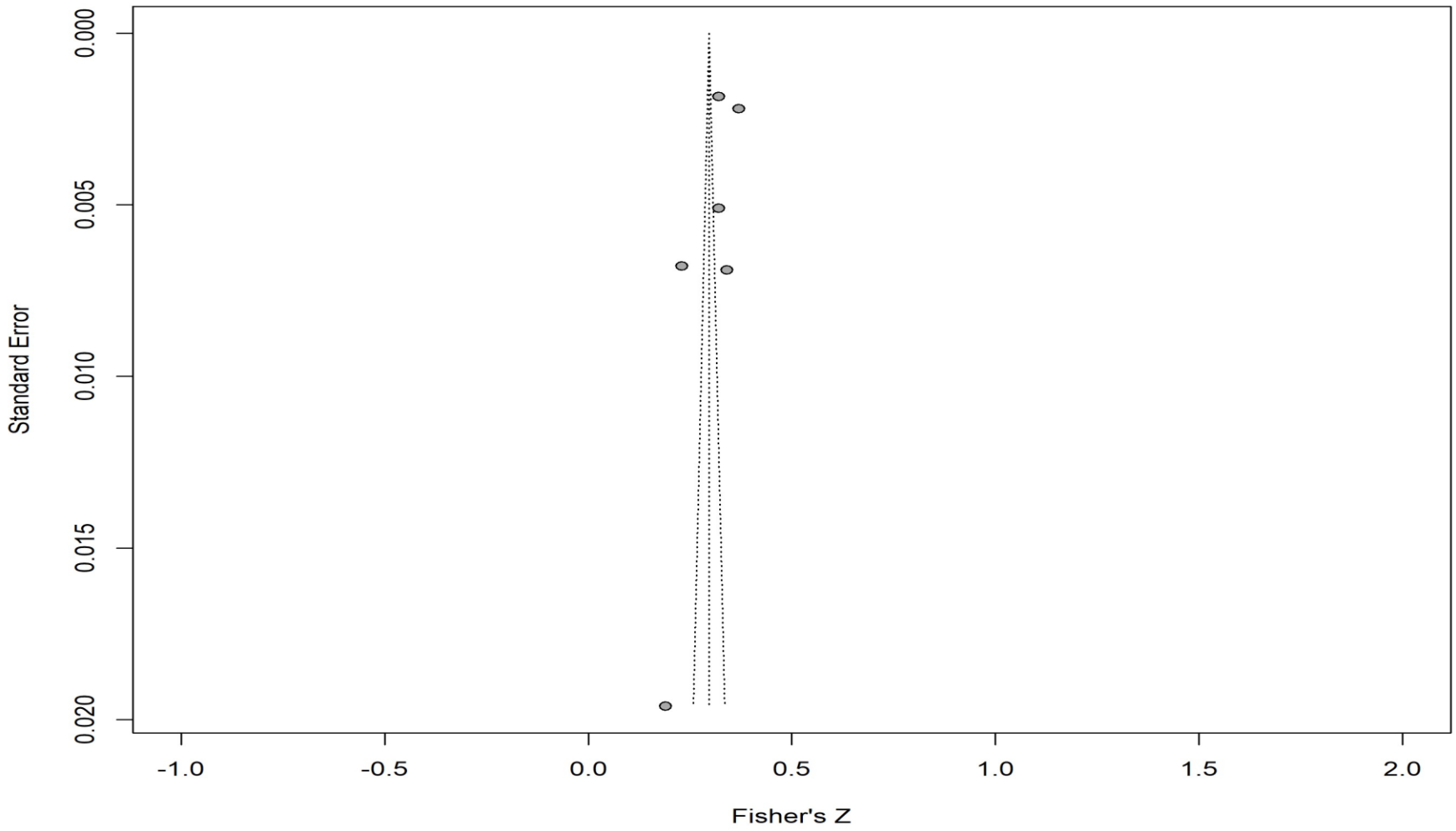


Figure 4.21. Funnel Plot of the DAS Self-Criticism

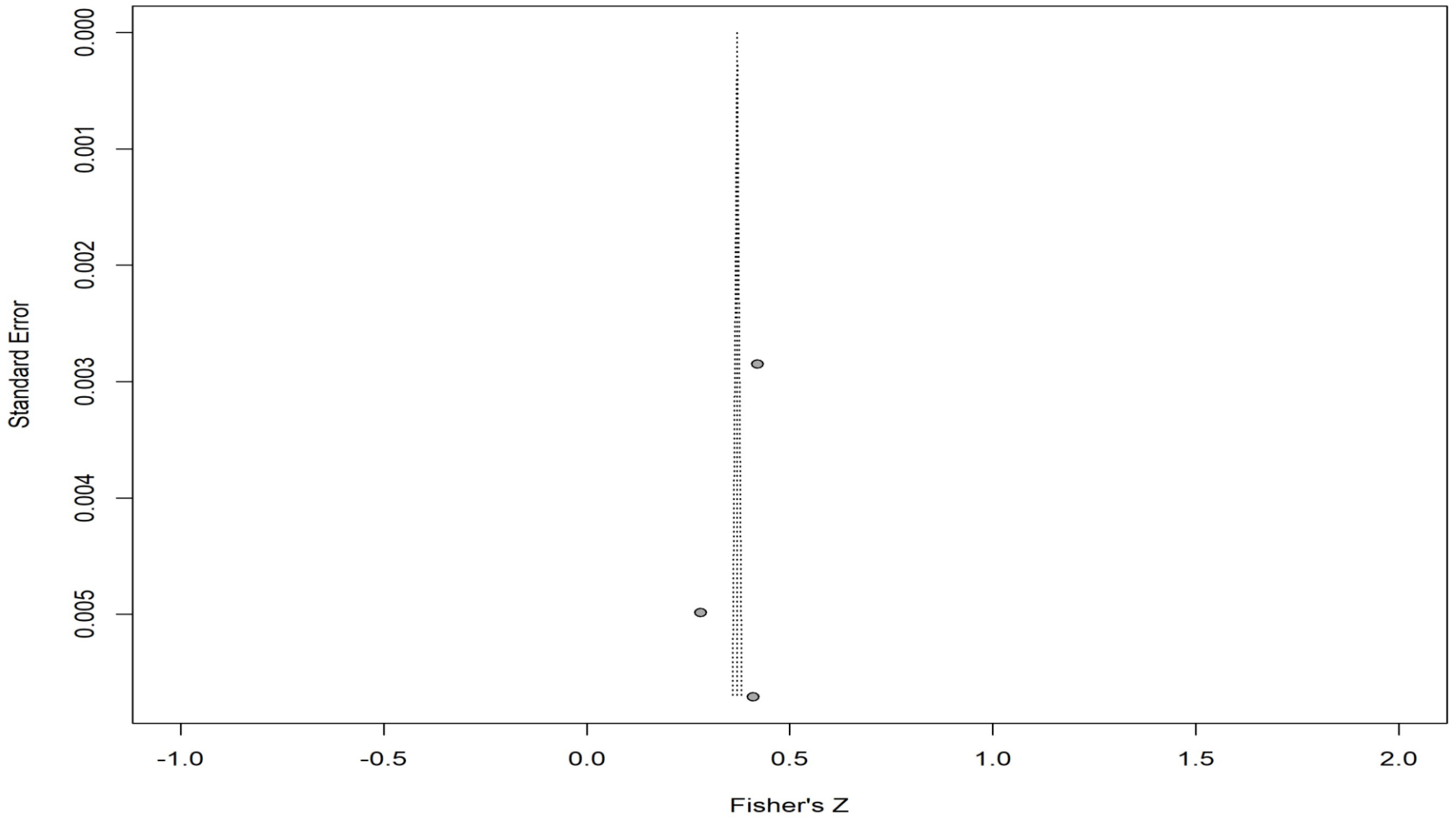


Figure 4.22. Funnel Plot of the LOSC Internalized Self-Criticism

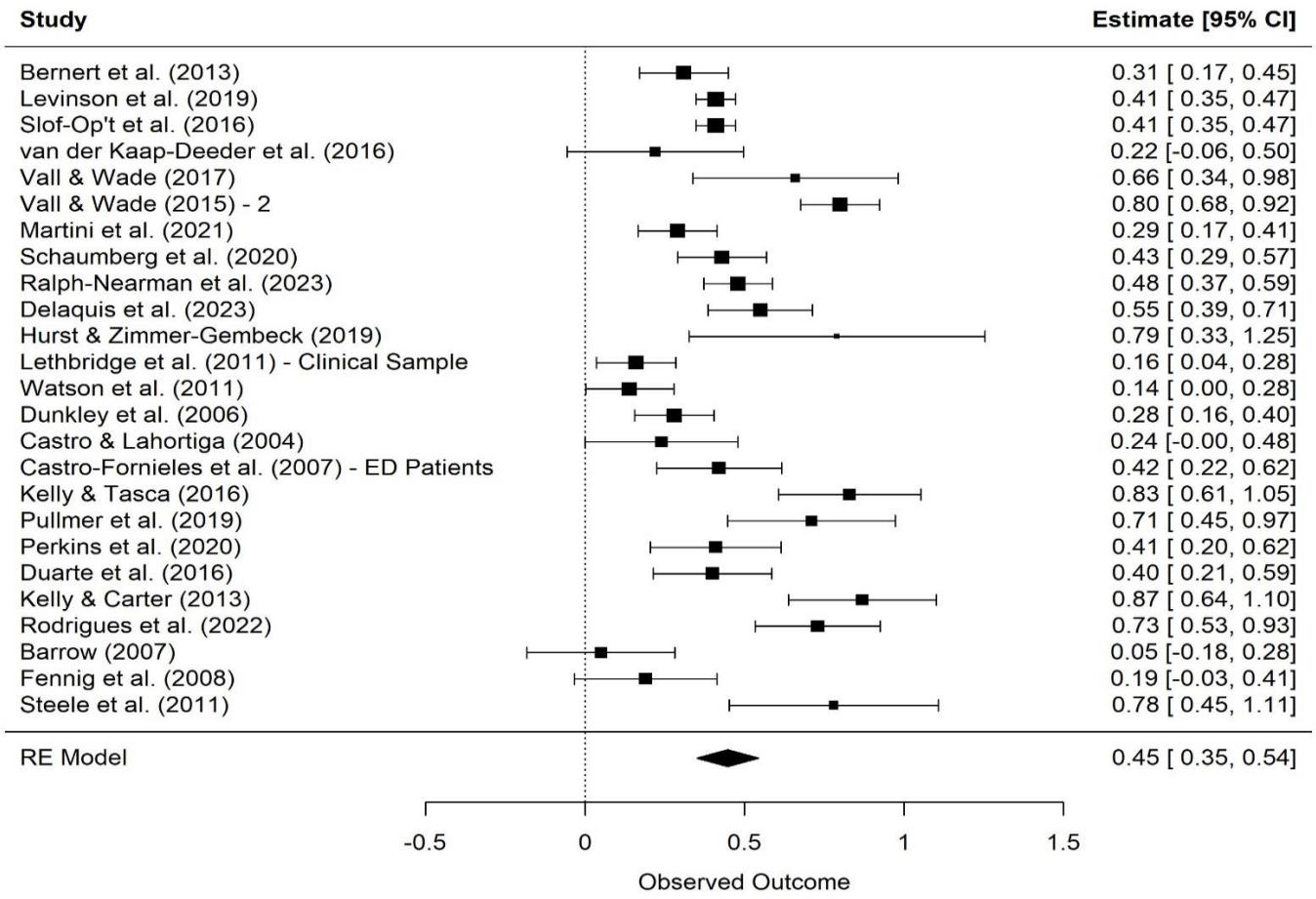


Figure 4.23. Forest Plot of the Clinical Sample Analyses for Self-Criticism

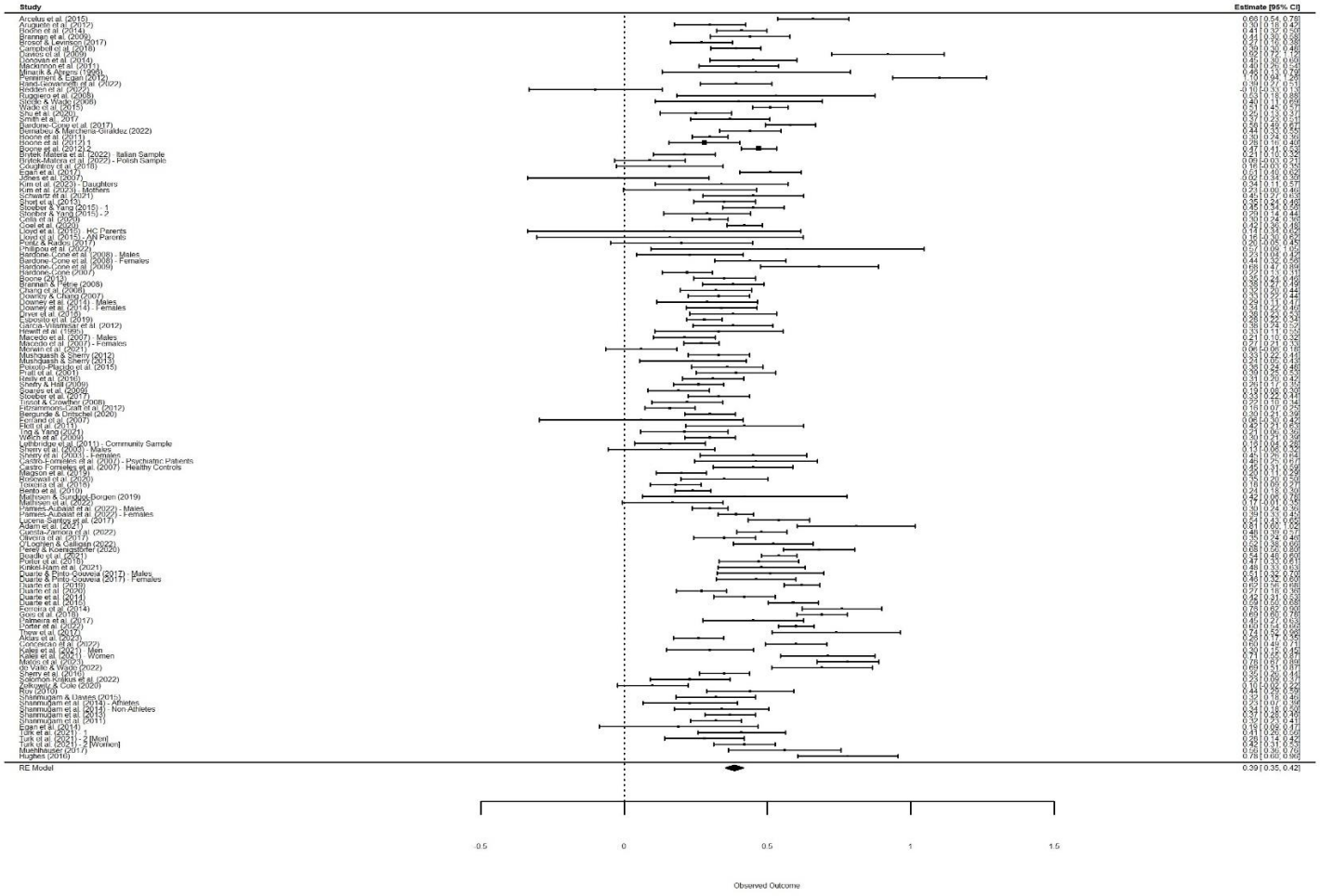


Figure 4.24. Forest Plot of the Non-Clinical Sample Analyses for Self-Criticism

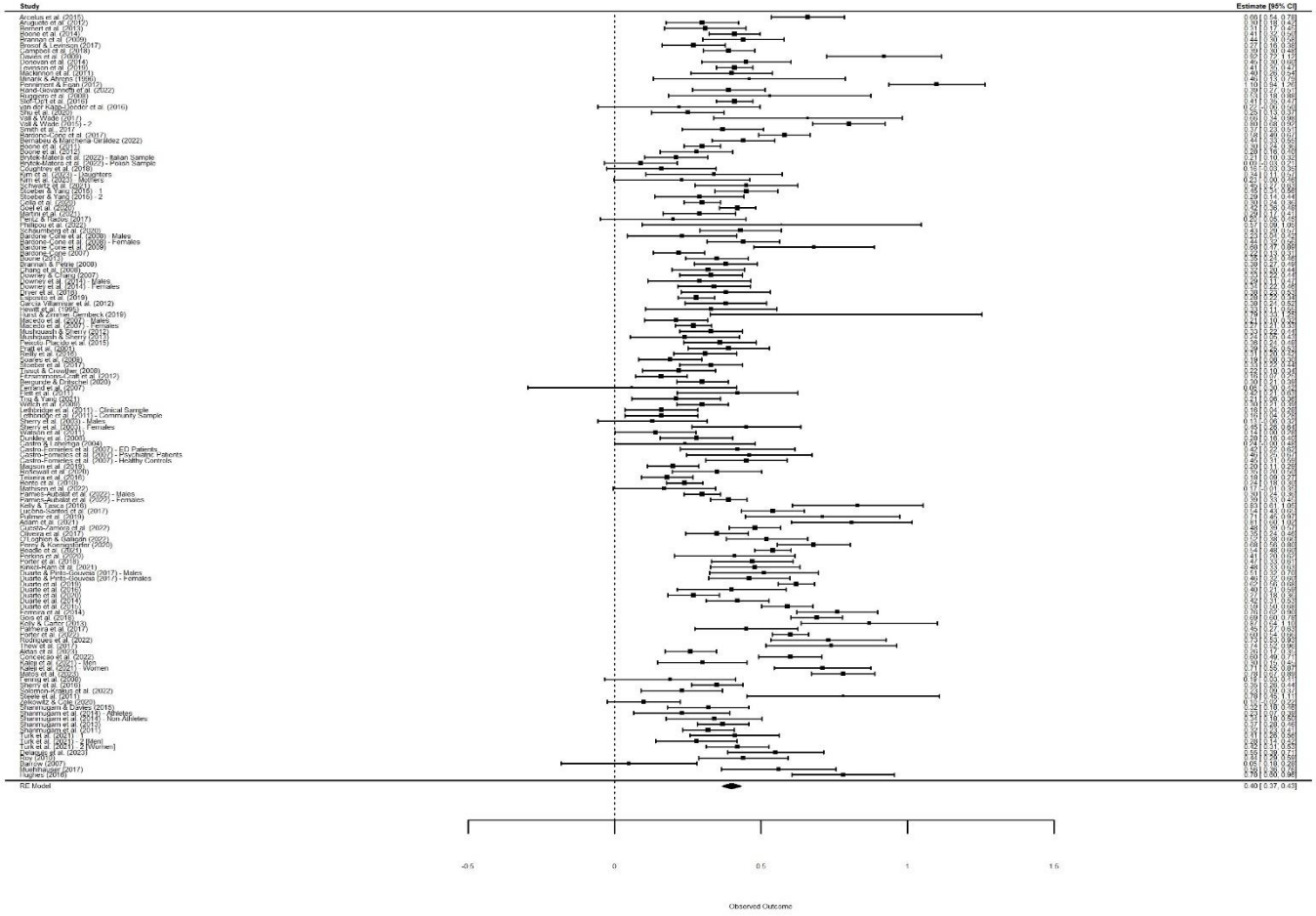


Figure 4.25. Forest Plot of the Cross-Sectional Sample Analyses for Self-Criticism

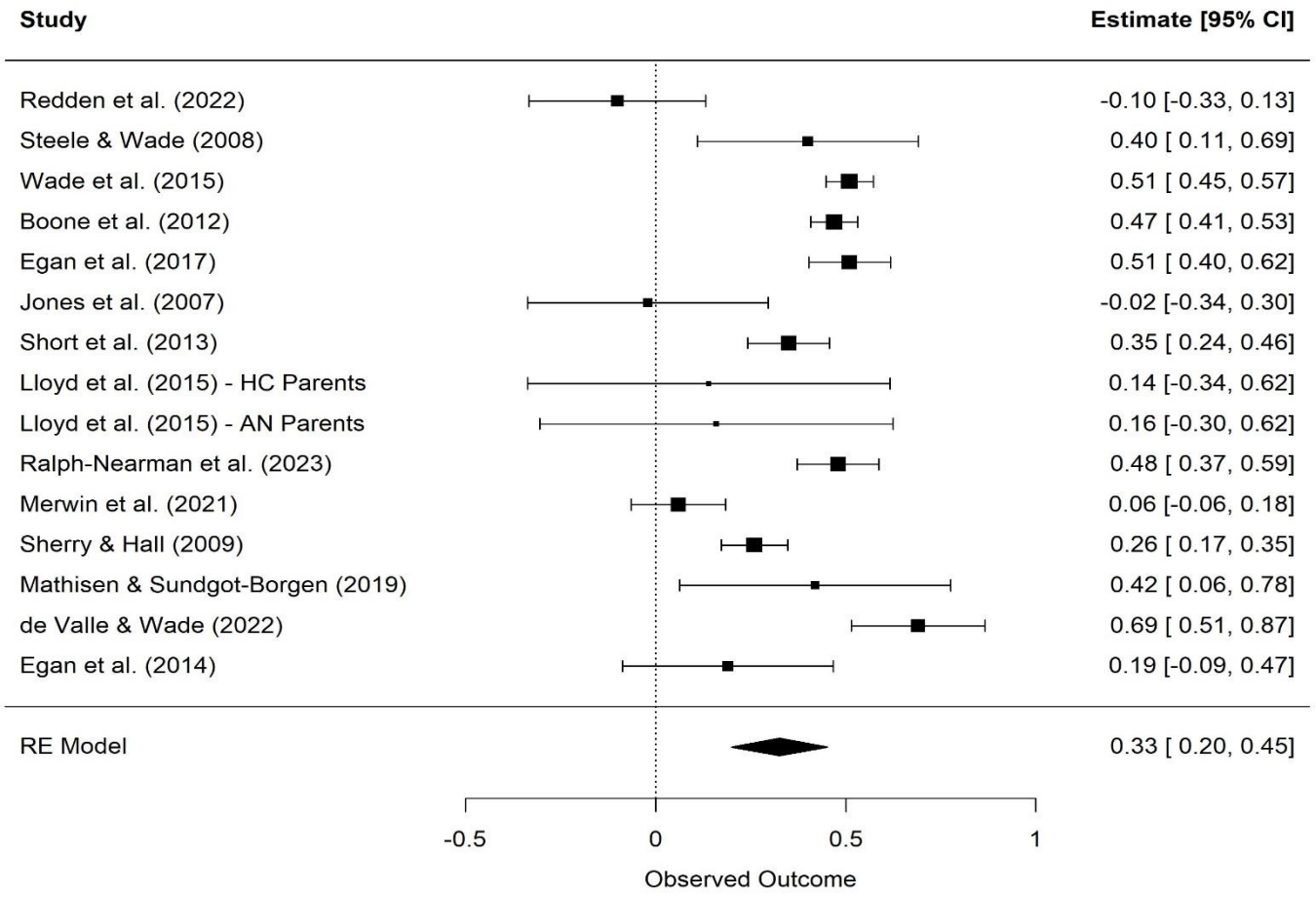


Figure 4.26. Forest Plot of the Experimental Sample Analyses for Self-Criticism

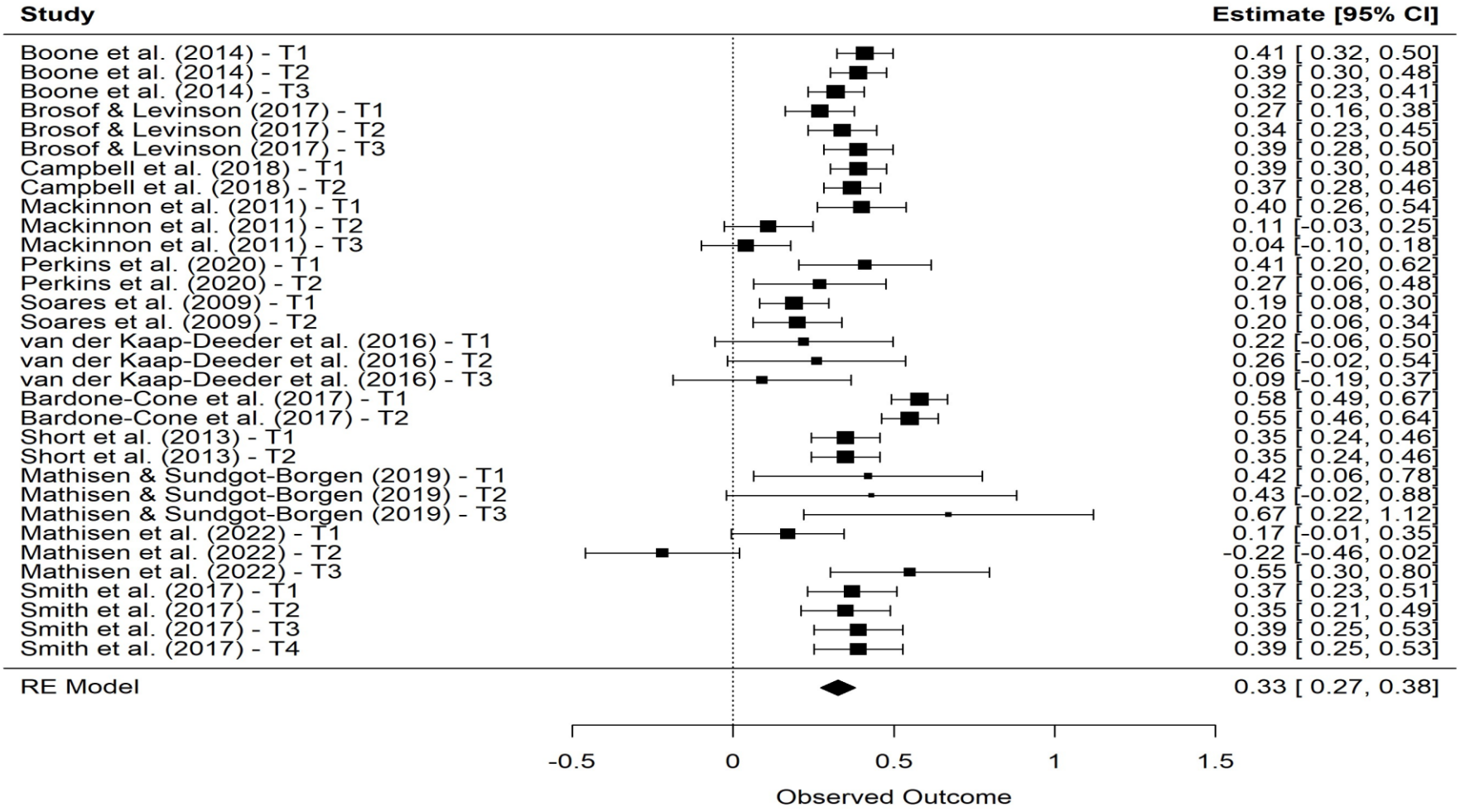


Figure 4.27. Forest Plot of the Longitudinal Studies

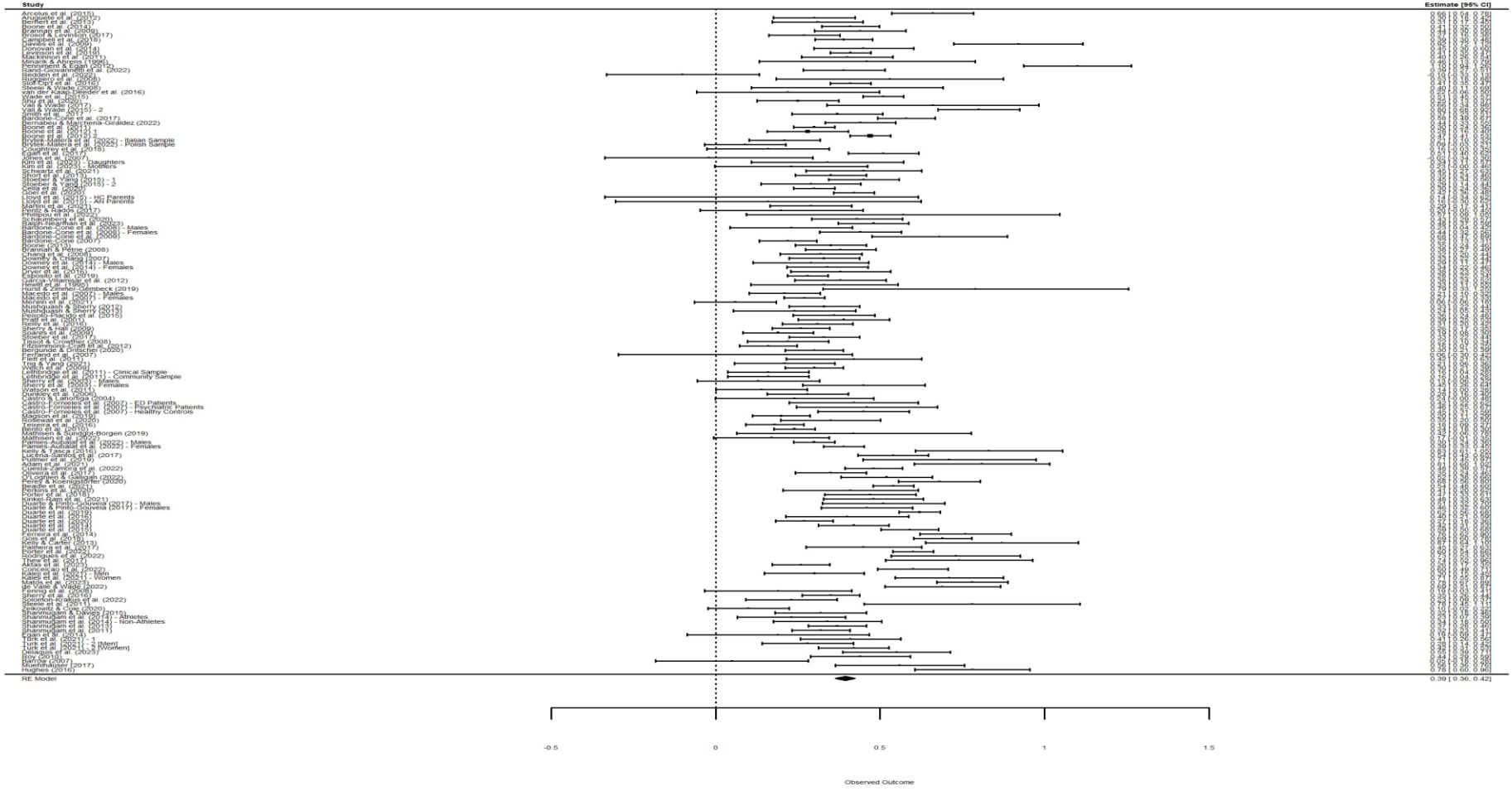


Figure 4.28. Forest Plot of the Combined Analysis for Self-Criticism

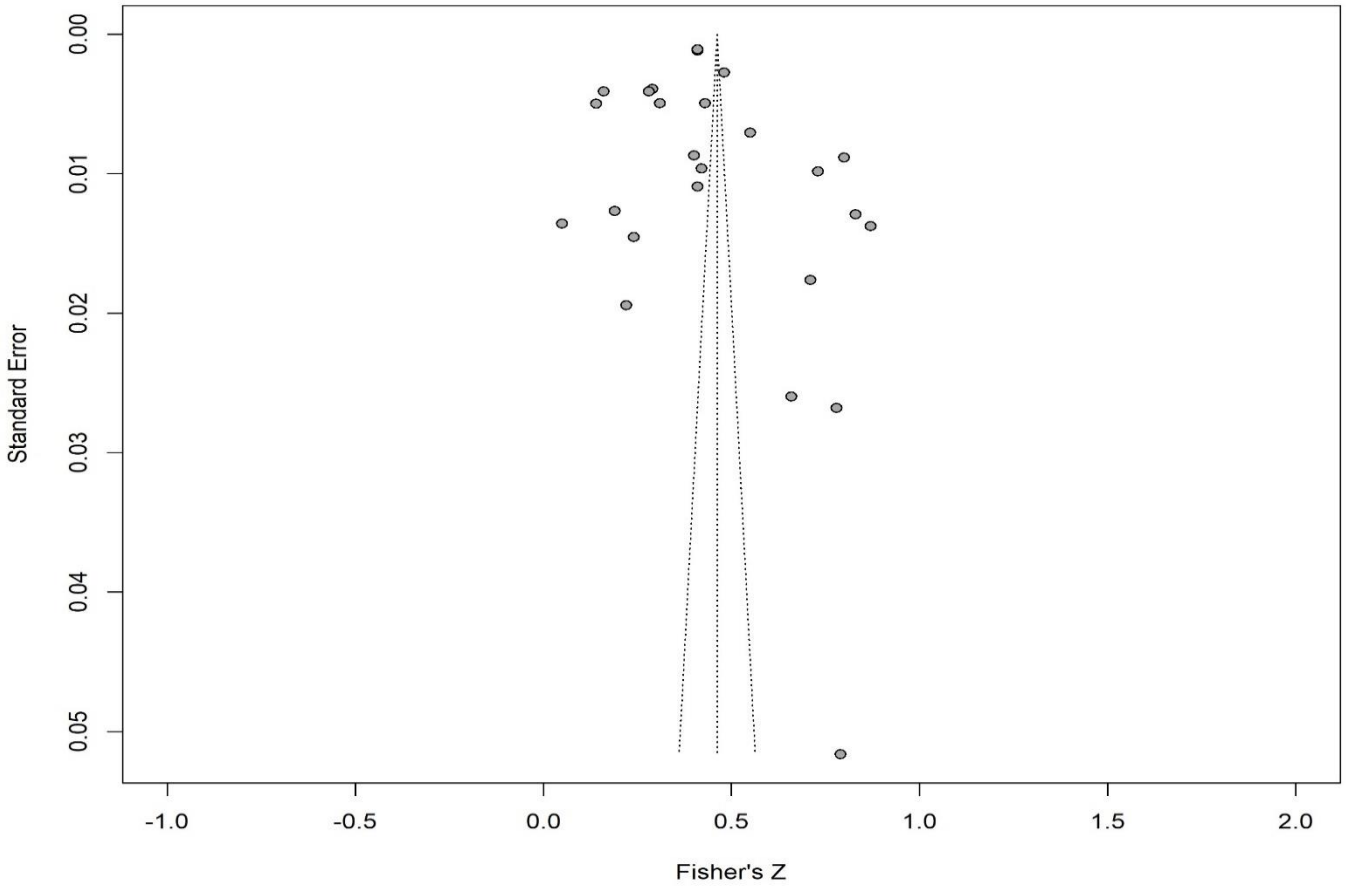


Figure 4.29. Funnel Plot of the Clinical Sample Analyses for Self-Criticism

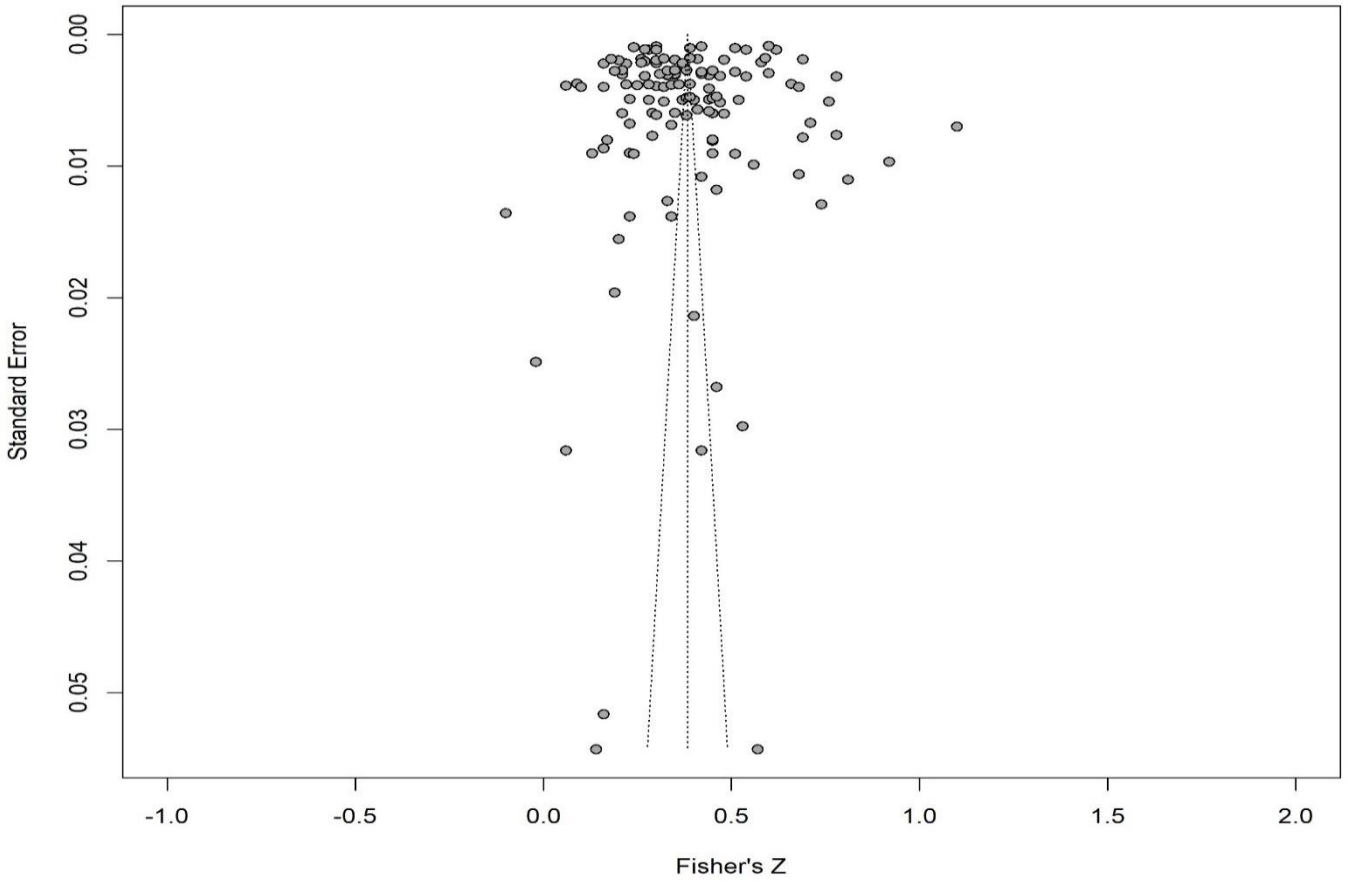


Figure 4.30. Funnel Plot of the Non-Clinical Sample Analyses for Self-Criticism

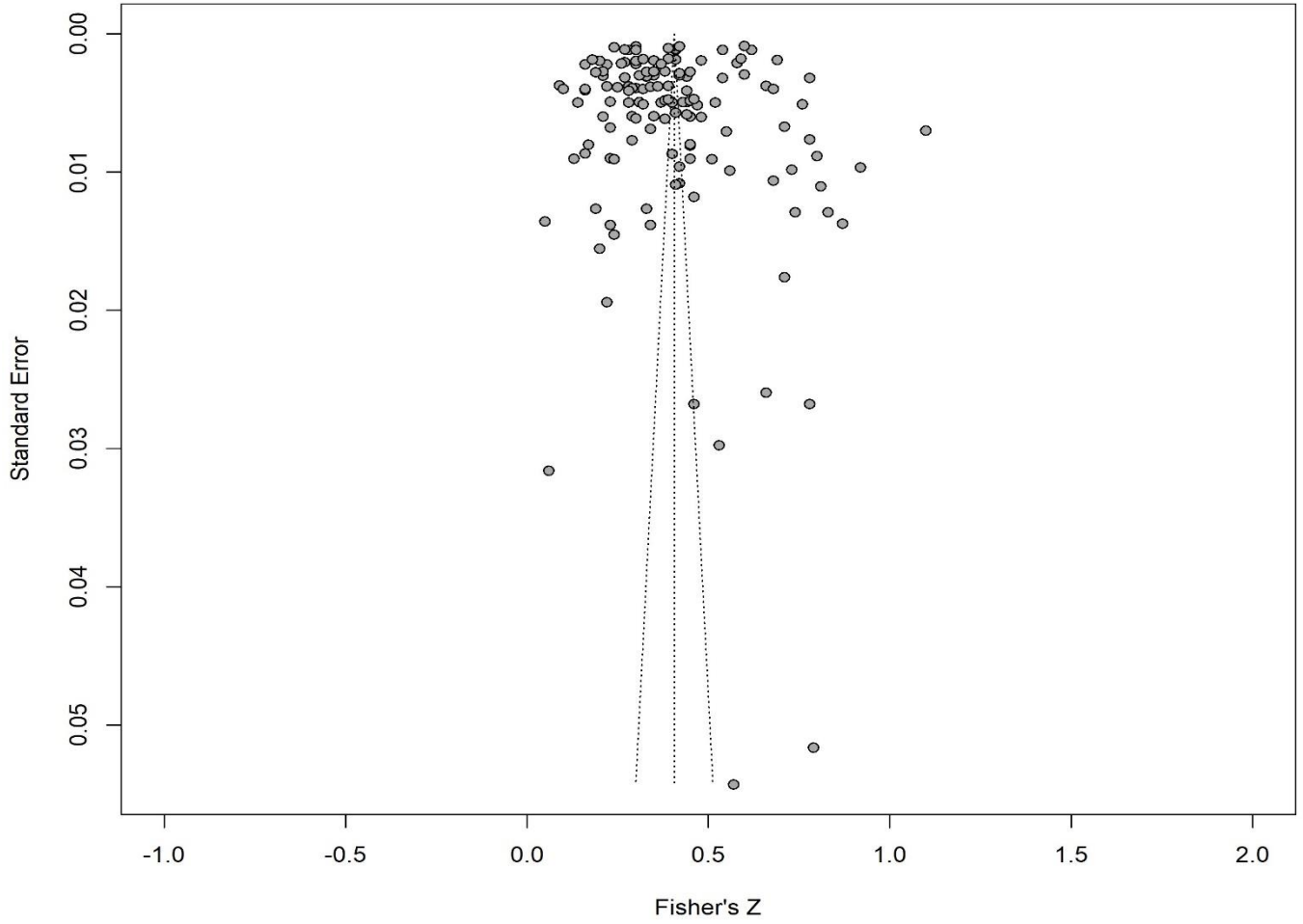


Figure 4.31. Funnel Plot of the Cross-Sectional Sample Analyses for Self-Criticism

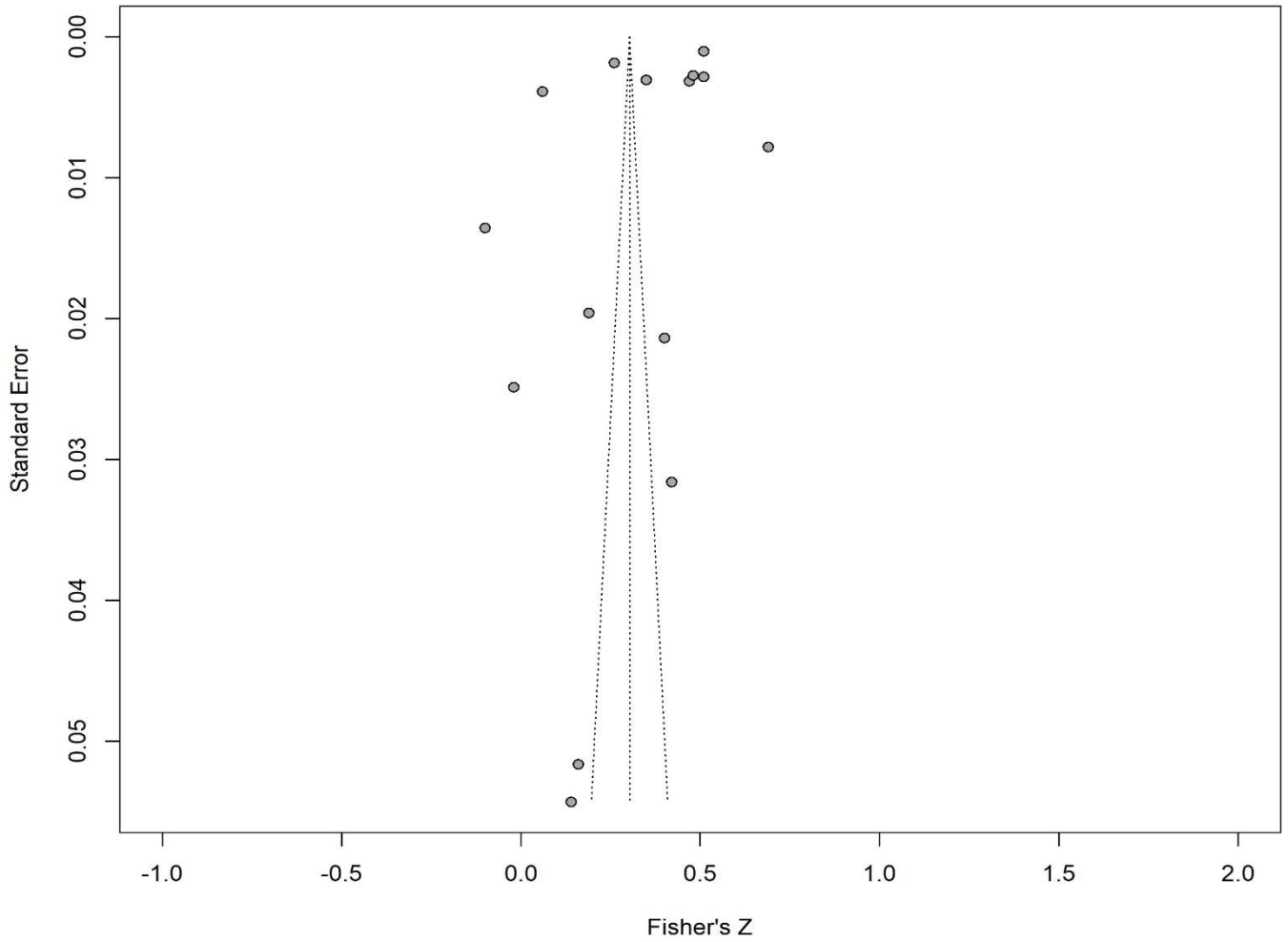


Figure 4.32. Funnel Plot of the Experimental Sample Analyses for Self-Criticism

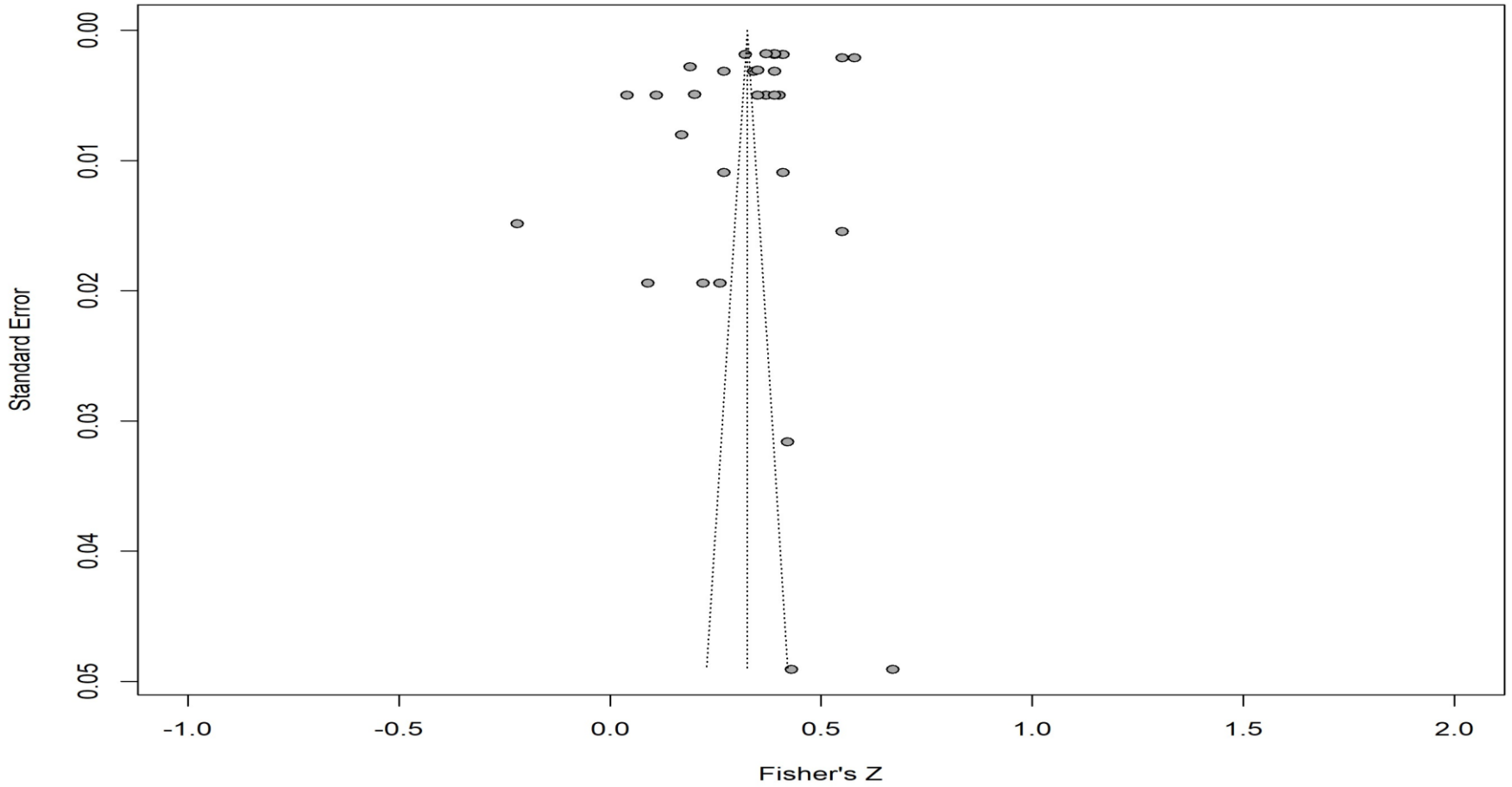


Figure 4.33. Funnel Plot of the Longitudinal Studies

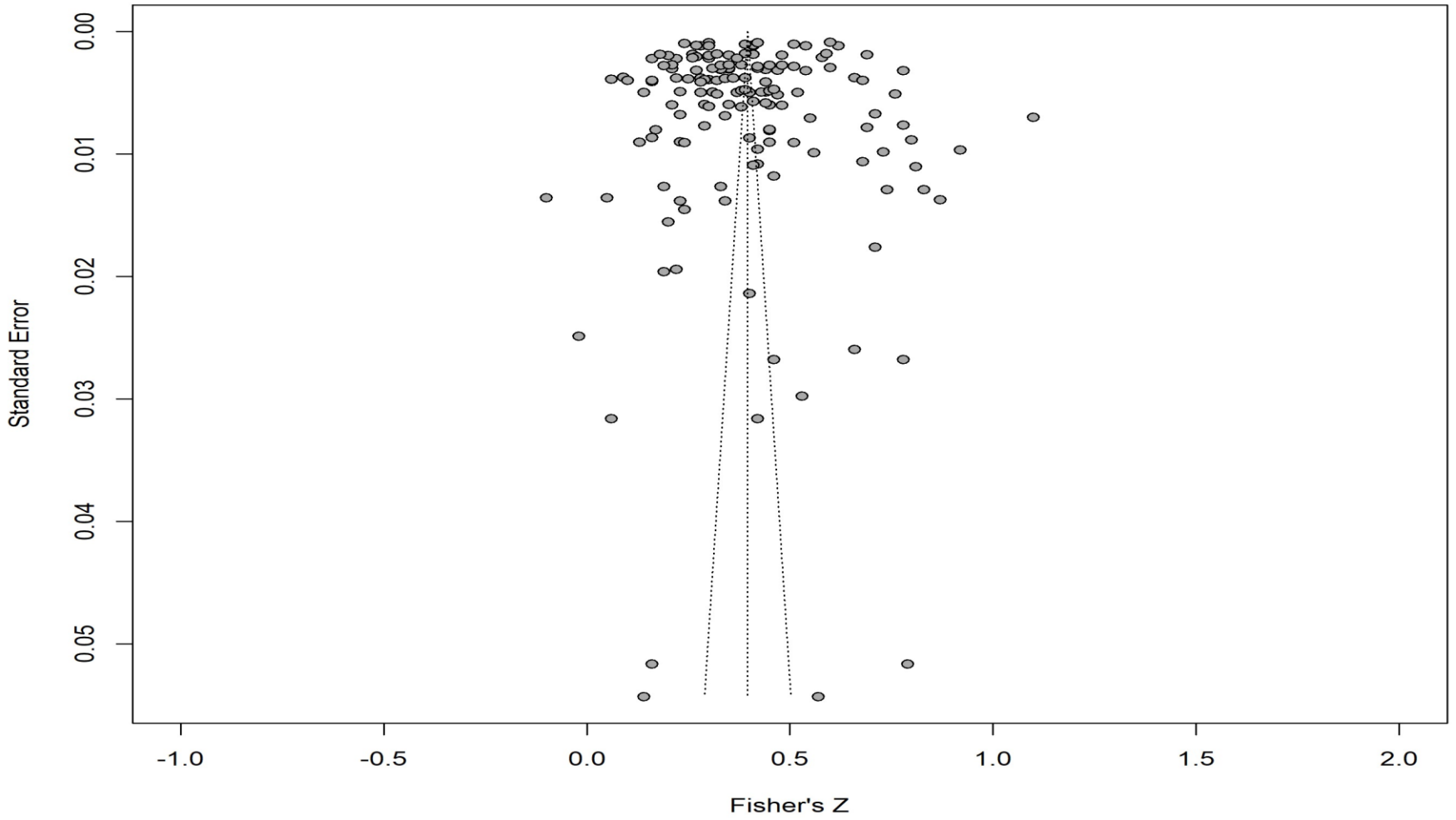


Figure 4.34. Funnel Plot of the Combined Analysis

Regarding the studies that included self-compassion measures, an analysis of the heterogeneity of the total weighted mean effects across the 18 studies indicated the probability of factors extraneous to sampling error were responsible for the observed variability across effect sizes ($Q(18) = 104.08$, $p < .001$), and I^2 statistic indicated a high degree of heterogeneity (82.70%). As such, additional analyses were used to explore the heterogeneity of the 2 subgroups pertaining to the various dimensions of self-compassion by calculating Q and I^2 for each category separately. Further analysis revealed the FSCRS subgroup ($I^2 = 89.00\%$) and the clinical sample ($I^2 = 86.60\%$) displayed greater heterogeneity than the combined analysis whilst the SCS subgroup displayed a decreased degree of heterogeneity ($I^2 = 76.90\%$). The 18 studies combined in a single analysis did not indicate publication bias ($ERI = -0.18$, $p = 0.859$). Similarly, when each subgroup was analyzed, Egger's regression did not indicate publication bias (see **Figures 4.35 to 4.44** for the Forest Plots and Funnel Plots of each of the self-compassion subgroup analyses). Together, these findings highlight that greater self-criticism and self-critical perfectionism were linked with greater DE, whilst greater self-compassion was linked with reduced self-criticism and DE.

Publication Bias

To assess publication bias, a *p* value of <. 05 was used as the metric, as it indicates a significant relationship between the effect size and precision. Additionally, the 95% confidence interval of Egger's regression coefficient was indicative of publication bias if it was not greater than zero (Laird et al., 2017). The 135 studies were initially combined in a single analysis, which did not indicate publication bias ($ERI = -0.32$, $p = 0.749$). Similarly, when each subgroup was analyzed, Egger's regression did not indicate publication bias (see Table 4.5 and Table 4.6 for ERI values across all categories).

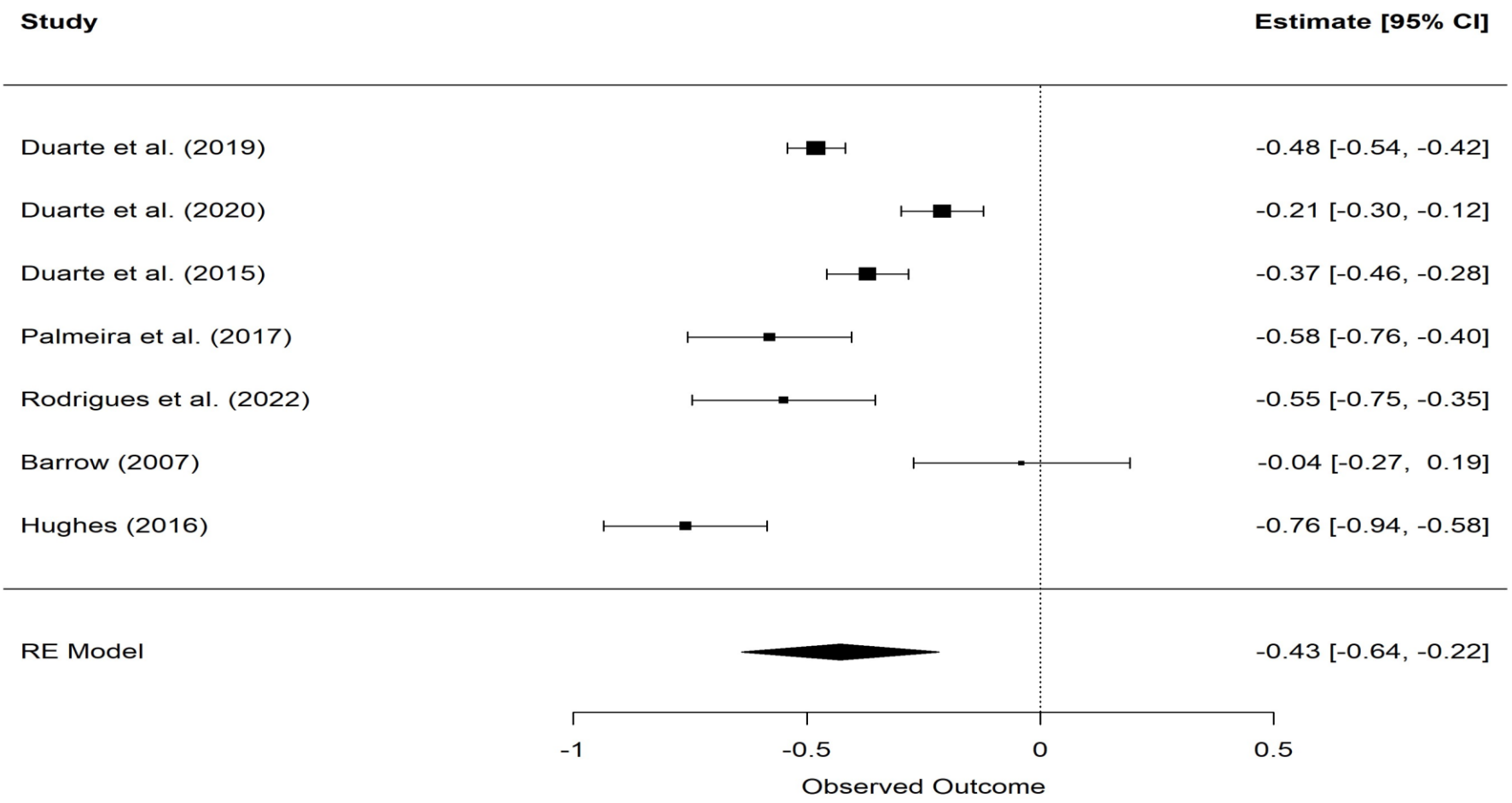


Figure 4.35. Forest Plot of the Reassuring-Self of the FSCRS

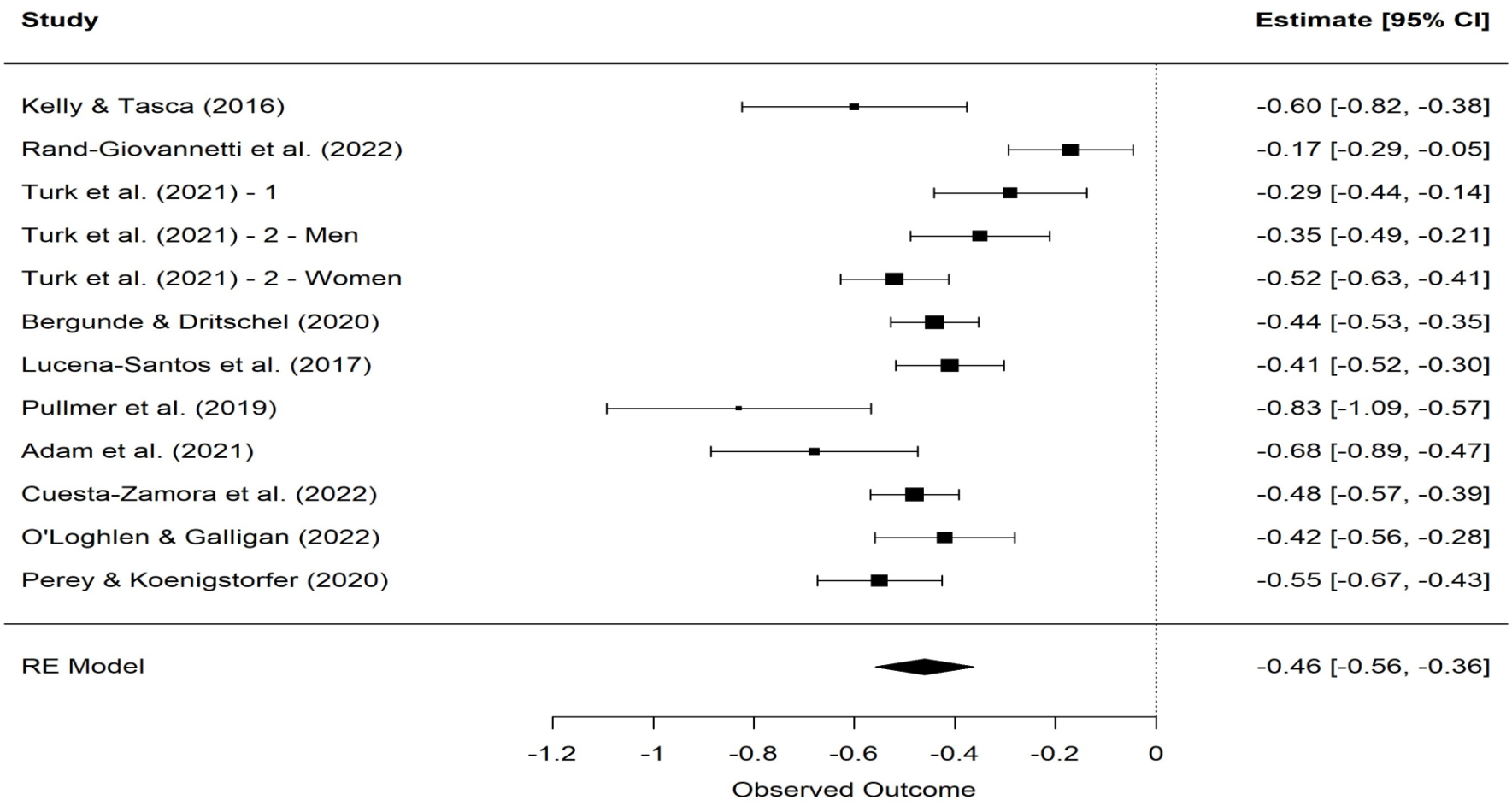


Figure 4.36. Forest Plot of the Self-Compassionate Subscales of the SCS

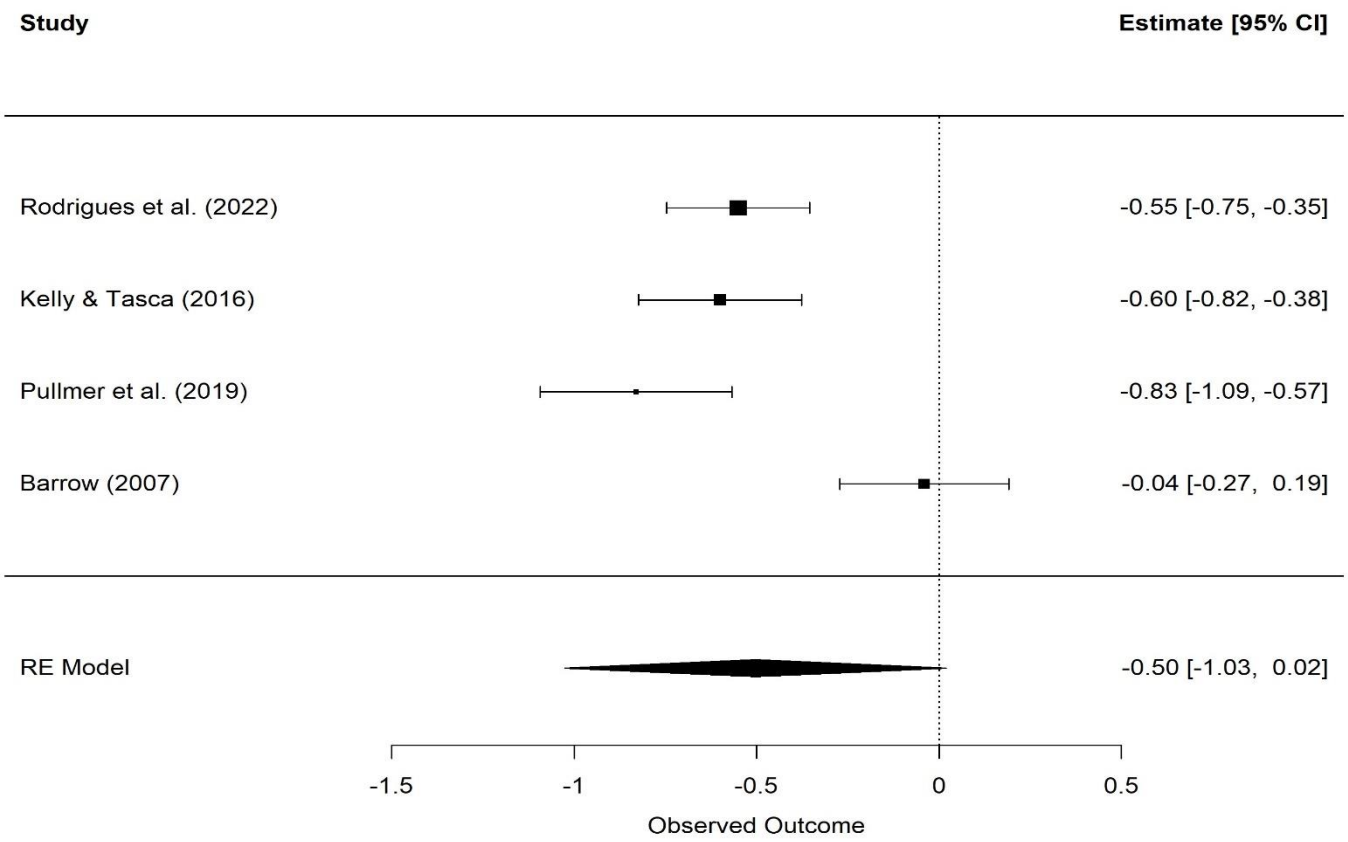


Figure 4.37. Forest Plot of the Clinical Sample Analyses for Self-Compassion

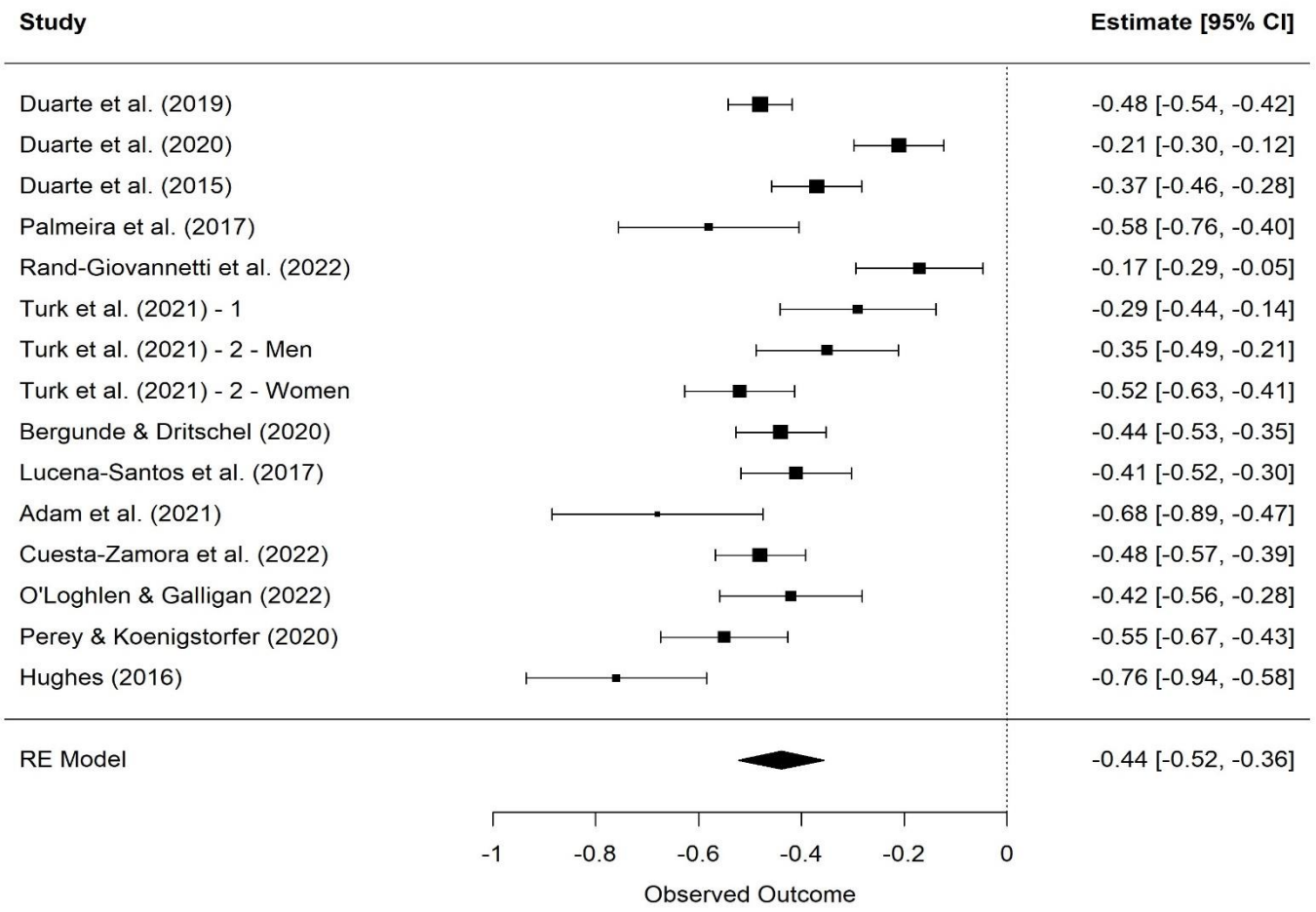


Figure 4.38. Forest Plot of the Non-Clinical Sample Analyses for Self-Compassion

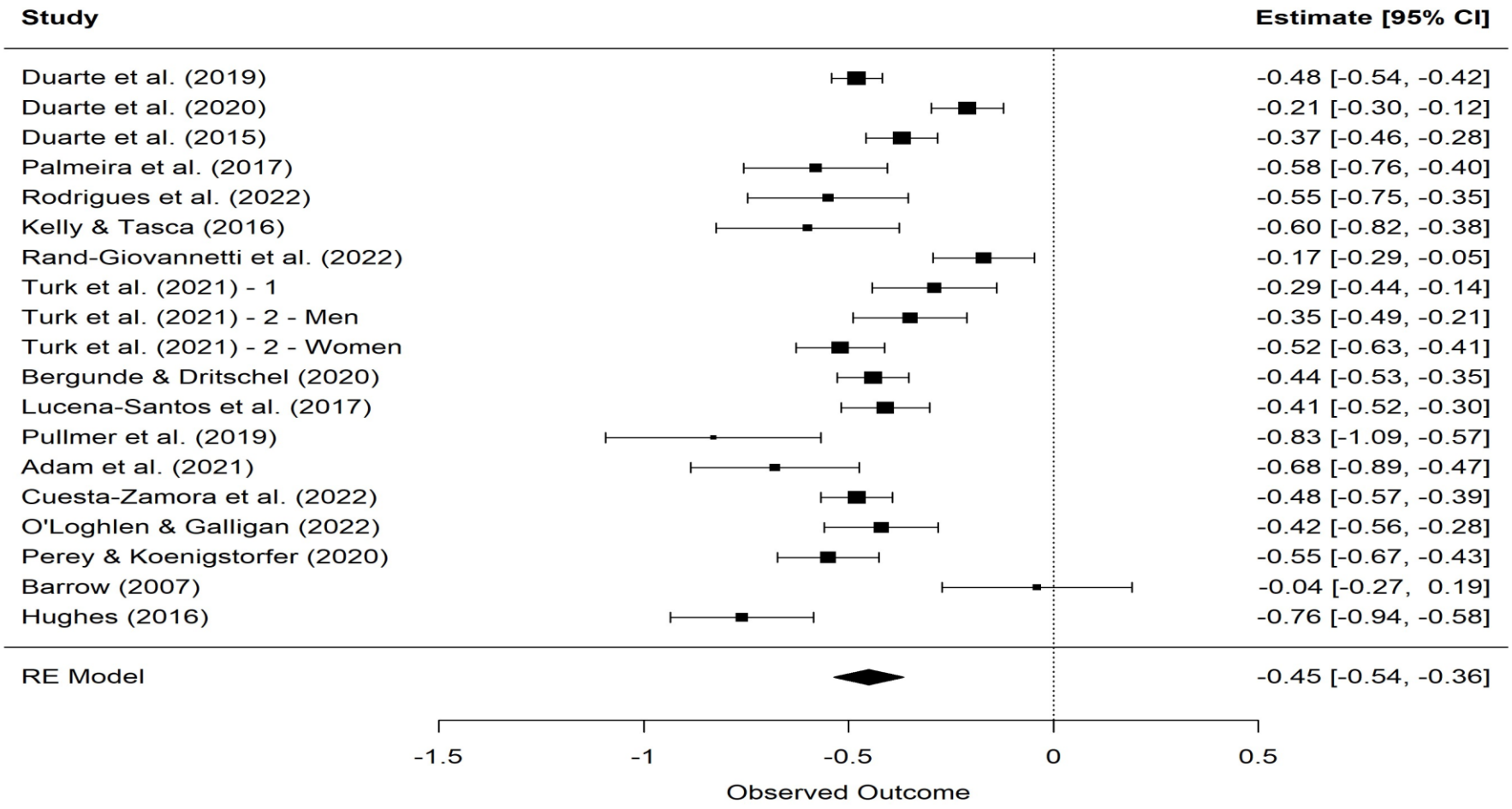


Figure 4.39. Forest Plot of the Combined Analysis for Self-Compassion

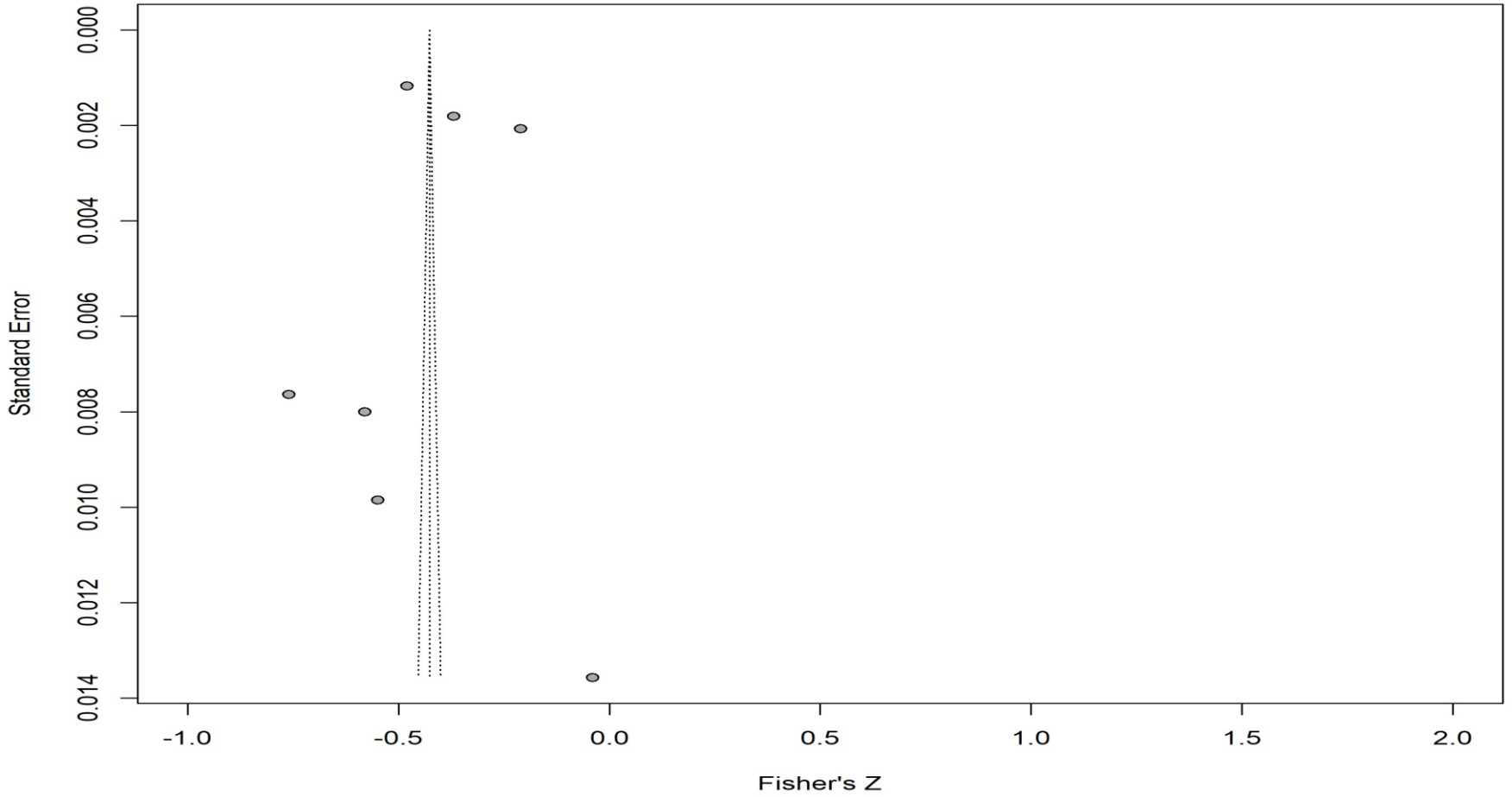


Figure 4.40. Funnel Plot of the Reassuring-Self of the FSCRS

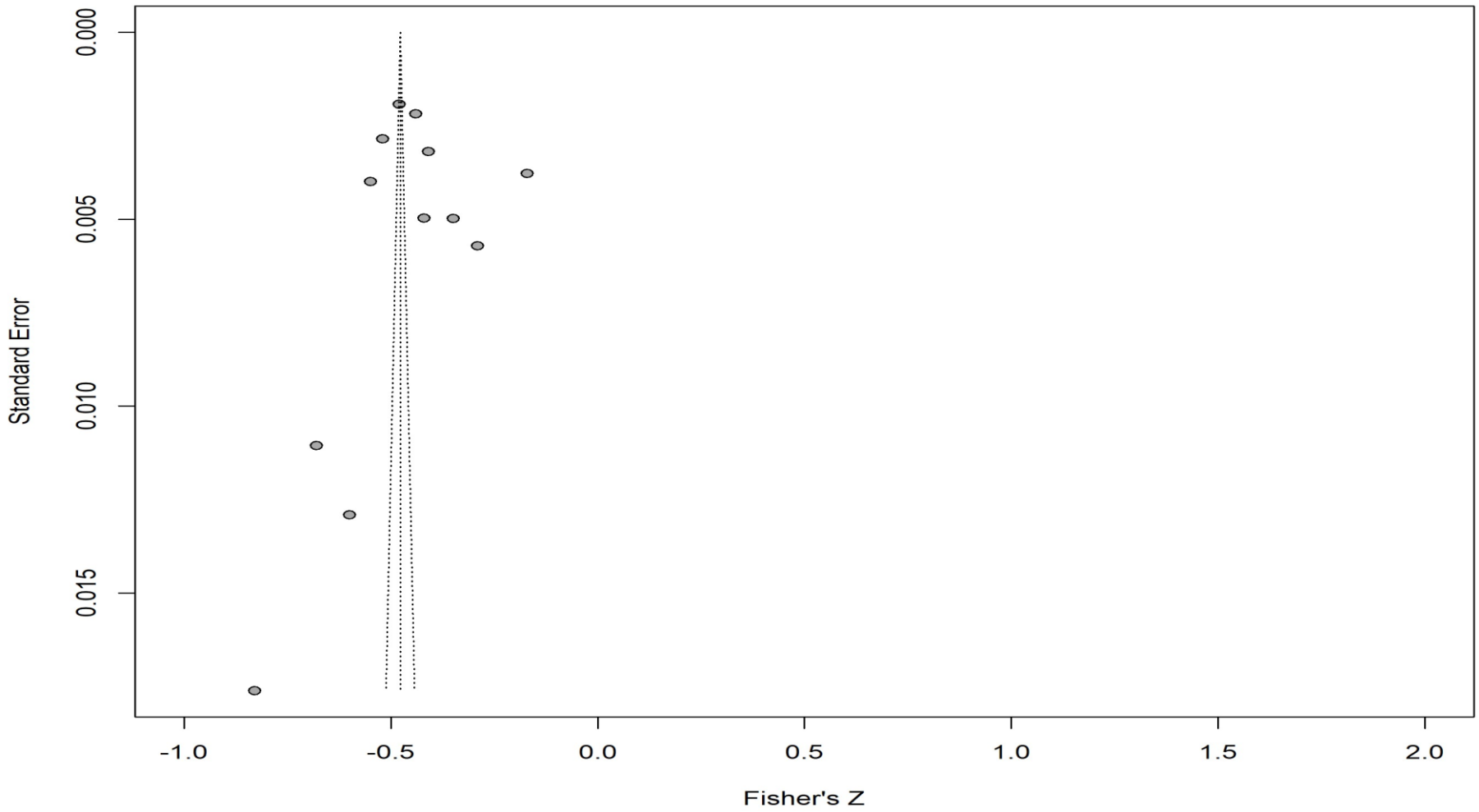


Figure 4.41. Funnel Plot of the Self-Compassionate Subscales of the SCS

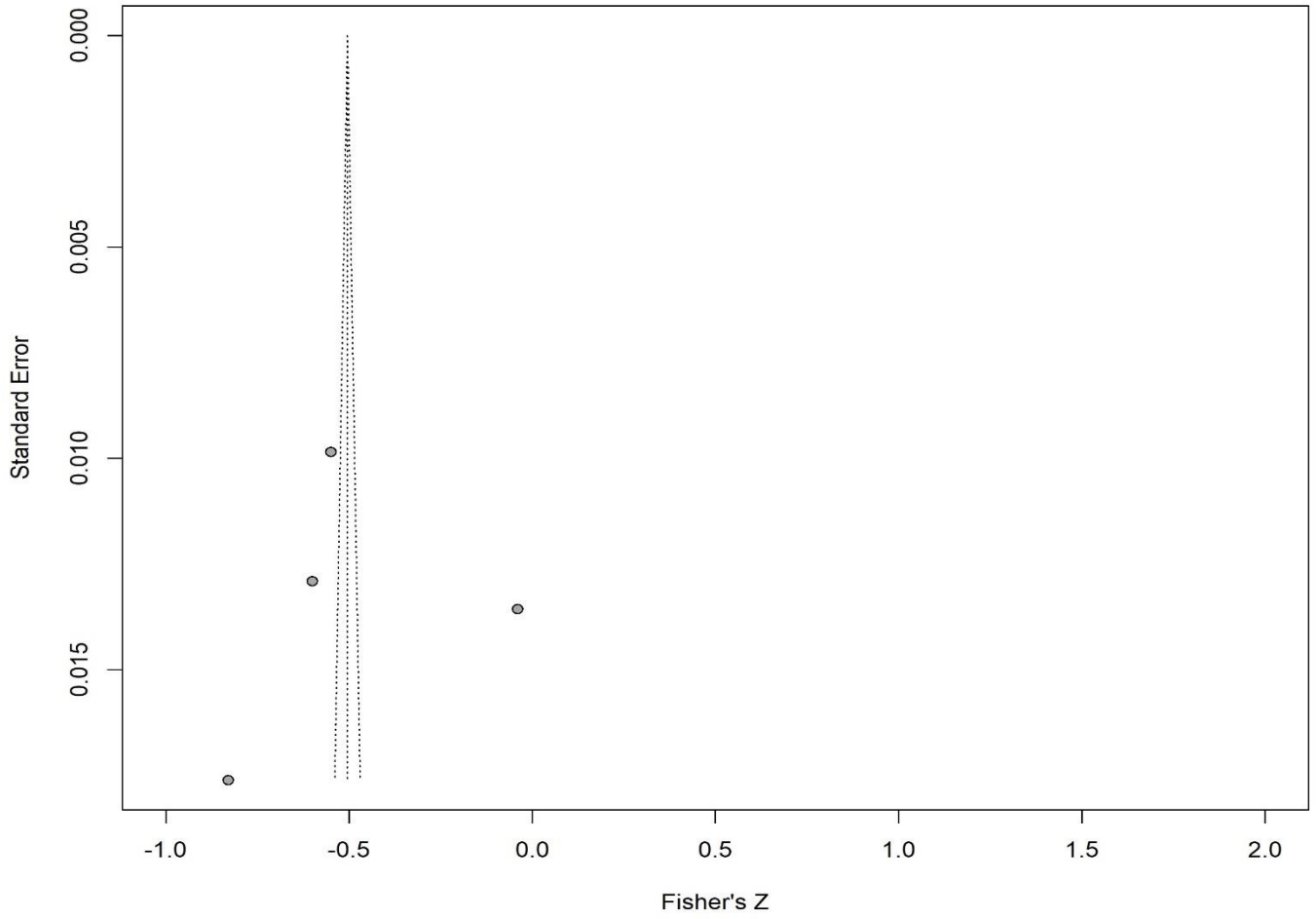


Figure 4.42. Funnel Plot of the Clinical Sample Analyses for Self-Compassion

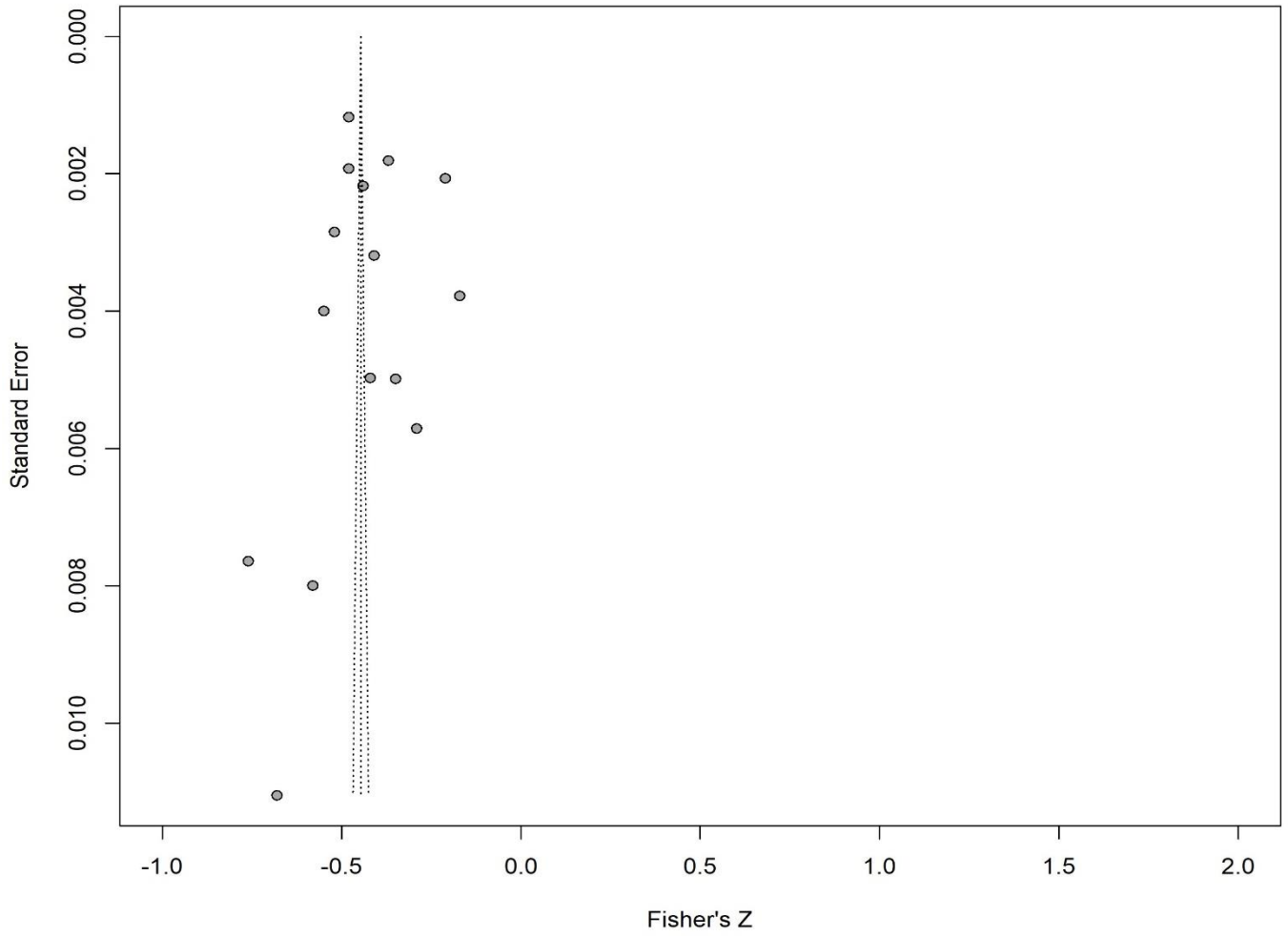


Figure 4.43. Funnel Plot of the Non-Clinical Sample Analyses for Self-Compassion

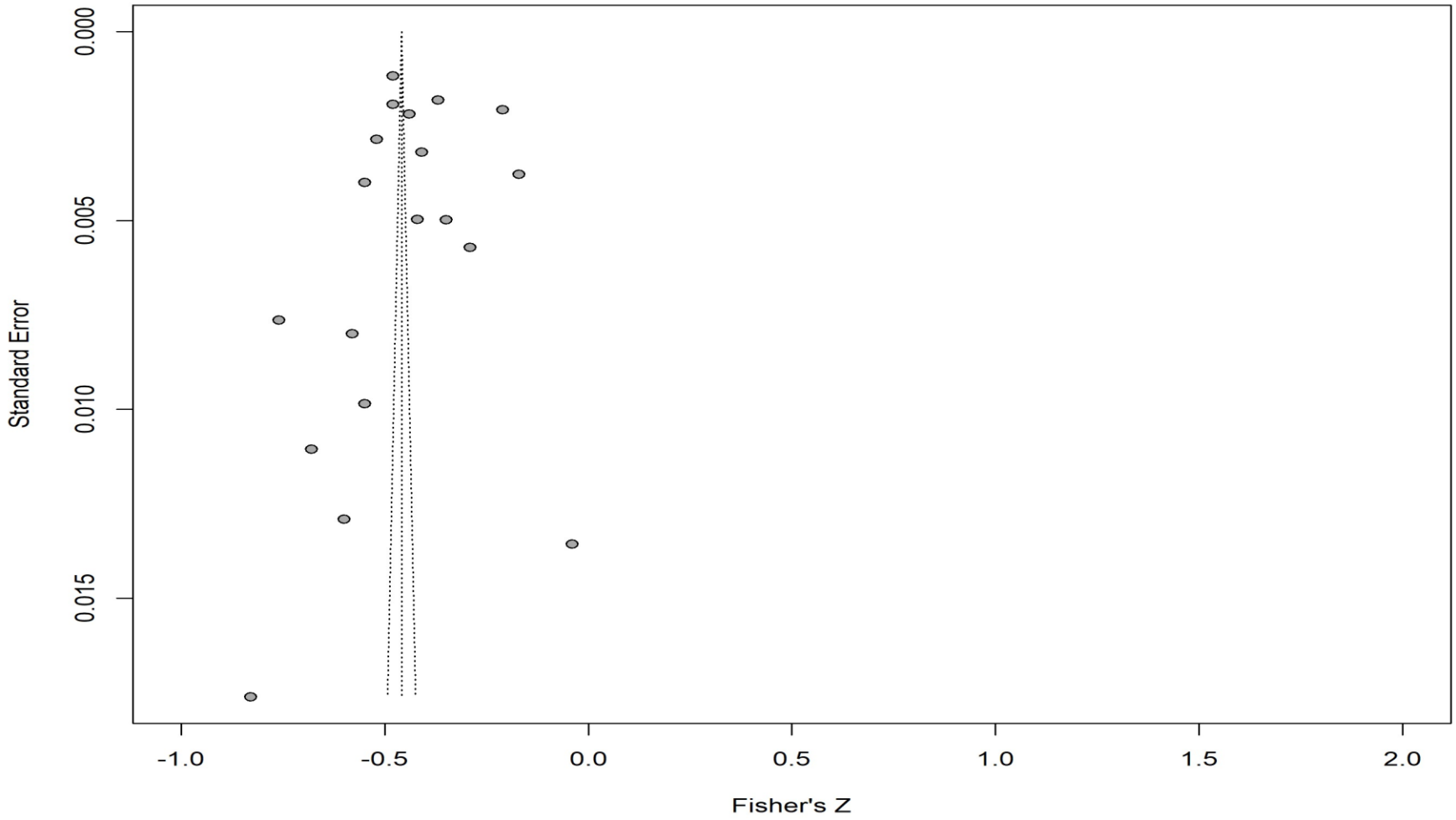


Figure 4.44. Funnel Plot of the Combined Analysis for Self-Compassion

Discussion

In addressing our first aim, our meta-analysis showed that self-criticism had a significant positive relationship with DE, supporting previous findings indicating that greater self-criticism is associated with greater DE (Kelly & Tasca, 2016; Stice et al., 2011). Our study also explored the longitudinal impact between self-criticism and DE which identified a medium positive relationship between the constructs. Our second aim examined the associations of self-compassion, self-criticism, and DE, with preliminary evidence suggesting that a self-compassionate and self-reassuring stance can helpfully attenuate the relationship between self-criticism and DE.

Given the harmful effects of self-criticism on psychological well-being (Shahar et al., 2014) and different facets of DE (Zelkowitz & Cole, 2020), the present study's results are not surprising. People with ED have previously reported greater levels of self-criticism compared to healthy controls (Noordenbos, 2013), observed across multiple ED diagnoses (van der Kaap-Deeder et al., 2016). Self-critical perfectionism was also positively associated with DE, consistent with research that self-critical perfectionism is linked with symptoms including binge eating, dieting and body dissatisfaction (Egan et al., 2011; van der Kaap-Deeder et al., 2016). However, moderation analyses indicated that self-criticism predicted greater DE compared to self-critical perfectionism. Whilst perfectionism acts as a risk factor for DE (e.g., Egan et al., 2011), literature has indicated that the tendency to self-criticize is more pathogenic than having high standards of oneself, with self-criticism linked with greater ED psychopathology when controlling for various forms of perfectionism (Steele et al., 2011). Hence, self-criticism might be a more pertinent contributor to the maintenance of DE compared to perfectionism.

Our findings further contribute to research on how self-compassion, self-criticism and DE relate to each other, suggesting that lower levels of self-compassion are linked with greater levels of self-criticism and DE. Self-compassion has previously been shown to help promote reduced maladaptive body image eating-related behaviours, more intuitive eating, reduced body image

concerns, less eating-related guilt (Wasylkiw et al., 2012), as well as reduced drive for thinness in both clinical and non-clinical groups (Ferreira et al., 2013).

Our findings should be interpreted in the context of several limitations. First, to capture as many studies as possible to get a robust representation of the link between self-criticism, self-compassion and DE, most studies included in this meta-analysis were cross-sectional. This limits the causal conclusions that can be derived concerning the relationship between these constructs, as there would be characteristics that vary between the different intervention groups. Hence, more randomised controlled trials (RCTs) that could examine brief interventions that dismantle the relative impacts of treating self-criticism versus self-compassion versus targeting both are required, as well as more longitudinal studies that can test modelled interactions between the variables and if shorter follow-up lengths during treatment aid in enhancing and maintaining the impact of interventions.

Second, the high levels of heterogeneity observed within all analyses may suggest the need for subgroup analyses (Cuijpers et al., 2021). However, with an average benchmark of ten studies required for subgroup analyses (Dalton & Dalton, 2008), two out of ten of the subgroup analysis categories (i.e., dimensions of self-criticism) included nine studies, and only three out of ten of our subgroup analysis categories (i.e., dimensions of self-criticism) included more than ten studies. Furthermore, 44 studies were unable to be included due to non-response from their authors, and our findings should be interpreted with caution considering this missing data. Third, most of the studies in the meta-analysis did not include the socioeconomic status of the participants, and more than half of the studies included omitted reporting the race or ethnicity of the sample. Where it was included, most participants were white females, which limits the generalisation of results. Whilst the prevalence of ED is high in this sample (Galmiche et al., 2019), further research may aim to examine the impact of self-criticism on self-compassion and ED with other populations.

Finally, there were a variety of measures examining DE included in the analyses, all of which vary in how widely they are used within the literature and how many studies have examined

the factor structure, reliability, and validity of the measures. Including measures such as the Eating Disorder Inventory (EDI) that comprise subscales measuring perfectionism (Garner et al., 1983) could also account for higher correlations due to its ability to measure both EDs and self-critical perfectionism. Whilst the EDE-Q (Fairburn & Beglin, 2008) was the most utilised measure in our meta-analysis, this may lead to uncertainty about the conclusions drawn as it remains unclear which conceptualisation of DE has the most meaningful relationship with self-criticism and self-compassion.

Conclusion

The present study provided the first meta-analytic review showing a small to large association between DE and self-criticism and a medium association of the longitudinal impacts of self-criticism on DE, and identified two measures of self-criticism that demonstrated the most robust links with DE. The study also found a significant link between self-compassion, self-criticism, and DE in that being high in self-compassion was linked to reduced self-criticism and DE symptoms. Understanding these interactions better in conjunction with dismantling intervention studies can be used to help us develop more effective and efficient interventions targeting self-criticism and self-compassion for people with DE. The next Chapter explores the fear of engaging in affiliative processes towards the self and whether this influences the relationship between self-criticism and DE over time. If this is the case, it would advocate for the inclusion of more self-compassion strategies that target ED patients' fear of practicing self-compassion early in treatment.

CHAPTER 5: DOES SELF-CRITICISM LEVELS OVER TREATMENT MEDIATE THE RELATIONSHIP BETWEEN BASELINE FEAR OF SELF-COMPASSION AND CHANGE IN EATING DISORDER SYMPTOMS: A LONGITUDINAL MEDIATION ANALYSIS

Abstract

The association between self-compassion and eating pathology has been established in the literature, but there is limited research on mediators that could explain how the relationship works. The current study investigated whether self-criticism over the course of treatment mediates the relationship between fear of self-compassion at the start of treatment and the rate of change in eating disorder (ED) symptoms during treatment. Data from 196 participants (181 females) from two sequential samples attending the Flinders University Services for Eating Disorders for a 10-session Cognitive Behavioral Therapy (CBT) treatment (*Mage* = 27.32, *SD* = 9.70) were investigated in latent growth curve modelling. Mean levels of self-criticism over treatment mediated the relationship between fear of self-compassion at baseline and change in slope of ED symptoms. Lower fear of self-compassion at baseline was linked with lower levels of self-criticism during treatment, which was linked with greater reductions in ED symptoms during and after treatment. The results of this study suggest that early adjunct treatments, which target risk factors including the fear of engaging in compassion-based processes, may help address self-criticism levels during treatment and thereby result in greater reductions of ED psychopathology over treatment.

With less than 50% of patients with eating disorders (EDs) currently achieving full remission post-treatment (Linardon & Wade, 2018), novel adjunct approaches targeting risk factors maintaining ED symptoms are being developed. Compassion-focused strategies have been suggested as an adjunct treatment for improving therapeutic outcomes (Kelly & Carter, 2015). However, people with EDs are shown to have an elevated fear of self-compassion (Kelly et al., 2014), which is associated with increased self-criticism (Gilbert et al., 2011), exacerbated ED symptoms (Kelly et al., 2013; 2014) and decreased readiness to change (Geller et al., 2019). This suggests that fear of self-compassion may be of relevance to target to improve therapeutic outcomes in ED.

Gilbert's (2009) conceptualised that social challenges have helped humans gain the capacity to engage and regulate in relationships with others including the ability to identify and respond to threats, acquire resources, and engagement in soothing (Gilbert, 2014). However, whilst experiencing soothing qualities are generally regarded as affiliative and positive emotions, some can find them more threatening than pleasant and resistance towards experiencing them can lead to a greater risk of mental health problems (Gilbert et al., 2011). For instance, engaging in compassionate emotions towards the self can be difficult for individuals who present with ED psychopathology, who are fearful of self-compassion as they rely on being self-critical to ensure they meet rigid standards (Kelly et al., 2021). Conversely, the benefit of having a low fear of self-compassion early in treatment has been linked with greater reductions in shame and eating pathology post-treatment (Kelly et al., 2014).

However, whilst Kelly and colleagues (2014; 2021) focused on the capacity of fear of self-compassion in overcoming shame and ED symptoms, there are likely other factors beyond a change in shame that contribute to within-person changes in ED symptoms during treatment. Namely, fear of self-compassion has also been linked to maladaptive emotion regulation strategies such as self-criticism (Gilbert et al., 2011). Patients receiving ED treatment who engaged in self-criticism presented with more severe eating pathology (Kelly & Carter, 2013), with meta-analytic evidence

showing greater levels of self-criticism to be associated with higher levels of ED and reduced levels of self-compassion (Paranjothy & Wade, 2024). Indeed, Longe et al.'s (2010) study using functional magnetic resonance imaging (fMRI) found that people who showed a threat response when they attempted to be self-compassionate presented with higher self-criticism levels and struggled to be affiliative towards themselves, highlighting that self-criticism does not just involve being harsh towards oneself but having a fear-based appraisal towards self-kindness. More importantly, Ferreira et al.'s (2019) study found that self-criticism mediated the link between fears of compassion and body image shame, suggesting that higher levels of fear of experiencing compassion can lead to the adoption of self-critical attitudes and subsequent negative feelings based on their physical appearance. Consequently, examining how self-criticism is associated with fear of self-compassion and ED symptoms can help us gain a better understanding of the underlying mechanisms involved in the relationship between these constructs, and thus inform the development of augmenting current treatments to better target factors that maintain DE.

To further explore the role of self-criticism in the relationship between fear of self-compassion and ED symptoms, longitudinal mediation analyses could offer a better understanding of how fear of self-compassion levels at the start of treatment affect self-criticism levels across multiple time points and how self-criticism levels, in turn, influences ED symptoms over time, compared to cross-sectional analyses that provide just a snapshot of this relationship at one timepoint. Whilst Cross-Lagged Panel Modelling (CLPM; Preacher, 2015) is a commonly used model for mediation analyses, a key limitation is that the effects in CLPM are assumed to be constant across individuals and does not account for potential individual variability on the outcomes of interest (Wu et al., 2018), which may result in misleading outcomes. However, latent growth curve modelling is a recommended mediation analysis that allows for inter- and intraindividual change in variables over time (Selig & Preacher, 2009), and unlike the CLPM, can examine mediation when one or more of the variables exhibit meaningful trajectories of change over time.

The present study conducts a longitudinal mediation analysis using latent growth curve modelling, exploring whether a lower baseline fear of self-compassion would result in lower levels of self-criticism during the course of treatment, resulting in a greater decrease in ED symptoms during and after treatment. **Figure 5.1** illustrates this relationship.

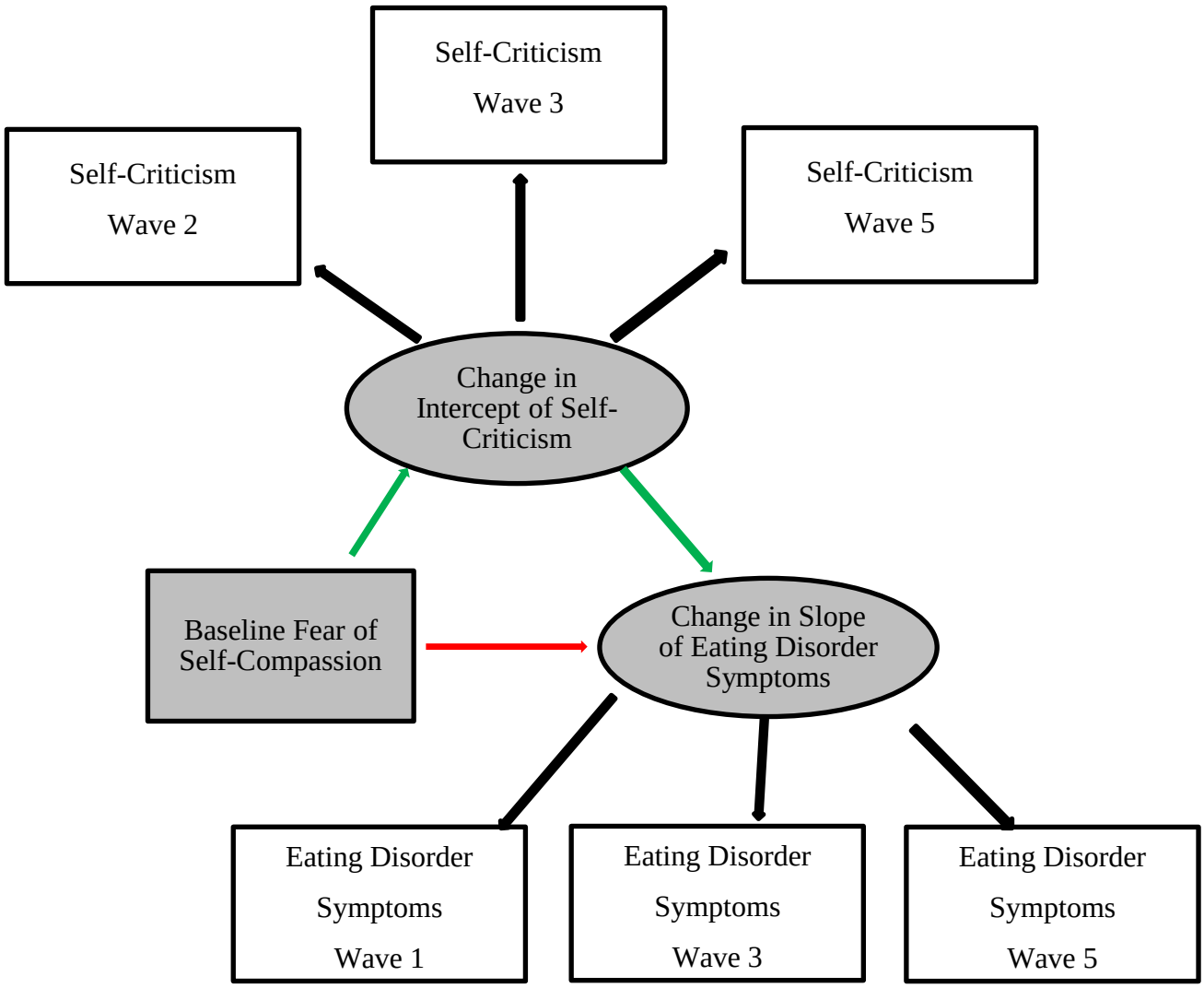


Figure 5.1. The relationship between baseline fear of self-compassion and change in slope of ED symptoms predicted to be mediated by change in the intercept of self-criticism.

The green arrows indicate the proposed mediational pathway, the red arrow indicates the direct relationship between the baseline fear of self-compassion and the change in the slope of ED symptoms, and the black arrows indicate that the change in slope of ED symptoms and change in intercept of self-criticism will be measured over 3 waves of data collection.

Method

Participants

The current study analysed data from 196 participants (181 females, 15 males) from two sequential samples attending treatment at the Flinders University Services for Eating Disorders (FUSED; Pellizzer et al., 2019a; Pellizzer et al., 2019b; Wade et al., 2021). The mean age of the

total sample was 27.32 (*SD* = 9.70), and of the 184 participants who provided their ethnicity, 83% were White, 5% were Asian, 2% were African, 1% were Aboriginal and Torres Strait Islander, and 3% were listed as Other. Using the DSM-5 criteria (American Psychiatric Association (APA), 2013), participants were assessed at baseline face-to-face appointments by trainee psychologists (postgraduate clinical psychology students) with self-reports to supplement the assessment. Over two-thirds were diagnosed with bulimia nervosa (*n* = 132, 67%), followed by otherwise specified feeding and eating disorder (*n* = 54, 28%), unspecified feeding and eating disorder (*n* = 6, 3%) and binge eating disorder (*n* = 4, 2%). The median body mass index (BMI) of participants was 24.10.

Procedure

Following review and approval by the Southern Adelaide Clinical Human Research Ethics Committee (204.15), participants were recruited from the FUSED outpatient clinic who were referred from across South Australia by the Statewide Eating Disorder Service, health professionals, or self-referrals. Participants were excluded if they presented with a severe physical or psychiatric condition that would interfere with treatment engagement (e.g., high suicidality), they were receiving psychotherapy for an ED at the time, or they had difficulty speaking or understanding English. Participants were required to be over 15 years old, and fulfil criteria for an ED based on the diagnostic criteria from the DSM-5 (APA, 2013). Participants who did not have a BMI ≥ 17.5 or who met criteria for an anorexia nervosa diagnosis were also excluded given that the intervention was being delivered by trainee psychologists attending short-term placements, thereby limited in their capacity to provide long-term care for patients with greater symptom severity. Treatment consisted of 10 weekly sessions of CBT for EDs and two follow-up sessions, with clinical psychology postgraduates delivering the assessments and treatments under the supervision of two expert therapists.

Upon providing consent to participate, participants' height was measured at baseline, and weight was measured at each intervention session. In addition to baseline assessment (Wave 1), further assessments were conducted at the fourth session (Wave 2), post-treatment (Wave 3), and

after a 1-month (Wave 4) and 3-month follow-up (Wave 5). In the current analysis, as recommended by Selig and Preacher (2009), Waves 1, 3 and 5 of ED symptoms were utilised to assess change in the slope of the outcome variable from baseline. Waves 2 and 4 of ED symptoms were not included to ensure equidistant measurement at every 3-month period, which is an assumption of latent growth curve analysis (Geiser et al., 2013) and reduces the effect of time variation on parameter estimations and model fit (Miller & Ferrer, 2017). To avoid reverse or concurrent causation with the baseline variable, we were unable to use Wave 1 of self-criticism; Thus, Waves 2, 3, and 5 measures of self-criticism were utilised. Finally, the Wave 1 measure of fear of self-compassion was utilised to assess the baseline measure of fear of self-compassion.

Measures

Self-Criticism

The Forms of Self-Criticising/Attacking & Self-Reassuring Scale (FSCRS, Gilbert et al., 2004) consists of three subscales; 'Inadequate-self" (9 items assessing feelings of failure and inadequacy), 'Hated-self' (5 items focused on more self-hating and contemptuous feelings), and 'Reassuring-self' (8 items assessing positive and compassionate feelings directed towards oneself). Each item asked respondents to rate the extent to which a series of self-critical statements are true about them on a 5-point Likert scale (0 = Not at all like me, 4 = Extremely like me). Higher scores on the inadequate- and hated-self subscales indicate greater self-criticism, whilst a higher score on the reassuring-self subscale indicates greater self-reassurance. **Chapter 3** goes into greater detail with regard to the psychometric properties of the measure.

Whilst change in the intercept of self-criticism is the mediator the study is exploring, a mediation analysis with the reassuring-self subscale was also conducted. This was to corroborate if change in the intercept of self-criticism is the dominant mediator in the relationship between lower baseline fear of self-compassion and greater reductions in ED symptoms or if engaging in more affiliative feelings towards the self (i.e., change in the intercept of self-reassurance) better explains the relationship between lower baseline fear of self-compassion and greater reductions in ED

symptoms. The internal reliability of the subscale at Waves 1, 2, 3 and 5 were good, with Cronbach's alpha placed at 0.88, 0.89, 0.91 and 0.95, respectively, for the inadequate-self subscale, 0.82, 0.84, 0.81, and 0.84, respectively for the hated-self subscale, and 0.89, 0.91, 0.93, and 0.92, respectively for the reassuring-self subscale.

Fear of Self-Compassion

The 38-item Fears of Compassion Scale (FCS; Gilbert et al., 2011) has three subscales: Fear of expressing compassion to others, fear of receiving compassion from others, and the fear of self-compassion. This study only used the fear of self-compassion subscale as we are interested in exploring how the barrier of engaging in affiliative language towards the self affects how harsh one's critical attitude towards the self is during treatment and, in turn, their rate of change of ED symptoms during treatment. Research using CFT with clients has also found that self-compassion was very susceptible to fear-based reactions towards engaging in it, and a central component of CFT is addressing that fear of expressing compassion towards the self (Gilbert, 2010). Each item rated the extent to which a series of statements are true about them on a 5-point Likert scale (0 = Don't agree at all, 4 = Completely agree). Higher levels indicated a greater fear of self-compassion. The subscale demonstrated excellent internal reliability across Waves 1, 2, 3 and 5, with Cronbach's alpha placed at 0.93, 0.96, 0.97 and 0.97, respectively. **Chapter 3** goes into greater detail with regard to the psychometric properties of the measure.

Eating Disorder Symptoms

The 28-item Eating Disorder Examination Questionnaire (EDE-Q; Fairburn & Beglin, 2008) measured ED symptoms over the previous 28 days by asking people to rate a series of statements about restriction, eating concern, and weight and shape concern on a 7-point Likert scale (0 = No days, 6 = Every day), with a global score calculated using the mean of the four subscales. Higher levels indicated greater ED symptoms. The internal reliability of the global score at Waves 1, 2, 3 and 5 were good, with Cronbach's alpha placed at 0.89, 0.94, 0.94 and 0.95, respectively. **Chapter 3** goes into greater detail with regard to the psychometric properties of the measure.

Statistical Analysis

Cohen's (1992) benchmarks were first used to interpret small (r = .10), medium (r = .30), and large (r = .50) zero-order correlation coefficients. The use of longitudinal mediation in developmental research discussed by Selig and Preacher (2009) describes the general aim of such analyses is to explain the way in which one variable (typically assessed at baseline) has an effect on another variable (the outcome) through its influence on some intermediate variable (mediator) measured within the time period elapsing between baseline and outcome. Longitudinal mediation can be tested in several ways, one of the most common being the cross-lagged panel model (Cole & Maxwell, 2003). However, the cross-lagged panel model does not explicitly incorporate the effect of the passage of time. Therefore, an alternative approach has been outlined (Selig & Preacher, 2009), latent growth curve modelling, incorporating the average rate at which individuals change (the slope mean) and the inter-individual variability in that rate (the slope variance), in addition to the initial status on the mediator (intercept).

The recommendations of Selig and Preacher (2009) were adopted to examine a longitudinal relationship between baseline fear of self-compassion and change in slope of ED symptoms that was mediated by the change in intercept of self-criticism. The latent growth curve models to be tested are shown in **Figure 5.1** above using each of the three FSCRS subscales respectively, with the shaded variables showing the mediational pathways of interest, where the intercepts and slopes for the mediator and outcome variables are represented as latent variables that were allowed to vary across participants. Estimated parameters include the intercept and slope means, the intercept and slope variances and residual variances. This approach was utilised in the analyses using Mplus (Muthén & Muthén, 1998-2015). The Maximum Likelihood (ML) estimator, which does not impute any data but uses each case's available data to compute parameter estimates that is most likely to have resulted from the observed data, was utilised for the analyses. Therefore, all participants who completed baseline observations for fear of self-compassion but did not complete subsequent data waves were included in the mediation analyses. IBM SPSS Statistics Version 27 was used to conduct all other analyses.

Results

Descriptives and missing data

The means and standard deviations of the variables used in the models are summarised in **Table 5.1**. Of those who completed the baseline EDE-Q measure at Wave 1, 50% completed the measure at Wave 3, and 44% completed the measure at Wave 5. Of those who completed the baseline FSCRS measure at Wave 2, 76% completed the measure at Wave 3, and 63% completed the measure at Wave 5. A missing values analysis indicated that Little's test of Missing Completely at Random (MCAR) was not significant, $\chi^2(13, N = 172) = 133.83$, $p = .123$ ($p > .05$), suggesting the data were missing at random.

Table 5.1

Descriptive statistics for variables included in the mediational analyses

Variable	Wave	N	Mean (SD)
Fear of Self-Compassion	1	172	1.78 (0.99)
Self-Criticism [Inadequate-Self]	2	125	2.65 (0.97)
	3	95	2.11 (1.00)
	5	79	1.83 (1.13)
Self-Criticism [Hated-Self]	2	124	1.56 (1.11)
	3	95	0.95 (0.86)
	5	79	0.88 (1.04)
Self-Criticism [Reassuring-Self]	2	125	1.91 (0.82)
	3	95	2.35 (0.89)
	5	79	2.40 (0.94)
ED Symptoms	1	184	4.03 (1.04)
	3	92	1.60 (1.05)
	5	81	1.38 (1.09)

As shown in **Table 5.2**, there were moderate to strong correlations between fear of self-compassion, ED symptoms and the subscales of self-criticism and self-reassurance. Notably, fear of self-compassion presented a strong positive correlation with the second wave of the inadequate-self subscale and the second and third wave of the hated-self subscale, and there were medium to strong correlations between the inadequate- and hated-self waves. Self-reassurance also presented

moderate to strong negative correlations with the inadequate- and hated-self subscales and negative correlations with ED symptoms and fear of self-compassion. ED symptoms presented medium positive correlations with fear of self-compassion across the waves. Wave 1 of ED symptoms presented medium correlations with the self-criticism waves, whilst Waves 3 and 5 presented medium to strong correlations with self-criticism waves. Together, greater self-criticism across the inadequate- and hated-self subscales and lower self-reassurance was linked with greater ED symptoms across the waves and greater fear of self-compassion was linked with greater self-criticism and ED symptoms and lower self-reassurance.

Latent Growth Curve Modelling

The unstandardised and standardised pathway estimates and confidence intervals for the mediational model involving fear of self-compassion, self-criticism and ED symptoms are shown in **Table 5.3,** using each subscale of the FSCRS respectively to represent self-criticism. The model with the Inadequate-self subscale showed that the direct relationship between baseline fear of self-compassion and the change in slope of ED symptoms was not significant, whilst the mediational pathway was robust and positive. This suggests that a lower fear of self-compassion at baseline was associated with a decrease in ED symptoms over time through its association with lower levels of self-criticism. The amount of variance of the change in ED symptoms explained by the whole model was 84% (standard error = 8.0).

In the model that used the Hated-self subscale, the direct relationship between baseline fear of self-compassion and the change in slope of ED symptoms was not significant, while the mediational pathway was robust and positive. This similarly suggests that a lower level of fear of self-compassion at baseline was associated with a decrease in ED symptoms over time through its association with lower levels of self-criticism. The amount of variance of the change in ED symptoms explained by the whole model was 86% (standard error = 7.7).

In the model that used the Reassuring-Self subscale, both the direct relationship between baseline fear of self-compassion and the change in slope of ED symptoms as well as the mediational

pathway, were not significant. Only a significant relationship was identified between baseline fear of self-compassion and self-reassurance. This suggests that a lower fear of self-compassion at baseline was associated with an increase in self-reassurance over time, but this was not then associated with a decrease in ED symptoms over time.

Table 5.2

Correlations between the variables in the models

Variables	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
1. Fear of Self-Compassion (Wave 1)	-											
2. Self-Criticism – Inadequate-Self (Wave 2)	.60 [3]	-										
3. Self-Criticism – Inadequate-Self (Wave 3)	.46 [3]	.77 [3]	-									
4. Self-Criticism – Inadequate-Self (Wave 5)	.39 [3]	.74 [3]	.81 [3]	-								
5. Self-Criticism – Hated-Self (Wave 2)	.65 [3]	.80 [3]	.63 [3]	.61 [3]	-							
6. Self-Criticism – Hated-Self (Wave 3)	.57 [3]	.66 [3]	.77 [3]	.70 [3]	.76 [3]	-						
7. Self-Criticism – Hated-Self (Wave 5)	.39 [3]	.56 [3]	.59 [3]	.76 [3]	.65 [3]	.73 [3]	-					
8. Self-Criticism – Reassuring-Self (Wave 2)	-.61 [3]	-.59 [3]	-.53 [3]	-.44 [3]	-.63 [3]	-.59 [3]	-.46 [3]	-				
9. Self-Criticism – Reasurring-Self (Wave 3)	-.52 [3]	-.48 [3]	-.55 [3]	-.47 [3]	-.51 [3]	-.69 [3]	-.54 [3]	.76 [3]	-			
10. Self-Criticism – Reassuring-Self (Wave 5)	-.52 [3]	-.58 [3]	-.55 [3]	-.55 [3]	-.56 [3]	-.61 [3]	-.59 [3]	.61 [3]	.67 [3]	-		
11. ED Symptoms (Wave 1)	.32 [3]	.42 [3]	.27 [3]	.26 [1]	.41[3]	.29 [2]	.38 [3]	-.39 [3]	-.37 [3]	-.38 [3]	-	
12. ED Symptoms (Wave 3)	.47 [3]	.53 [3]	.64 [3]	.55 [3]	.52 [3]	.66 [3]	.55 [3]	-.50 [3]	-.55 [3]	-.48 [3]	.41 [3]	-
13. ED Symptoms (Wave 5)	.23 [1]	.45 [3]	.55 [3]	.61 [3]	.35 [3]	.47 [3]	.63 [3]	-.24 [1]	-.39 [3]	-.45 [3]	.37 [3]	.77 [3]

Note: [1] $p < .05$, [2] $p < .01$, [3] $p < .001$

Table 5.3

Latent growth curve modelling showing unstandardized parameter estimates and confidence intervals (unshaded rows) and standardized parameter estimates (shaded rows)

Self-Criticism Subscales	**Mediational Pathway**	**Unstandardized estimate (CIs)**	**Unstandardized estimate (CIs)**	**Unstandardized estimate (CIs)**
Inadequate-Self	**BFSC → ISC → SED**	BFSC → ISC	BFSC → SED	ISC → SED
		0.53 (0.41, 0.63)	-0.13 (-0.27, 0.02)	0.33 (0.19, 0.46)
		0.61 (0.06) <.001	-0.22 (0.12) .063	0.49 (0.16) <.01
Hated-Self	**BFSC → ISC → SED**	BFSC → ISC	BFSC → SED	ISC → SED
		0.56 (0.45, 0.65)	-0.12 (-0.27, 0.03)	0.32 (0.18, 0.45)
		0.67 (0.06) <.001	-0.21 (0.14) .132	0.48 (0.19) <.05
Reassuring-Self	**BFSC → ISR → SED**	BFSC → ISR	BFSC → SED	ISR → SED
		-0.46 (-0.57, -0.33)	-0.04 (-0.19, 0.11)	-0.16 (-0.30, -0.01)
		-0.65 (0.06) <.001	-0.06 (0.13) .609	-0.17 (0.14) .214

Note: BFSC = Baseline Fear of Self-Compassion; ISC = Change in Intercept of Self-Criticism; ISR = Change in Intercept of Self-Reassurance, SED = Change in Slope of ED Symptoms, CIs = Confidence Intervals

Discussion

The main aim of the current investigation was to examine how fear of self-compassion might influence changes in self-criticism and ED symptoms during and after treatment. We found that mean levels of self-criticism over time fully mediated the relationship between fear of self-compassion at baseline and the change in the slope of ED symptoms over time, for both feelings of inadequacy and failure, as well as more pathological self-hatred. We also found that mean levels of self-reassurance (engaging in affiliative feelings towards the self) could not explain the relationship between fear of self-compassion at baseline and the change in the slope of ED symptoms over time. In other words, our study identified that lower levels of fear of self-compassion at baseline were subsequently associated with lower levels of self-criticism during treatment, which was associated with greater reductions in ED symptoms during and after treatment.

Individuals with anorexia nervosa previously described the link between fear of self-compassion and self-criticism (Kelly et al., 2021), who feared that engaging with a more considerate inner voice would lead to the loss of a self-critical voice and the inability to maintain self-imposed standards. Self-critics have been shown to have a heightened sensitivity to the threat-protection system that experiences warmth and acceptance as challenging or frightening, whereas individuals with low fear of self-compassion work with more affiliative brain systems (Gilbert & Procter, 2006). However, actively resisting engaging in affiliative experiences and behaviours and engaging in self-critical thinking not only act as a roadblock to recovery but are associated with poorer ED treatment outcomes (Kelly et al., 2013; 2014). By and large, these results support the investigation of adjunct treatments which target the fear of engaging in compassionate behaviours and self-care that may be contributing to high self-criticism and impaired response to treatment for ED. Existing treatment manuals for ED incorporate strategies to aid patients who have self-critical

and perfectionistic tendencies, but a more overt focus on addressing patients' fear of self-compassion and targeting this early in treatment is likely to be helpful.

The results of the current study should be considered in light of several limitations. Firstly, over 80% of the sample were White females, a demographic that exhibits high rates of ED (Galmiche et al., 2019). Nonetheless, this mediation analysis should be replicated with a more diverse sample of participants regarding gender, ethnicity, and age. Whilst Hay et al.'s recent review (2023) indicates that ED is more prevalent in young women, other demographic groups such as gender- and sexuality-diverse (LGBTQIA+) individuals were also found to have a greater likelihood of developing ED compared to the general male population, whilst a moderate to high prevalence of ED was also observed in Aboriginal and Torres Strait Islander individuals. Second, whilst the participants in this study completed the FSCRS (Gilbert et al., 2004), there are multiple measures of self-criticism (Rose & Rimes, 2018), and future research could explore which conceptualisations and measures of self-criticism are most pertinent in understanding the impact of fear of self-compassion. Finally, while our results are relevant to a clinical group over treatment, this work is unable to inform processes of relevance in a community group who do not have an ED, nor be extrapolated to participants with a BMI under 17.5 or those who would qualify for an anorexia nervosa diagnosis thereby excluding a significant subgroup of the ED population. Additionally, the comparative processes for people with an ED who are currently receiving treatment and those who are not would be informative to identify how treatment impacts these mediational processes (Doss & Atkins, 2006).

Conclusion

This longitudinal study contributed to our understanding of the role of self-criticism in the relationship between fear of self-compassion and ED symptoms, and particularly adds to the evidence that this relationship develops over time. Overall, the results emphasised the

relevance of addressing patients' fear of self-compassion during early intervention. These findings indicated that such mechanisms should be considered when understanding the impact of interventions for ED symptoms and that targeting fear of self-compassion early in treatment will ensure patients achieve the greatest gains during and after treatment. The next Chapter examines the efficacy of an intervention with the shared intention of reducing self-criticism and promoting self-compassion in participants with an elevated risk of developing EDs through the delivery of four brief guided self-help modules delivered virtually.

CHAPTER 6: A RANDOMISED CONTROL TRIAL EXAMINING THE IMPACT OF DISORDERED EATING THROUGH THE ROLE OF SELF-CRITICISM AND SELF-COMPASSION

Abstract

A randomised controlled trial investigated a brief approach to an online disordered eating (DE) intervention and its impact on reducing self-criticism and increasing self-compassion. This was delivered through a guided internet-based condition in four modules over two weeks. University students (N = 84) were screened and randomised (n = 40) to the intervention or waitlist control group. Outcome measures delivered at baseline, one-week and two-weeks post-randomisation measured participants' self-criticism, fears of compassion, negative affect, eating disorder (ED) symptoms, quality of life, and body image flexibility. There were no significant between-group differences between the groups over time. Significant group-by-time interactions suggested groups changed at a different rate on two outcomes (fear of receiving compassion from others and body image flexibility), with improvements observed in the treatment while participants in the waitlist remained stable. The results of this pilot study suggest that further work is required to optimise the intervention before moving to a larger trial.

Evidence suggests that augmentation of treatments for eating disorders (EDs) can improve outcomes (Pennesi et al., 2024). The development and evaluation of novel interventions that target factors that maintain disordered eating (DE) and can be used as augmentations is required. Self-criticism is one factor that has been implicated in the onset and maintenance of DE, which can be conceptualised as having a highly negative evaluation towards the self (Gilbert et al., 2004). Whilst self-criticism can be used as a healthy tool to meet set standards (Kelly et al., 2021), it is also viewed as a transdiagnostic vulnerability factor due to its impact on a range of psychopathologies (Ehret et al., 2015; Iancu et al., 2015; Kopala-Sibley et al., 2012). Self-criticism has also been suggested to predict body dissatisfaction and pathological eating and exercise (Werner et al., 2019) and promote fixation on perceived flaws and appearance comparisons with others (Williams & Levinson, 2022).

Whilst it does not simply represent the inverse of self-criticism, self-compassion has been proposed as an antidote to self-criticism, defined as treating oneself with kindness, care, and concern when confronting personal inadequacies, mistakes, and failures (Warren et al., 2016). Millard et al. (2023)'s meta-analysis examining the effectiveness of compassion-focused therapy found small to large effect sizes for self-compassion, self-criticism, fear of self-compassion, depression, and DE, and greater self-compassion was found in the clinical groups compared to controls (g = 1.12). Ferrari et al. (2019) also found that self-compassion interventions successfully reduced DE in clinical and non-clinical groups (g = 1.76).

In contrast, interventions targeting self-criticism have been less researched. One such pilot study (de Valle & Wade, 2022) showed that a 4-session self-criticism intervention delivered virtually to 130 participants who used social media for appearance-related reasons significantly reduced use of social media for appearance-based reasons, appearance comparison, DE, and improved body image acceptance compared to a control condition. Self-

criticism, however, was not impacted. In the current pilot study, we evaluated the same intervention with emerging adults, this time who met the criteria for high weight concern, and with further measures of self-criticism and a measure of fears of compassion. We hypothesised that participants in the treatment group would have lower self-criticism, fear of compassion, negative affect, ED psychopathology and clinical impairment related to ED, as well as greater body image flexibility post-treatment compared to the waitlist group.

Method

Ethics and Study Registration

This study was approved by the Flinders University Human Research Ethics Committee (ID #5664) and registered with the Open Science Framework (https://osf.io/7mt25). The trial information that was accepted by the registry was submitted during participant enrolment but prior to data collection ending and subsequent data analysis.

Participants

Between May 2023 and July 2024, participants were recruited using advertisements through the Flinders University psychology student participant pool (reimbursed with $30 following completion of all measures), and advertisements for the study were also posted on Facebook in December 2023 and removed in July 2024. The total sample size was 84; 56 were eligible, and 40 were randomised (**Figure 6.1**), with all participants recruited through the participant pool. Inclusion criteria required meeting a score of 52 or above on the Weight Concerns Scale (WCS; Killen et al., 1994; Killen et al., 1996), a measure considered to have good predictive validity for those at risk of developing ED (Jacobi et al., 2011; Killen et al., 1994; Killen et al., 1996).

Randomised participants were aged between 18 and 42 (M = 23.25, SD = 5.94), and mostly White (n = 24, 60%), followed by Asian (n = 10, 25%), African American/Black (n = 1, 2.5%), Aboriginal or Torres Strait Islander (n = 1, 2.5%), and one who did not identify

with these groups (2.5%). Most identified as women (*n* = 32, 80%), the remainder as men (*n* = 5, 12.5%) or nonbinary (*n* = 3, 7.5%), and more were single (*n* = 25, 62.5%) than in a relationship (*n* = 15, 37.5%). More than half of the participants had attained a high school education (*n* = 25, 62.5%), with four (10%) participants reporting that they additionally attained a diploma certificate, nine (22.5%) having attained a bachelor's degree, and one holding a doctorate degree (2.5%). Most of the participants were either a full-time student (*n* = 17, 42.5%) or holding casual employment (*n* = 15, 37.5%), with some also working part-time (*n* = 2, 5%), full-time (*n* = 4, 10%), or had home duties (*n* = 1, 2.5%). **Table 6.1** also captures the demographic characteristics of the sample for each group.

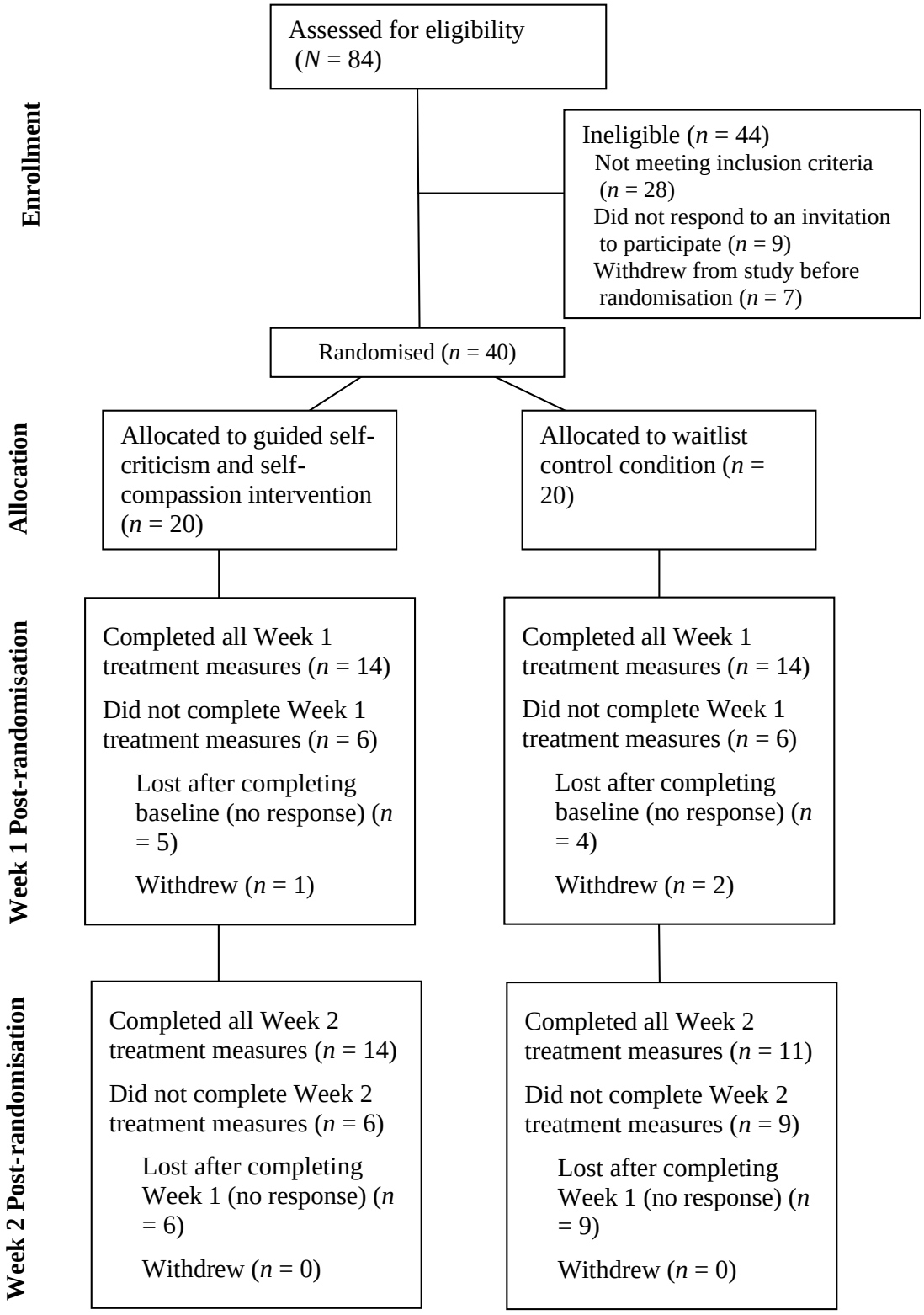


Figure 6.1. ***Consolidated standards of reporting trials*** *(CONSORT) diagram: Flow of participants through the intervention*

Table 6.1

Demographic Characteristics of the Sample

Demographic	**Category**	**Treatment**	**Waitlist**	**Combined**
		N=20	**N=20**	
Gender [N = 40]	Female (%)	17 (85)	15 (75)	32 (80)
	Male	2 (10)	3 (15)	5 (12.5)
	Non-Binary	1 (5)	2 (10)	3 (7.5)
Age [N = 40]	Mean (SD)	22.45 (4.29)	24.05 (7.27)	23.25 (5.94)
	Range	18 to 32	18 to 42	18 to 42
Ethnicity [N = 37]	White (%)	13 (65)	11 (55)	24 (60)
	Aboriginal or Torres Strait Islander	1 (5)	-	1 (2.5)
	Asian	5 (25)	5 (25)	10 (25)
	African American/Black	1 (5)	-	1 (2.5)
	Other	-	1 (5)	1 (2.5)
Relationship	Single (%)	12 (60)	13 (65)	25 (62.5)
Status [N = 40]	In a relationship/Married	8 (40)	7 (35)	15 (37.5)
Education [N = 40]	Elementary/Primary (%)	1 (5)	-	1 (2.5)
	High School/Secondary	13 (65)	12 (60)	25 (62.5)
	Certificate/Diploma	2 (10)	2 (10)	4 (10)
	Bachelor's Degree	4 (20)	5 (25)	9 (22.5)
	Doctorate Degree	-	1 (5)	1 (2.5)
Employment [N = 40]	Full-time (%)	2 (10)	2 (10)	4 (10)
	Part-time	-	2 (10)	2 (5)
	Casual	6 (30)	9 (45)	15 (37.5)
	Unemployed	-	1 (5)	1 (2.5)
	Home duties	-	1 (5)	1 (2.5)
	Student	12 (60)	5 (25)	17 (42.5)

Intervention

Pilot Intervention

A four-session self-guided self-criticism intervention had been delivered previously in university students aged 17–25 (de Valle & Wade, 2022), informed by cognitive behavioural principles. The original intervention is available at https://osf.io/xm95n/. It was modified for this study in the following ways. First, we included assessments that used validated measures of self-criticism and fears of compassion. Second, to increase the effect sizes obtained from de Valle and Wade's (2022) trial and based on participants' feedback, the intervention was modified to be more visually appealing, including more graphics, videos, and interactive components, as well as the use of questionnaires and journal entries based on previous participants requests. Third, more time was included between each session such that sessions were rolled out every 3–4 days over two weeks (day 1, day 5, day 8 and day 12) compared to just 1–2 days between sessions, with a timeline of when the modules were expected to be completed provided at the start of the intervention. Fourth, email reminders were implemented as participants previously found the self-directing component of the intervention to be challenging (de Valle & Wade, 2022) and given meta-analytic results showing that guidance in interventions could significantly increase adherence compared to more self-guided interventions (Musiat et al., 2022). **Table 6.2** outlines the flow of each module, with copies of these sessions available at osf.io/6jz9y. A copy of the four modules that participants received on Qualtrics is included in **Appendix B**.

Table 6.2

Outline of Modules

Session Aims	Associated Activities
Session 1 • Defining DE • Establishing and applying the tripod model • Exploring the effects and differentiating between self-compassion and self-criticism	• Individually complete a thought experiment applying the tripod model • **Homework:** Use a diary to monitor and record any situations in the next week where one experienced self-critical or self-compassionate thoughts regarding eating and/or exercise habits
Session 2 • Explaining the effects of self-compassion • Identifying issues associated with self-criticism and the impact on DE. • Recognising the elements and challenges of practising self-compassion.	• Review the diary from the previous session, reflect on when, where and why they were self-compassionate or self-critical and the impact it had on them • Practical demonstration of selective attention through a YouTube video • Complete a questionnaire used to calculate one's fear of self-compassion. • **Homework:** Maintain journal entries comparing their standard thought patterns to days when they used a more self-compassionate approach.
Session 3 • Exploring social media's impact on body image and DE • Appling self-compassion to real-world settings	• Review journal entries from the previous session and reflect on how employing self-compassion made them feel • Link to a YouTube video explaining the positive impacts of Self-Compassion • Reflect on self-compassionate statements they have experienced in the past and begin recording them for future use • Visualising a recent time, they were self-critical of their appearance and thinking about how they would behave now based on what they have learned. • **Homework:** Over the next few days, when participants notice and record their self-critical thoughts, practising

	the application of more self-compassionate views instead, using examples provided in the session if needed
Session 4 • Describing social media's effect on self-criticism, weight and shape over concerns • Explain the process of reducing the impact of social media on self-criticism and body image	• Reflect on how being self-compassionate has impacted them • Analyse how social media use is impacting their self-criticism and weight and shape concerns • Link to a YouTube Video challenging preconceived notions of what is shown on social media • Complete a survey to measure their engagement with social media • Identify social media's impact on their body image • Create a list of all possible solutions to reduce the impact of social media use on self-criticising their body image and weigh the advantages and disadvantage • Choose one of their previous solutions and break it down into actionable steps to being more self-compassionate • **Homework:** Complete their actionable plan and reflect on the outcome

Design

Eligible participants who consented to participate in the current trial were randomised to a 2-week waitlist period or immediate start after completing the measures at baseline. Further assessments occurred mid-treatment (Session 2) and post-treatment (Session 4). Participants completed the four treatment modules and associated measures online using Qualtrics. At baseline and at the end of the first and second-week post-randomisation, measures were included to capture the outcome variables, comprising demographic information (only at baseline) and six measures to capture our key constructs.

Measures

Screening Questionnaire

Description and Factor Structure. To identify participants at risk for developing an ED, the Weight Concerns Scale (WCS) was utilised. It is a 5-item self-report questionnaire scored on 4-point, 5-point, and 7-point scales validated to identify individuals experiencing an overconcern with their weight and shape (Killen et al., 1994). Sample questions include "*When was the last time you went on a diet?*" and "*Compared to other things in your life, how important is your weight to you?*". To score the WCS, responses to each item are recorded on a 0–100 scale, and then a mean is computed across the items, such that the total WCS score ranges between 0 (no weight concern) – 100 (maximum weight concern). Scores above 52 on the WCS are associated with an increased risk of developing an ED within four years (Killen et al., 1994; Killen et al., 1996) and was thus used as the cut-off for eligibility to participate in the trial. The one-factor model has previously presented a good fit in a sample of University students (CFI = 0.94-0.99; Dias et al., 2015; da Silva et al., 2017).

Reliability. Previous psychometric tests indicated that the measure has excellent test-retest reliability for a 7-month (r = 0.71; Killen et al., 1994) and 12-month interval (r = 0.75; Killen et al., 1996). Cronbach's alpha was not reported for this measure as we solely use the WCS as a cut-off score, but previous reports have identified good internal consistency for the WCS amongst college students (α = .74-.79; Dias et al., 2015; da Silva et al., 2016).

Validity. Good predictive validity has previously been identified for the development of EDs, with scores on the WCS significantly correlated with the onset of symptoms over three years in adolescents (Killen et al., 1994; Killen et al., 1996), and Dias et al. (2015) previously found good convergent validity of the online format of the measure. The WCS has also shown concurrent validity due to its correlations with the Body Shape Questionnaire in

various cultural student samples (r = 0.93-0.99) and divergent validity with the Perceived Health Competence Scale (r = -0.24--0.26; da Silva et al., 2017).

Demographics (at baseline only)

As shown in Table 6.1, participants were asked to list their age and indicate which gender they identified as (where prefer not to say/prefer to self-describe was also included), their email address so the researcher could touch base with them as part of the intervention and send email reminders to complete each session, the highest level of education they had completed, employment status, relationship status and ethnicity.

Self-Criticism

Description and Factor Structure. The 10-item Self-Critical Rumination Scale (SCRS, Smart et al., 2016) was used to measure participants' levels of ruminative self-criticism. This asks people to rate the extent to which a series of self-critical statements are true about them (e.g. "*I wish I spent less time criticising myself"*) on a 4-point Likert scale (1 = Not at all, 4 = Very much). The mean across all item scores are used to calculate a global summary score. Higher scores indicate greater self-critical rumination. Whilst the scale was originally developed with 39 items, items that were rated as unclear or inadequately measuring the construct were removed, as well as items with excessively high item-total correlations to reduce redundancy in the measure (Smart et al., 2016). A single-factor solution emerged, which accounted for over 60% variance and with factor loadings above .4. The single-factor structure has similarly been replicated in a recent study (CFI = 0.94-0.97, Martínez-Sanchis et al., 2021; Moreira & Maia, 2021) with factor loadings between .55-.86.

Reliability. Table 6.3 presents Cronbach's alphas and omegas across all three time points for each outcome variable explored in this study. The SCRS demonstrated good internal consistency across each time point (α = .92–.96), and validation studies have

presented good internal reliability (α = .91–.93; Martínez-Sanchis et al., 2021; Moreira & Maia, 2021; Smart et al., 2016) and test-retest reliability (*r* = .86).

Validity. The SCRS has previously correlated with measures of rumination, shame, self-criticism, self-compassion, emotion regulation, attachment, psychopathology, perceived stress and distress (Martínez-Sanchis et al., 2021; Moreira & Maia, 2021; Smart et al., 2016). Smart et al. (2016) also reported incremental validity when their results found that the SCRS was able to predict general distress and borderline personality features when controlling for rumination or shame, and Martínez-Sanchis et al. (2021) reported criterion validity through negative correlations between the SCRS and measures of self-compassion.

The remaining measures utilised in this chapter, as listed below, are described in greater detail in **Chapter 3** with regard to the psychometric properties of each measure.

The 22-item Forms of Self-Criticising/Attacking and Self-Reassuring scale (FSCRS, Gilbert et al., 2004) measured participants' levels of self-criticism and self-reassurance. This scale asks people to rate the extent to which a series of statements are true about them on a 5-point Likert scale (0 = not at all like me, 4 = extremely like me). It consists of three subscales; 'Inadequate-self' (9 items assessing feelings of failure and inadequacy, 'Hated-self' (5 items focused on more self-hating and contemptuous feelings, and 'Reassuring-self' (8 items assessing positive and compassionate feelings directed towards oneself). Higher scores on the inadequate- and hated-self subscales indicate greater self-criticism, whilst a higher score on the reassuring-self subscale indicates greater self-reassurance. All three subscales had good internal consistency across each time point (α = .82–.95).

Fears of Compassion

The 38-item Fears of Compassion Scale (FCS; Gilbert et al., 2011) measured participants' levels of fear towards engaging with compassion-based processes. This has three subscales which ask people a series of statements to rate their fear of expressing compassion

to others, fear of receiving compassion from others, and their fear of self-compassion on a 5-point Likert scale (0 = Don't agree at all, 4 = Completely agree). Higher levels indicate a greater fear of self-compassion. All three subscales demonstrated good internal consistency across each time point (α = .82–.95).

Eating Disorder Psychopathology

The 28-item Eating Disorder Examination Questionnaire (EDE-Q, Fairburn & Beglin, 2008) was used to measure participants' ED psychopathology over the previous 28 days. This asks people to rate a series of statements about their eating habits over the past four weeks on a 7-point Likert scale (0 = No days, 6 = Every day). Frequencies of key DE behaviours were also assessed in terms of the number of episodes of each behaviour occurring during the past 28 days. Higher levels indicate greater ED psychopathology. Internal consistency in the current study was good across the three time points (α = .91–.96).

Body Image Acceptance

Given the relationship between body image and DE (Andersen & Swami, 2021; Braun et al., 2016), with self-compassion fostering similar benefits to both (Linardon, 2021) and a brief self-compassion treatment previously showing promise in reducing body image distress (Toole & Craighead, 2016), this study included a measure of body image flexibility to explore if any similar changes can be observed in our brief intervention. The 12-item Body Image Acceptance and Action Questionnaire (BI-AAQ, Sandoz et al., 2013) was used to measure participants' body image flexibility. This asks people to rate a series of statements about one's capacity to experience ongoing perceptions, sensations, thoughts, feelings, and beliefs related to one's body whilst pursuing value-based goals on a 7-point Likert scale (1 = Never true, 7 = Always true), which are reversed scored and summed such that higher levels indicate greater body image acceptance. In the current study, the BI-AAQ significantly correlated at -.52 and -.57 with the two over-evaluation items (shape and weight) from the

EDE-Q, indicating that greater over-evaluation of shape or weight was linked with lower body image acceptance. Table 6.3 shows that the scale demonstrated good internal consistency across all three time points (α = .90–.97).

Quality of Life

The 16-item Clinical Impairment Assessment (CIA, Bohn et al., 2008, Bohn & Fairburn, 2008) measured participants' levels of psychosocial impairment caused by EDs. This asks people to rate how their eating habits, exercising, or feelings about their eating, shape or weight have affected them over the past four weeks on a 4-point Likert scale (0 = Not at all, 3 = A lot), which are then summed to calculate a global impairment score. Higher levels indicate greater psychosocial impairment. The scale demonstrated good internal consistency across all time points (α = .94–.97).

General Negative Emotion

The 21-item Depression Anxiety Stress Scale (DASS-21, Lovibond & Lovibond, 1995) was used to measure depression, anxiety, and stress with seven items for each subscale. This asks people to rate how often they have experienced a series of situations over the past week on a 4-point Likert scale (0 = Never, 3 = Almost always), where higher scores indicate greater levels of depression, anxiety, and stress. As seen in Table 6.3, all three subscales demonstrated good internal consistency across each time point (α = .84–.95).

Table 6.3

Cronbach's alphas and omegas across each time point

Variables	Baseline		One-week post-randomisation		Two-weeks post-randomisation	
	Cronbach's Alpha	Omega	Cronbach's Alpha	Omega	Cronbach's Alpha	Omega
FSCRS _IS	.877	.881	.917	.921	.949	.952
FSCRS_HS	.847	.848	.868	.871	.817	.840
FSCRS_RS	.885	.882	.926	.925	.898	.899
SCRS	.917	.916	.956	.957	.962	.962
FCS_CForOthers	.839	.822	.894	.884	.900	.888
FCS_CFromOthers	.903	.897	.904	.901	.916	.910
FCS_SelfC	.926	.924	.943	.939	.952	.954
EDEQ_Global	.909	.906	.923	.913	.963	.962
BI-AAQ	.904	.906	.958	.959	.966	.970
CIA	.944	.943	.958	.955	.967	.968
DASS_S	.916	.918	.912	.914	.916	.914
DASS_A	.840	.843	.867	.870	.917	.921

DASS_D	.937	.940	.951	.954	.945	.945

Abbreviations: M = Mean; SD = Standard deviation; FSCRS_IS = Forms of self-criticizing/attacking and self-reassuring scale (Inadequate-self subscale); FSCRS_HS = Forms of self-criticizing/attacking and self-reassuring scale (Hated-self subscale); FSCRS_RS = Forms of self-criticizing/attacking and self-reassuring scale (Reassuring-self subscale); SCRS = Self-critical rumination scale; FCS_CForOthers = Fear of compassion scale (Fear of expressing compassion for others subscale); FCS_CFromOthers = Fear of compassion scale (Fear of receiving compassion from others subscale); FCS_SelfC = Fear of compassion scale (Fear of self-compassion subscale); EDEQ_Global = Eating disorders examination questionnaire; BI-AAQ = Body image acceptance and action questionnaire; CIA = Clinical impairment assessment; DASS_S = Depression anxiety stress scale (Stress subscale); DASS_A = Depression anxiety stress scale (Anxiety subscale); Depression anxiety stress scale (Depression subscale).

Procedure

A recruitment flyer was placed on Qualtrics outlining the aims of the study, what was expected of participants, and who would be eligible to participate. If interested, they were then redirected to the screening questionnaire. Participants who met the cut-off score for the WCS were then provided with the information sheet, which informed interested participants of the details of the study and their right to decline participation if they wished to withdraw, that they may do so at any time for any reason. Participants were asked to confirm their consent to participate in the study and provide an email address by which the primary researcher could connect with them as part of the intervention before they could commence the trial. Participants were informed in the information and consent when they would be asked to participate in the modules and how (i.e., at the start of the week), when they would have to complete the weekly measures, when the primary researcher would contact them, as well as the $30 reimbursement they would receive upon completion of the study. After completing the baseline measures, they were then randomised using Qualtrics. Participants in both the treatment and waitlist conditions were emailed the modules and measures over the following two weeks, with reimbursement for participants given upon completion of all the modules and measures for those in the treatment group, and completion of all the measures for those in the waitlist group as well as a copy of the modules.

Statistical Analyses

An *a priori* sample size calculation was conducted using a program developed by Hedeker and colleagues (1999). With power set at 0.80, statistical significance using an alpha level of .05 (two-sided), three assessment points, and an effect size set at moderate (0.50), 40 participants per group were required (total N = 80 participants). Due to the slow uptake from SONA and the constraints of completing the trial within the duration of the doctorate program, this resulted in a final sample of 40 participants (20 per condition). The data and

analyses were conducted using IBM SPSS Version 29 with an alpha level of .05 and effect sizes interpreted. Attrition was categorized as deciding to drop out of treatment or no longer participating in treatment (e.g., not completing the sessions/measures). Logistic regressions were conducted to identify whether there were baseline predictors of missing data and baseline predictors between groups.

Intervention effects for each outcome variable were assessed using linear mixed model (LMM) analyses with restricted maximum likelihood, resulting in a 2 (group: treatment, waitlist) x 3 (time: baseline, one-week post-randomization, two-week post-randomization) fixed effects model for each outcome variable. This approach allows for direct comparisons between conditions at each time point, and is robust with respect towards handling missing data, as all participants (i.e., including dropouts) with at least one observed data point are included in the analysis. Preliminary efficacy was examined using group-by-time interactions and line graphs depicting change over time within groups. Because of the limitations that small sample sizes pose to significance testing, between-group effect sizes (Cohen's *d*) were calculated as another indicator of intervention effects using the Campbell Collaboration tool inputting group means and standard errors (https://www.campbellcollaboration.org/research-resources/effect-size-calculator.html). Cohen's $d = 0.20$ is considered small, 0.50 moderate, and 0.80 large.

Results

Participant Flow and Attrition

Figure 6.1 presents the recruitment flow and attrition of participants in both groups over the three waves of data collection (baseline, one-week post- and two-weeks post-randomisation). Out of the 84 potential participants that completed the WCS, 30% ($n = 28$) did not meet the cut-off score on the screener, 11% ($n = 9$) did not respond to an invitation to participate after meeting eligibility, and 8% ($n = 7$) withdrew from the study before

randomisation. Attrition, defined as those who started treatment but who terminated prematurely, was categorised into two groups: Those who withdrew from the study and those who ceased without informing the researcher, which was 30% at both one-week and two-week post-randomisation for the treatment and waitlist groups.

Our screener questionnaire indicated that the mean WCS for this sample (M = 75.63, SD = 12.95) was well above the cut-off (i.e., 52), indicating a high risk of developing an ED. Specific DE behaviours showed that only three participants (7.5%) reported laxative misuse, with one (2.5%) engaged in a regular occurrence more than four times out of 28 days, given that this frequency is considered clinically significant (Mond et al., 2004; Quick & Byrd-Bredbenner, 2013). Three (7.5%) participants engaged in self-induced vomiting more than four times out of 28 days. Participants also reported a range of excessive exercise frequency, with five participants (12.5%) reporting regular excessive exercise for more than 20 out of 28 days (Mond et al., 2004; Quick & Byrd-Bredbenner, 2013). A third of participants (n = 12; 30%) reported never having an episode of binge eating, with 40% (n = 16) reporting four or more episodes of binge eating out of 28 days. A third of participants (n = 13; 32.5%) also reported regularly engaging in dietary restraint (going more than eight waking hours without eating anything at all) for 13 or more days out of 28 (Mond et al., 2004; Quick & Byrd-Bredbenner, 2013). Two-proportion z-tests compared differences in the proportion of participants who performed each DE behaviour to a comparative study examining norms for undergraduate women (Luce et al., 2008), which indicated that significantly more participants in this study reported regular occurrences of binge eating and dietary restraint (ps < .001) but no significant difference in laxative misuse, excessive exercise or self-induced vomiting.

Preliminary Analyses and Correlations

The data was first checked for normality to ensure the suitability of parametric tests, using visual inspection of distribution and formal inference tests (Tabachnick & Fidell,

2012). All the variables were found to be normally distributed. **Table 6.4** contains baseline descriptive statistics for all randomised participants for each variable.

Table 6.4

Group descriptive statistics for outcome measures at baseline (n = 40)

Variables	**Group**	***M***	***SD***	**Min**	**Max**
FSCRS_IS	Treatment	2.99	0.76	1.56	3.89
	Waitlist	3.04	0.66	1.56	4.00
FSCRS_HS	Treatment	2.08	1.10	0.40	3.60
	Waitlist	2.01	1.08	0.20	3.80
FSCRS_RS	Treatment	1.47	0.65	0.38	2.25
	Waitlist	1.54	0.89	0.00	3.38
SCRS	Treatment	3.31	0.53	2.40	4.00
	Waitlist	3.33	0.66	1.60	4.00
FCS_CForOthers	Treatment	2.05	0.88	0.70	3.70
	Waitlist	1.96	0.60	1.10	3.10
FCS_CFromOthers	Treatment	2.14	0.76	1.15	3.85
	Waitlist	1.80	0.76	0.15	3.69
FCS_SelfC	Treatment	2.00	0.79	0.07	3.53
	Waitlist	1.93	0.95	0.00	3.33
EDE_Q Global	Treatment	4.07	1.06	2.33	5.95
	Waitlist	3.90	1.06	2.30	5.55
BI-AAQ	Treatment	2.43	0.99	1.00	4.67
	Waitlist	3.12	1.10	1.58	5.75
CIA	Treatment	1.85	0.74	0.56	2.81
	Waitlist	1.66	0.63	0.38	2.94
DASS_S	Treatment	1.68	0.88	0.29	3.00
	Waitlist	1.69	0.78	0.29	3.00
DASS_A	Treatment	1.09	0.73	0.00	2.43
	Waitlist	1.28	0.68	0.14	2.57
DASS_D	Treatment	1.44	0.92	0.00	3.00
	Waitlist	1.61	0.86	0.14	3.00

Abbreviations: M = Mean; SD = Standard deviation; FSCRS_IS = Forms of self-criticizing/attacking and self-reassuring scale (Inadequate-self subscale); FSCRS_HS = Forms of self-criticizing/attacking and self-reassuring scale (Hated-self subscale); FSCRS_RS = Forms of self-criticizing/attacking and self-reassuring scale (Reassuring-self subscale); SCRS = Self-critical rumination scale; FCS_CForOthers = Fear of compassion scale (Fear of expressing compassion for others subscale); FCS_CFromOthers = Fear of compassion scale (Fear of receiving compassion from others subscale); FCS_SelfC = Fear of compassion scale (Fear of self-compassion subscale); EDEQ_Global = Eating disorders examination questionnaire; BI-AAQ = Body image acceptance and action questionnaire; CIA = Clinical impairment assessment; DASS_S = Depression anxiety stress scale (Stress subscale); DASS_A = Depression anxiety stress scale (Anxiety subscale); Depression anxiety stress scale (Depression subscale).

Table 6.5 presents the correlations for each variable at baseline. Strong intercorrelations were observed between self-criticism subscales in the FSCRS, with a positive correlation between the inadequate-self subscale and the hated-self subscale, and both had negative correlations with the reassuring-self subscale. The inadequate- and hated-self subscales from the FSCRS and the SCRS were significantly correlated with all other measures apart from the fear of expressing compassion for others subscale. Therefore, greater self-criticism was associated with greater fear of receiving compassion from others and self-compassion, ED psychopathology, psychosocial impairment related to ED, negative affect, and lower body image acceptance. However, whilst greater self-reassurance under the FSCRS scale was associated with lower self-criticism, lower fear of receiving compassion from others, lower fear of self-compassion, lower psychosocial impairment related to ED, lower negative affect and greater body image flexibility, it was not significantly associated with fear of expressing compassion for others and ED psychopathology. All other correlations were significant apart from the fear of expressing compassion for others subscale, which did not have a significant correlation with any of the other variables, and between fear of self-compassion and ED psychopathology.

Table 6.5

Correlations matrix at baseline (n = 40)

Variables	1	2	3	4	5	6	7	8	9	10	11	12
1. FSCRS_IS	-											
2. FSCRS_HS	0.85[3]	-										
3. FSCRS_RS	-0.68[3]	-0.64[3]	-									
4. SCRS	0.80[3]	0.67[3]	-0.69[3]	-								
5. FCS_CForOthers	-0.28	-0.27	0.07	-0.18	-							
6. FCS_CFromOthers	0.26	0.34[1]	-0.42[2]	0.38[1]	0.31	-						
7. FCS_SelfC	0.65[3]	0.69[3]	-0.56[3]	0.55[3]	0.08	0.65[3]	-					
8. EDE_Q Global	0.48[2]	0.41[1]	-0.26	0.56[3]	-0.12	0.39[1]	0.29	-				
9. BI-AAQ	-0.52[3]	-0.48[2]	0.33[1]	-0.58[3]	0.14	-0.38[1]	-0.40[1]	-0.72[3]	-			
10. CIA	0.66[3]	0.63[3]	-0.44[2]	0.62[3]	-0.14	0.42[2]	0.49[2]	0.74[3]	-0.73[3]	-		
11. DASS_S	0.75[3]	0.78[3]	-0.68[3]	0.66[3]	-0.22	0.44[2]	0.60[3]	0.43[2]	-0.48[2]	0.72[3]	-	
12. DASS_A	0.53[3]	0.67[3]	-0.42[2]	0.38[1]	-0.20	0.44[2]	0.65[3]	0.34[1]	-0.32[1]	0.54[3]	0.77[3]	-
13. DASS_D	0.83[3]	0.76[3]	-0.69[3]	0.70[3]	-0.04	0.47[2]	0.72[3]	0.37[1]	-0.50[3]	0.68[3]	0.89[3]	0.67[3]

Note: [1]$p < .05$; [2]$p < .01$; [3]$p < .001$. Abbreviations: FSCRS_IS = Forms of self-criticizing/attacking and self-reassuring scale (Inadequate-self subscale); FSCRS_HS = Forms of self-criticizing/attacking and self-reassuring scale (Hated-self subscale); FSCRS_RS = Forms of self-criticizing/attacking and self-reassuring scale (Reassuring-self subscale); SCRS = Self-critical rumination scale; FCS_CForOthers = Fear of compassion scale (Fear of expressing compassion for others subscale); FCS_CFromOthers = Fear of compassion scale (Fear of receiving compassion from others subscale); FCS_SelfC = Fear of compassion scale (Fear of self-compassion subscale); EDE-Q Global = Eating disorders examination questionnaire; BI-AAQ = Body image acceptance and action questionnaire; CIA = Clinical impairment assessment; DASS_S = Depression anxiety stress scale (Stress subscale); DASS_A = Depression anxiety stress scale (Anxiety subscale); Depression anxiety stress scale (Depression subscale).

Baseline Analyses

Logistic regressions were conducted to assess baseline differences between the treatment and waitlist groups. The results can be found in **Table 6.6**, where groups did not differ on outcome measures at baseline. Participants were then divided into those who dropped out after completing measures at baseline (n = 16, 40%) and those who completed all three waves of data collection (n = 24, 60%) to examine whether dropout occurred at random. As seen in Table 6.6, dropout was not significantly related to baseline measures, indicating that the data was missing at random.

Symptom Change Across the Course of Treatment

Table 6.7 presents estimated group changes across each time point for all outcome measures examined in the intent-to-treat analyses. **Table 6.8** reports the main group and time effects as well as group-by-time interactions across each variable. Main effects of time were observed for all of the variables apart from the fear of receiving compassion from others and fear of self-compassion subscales of the FCS, whereby levels of self-criticism, self-critical rumination, fear of expressing compassion for others, ED psychopathology, clinical impairment associated with ED, depression, anxiety, and stress significantly reduced over time whilst the self-reassurance subscale of the FSCRS and body image flexibility significantly improved over time. There were also significant interactions between group and time for the fear of receiving compassion from others subscale of the FCS and the BI-AAQ. This indicated a superior impact of the intervention in reducing fear of receiving compassion from others and increasing body image flexibility over time compared to the waitlist group. **Table 6.9** shows the between-group Cohen's d at one-week and two-weeks post-randomisation and 95% confidence intervals across each outcome, with all the variables not reaching significance. **Figures 6.2 to 6.14** illustrate group changes across the three time points for each variable.

Table 6.6

Summary of logistic regressions evaluating baseline group differences

Variables	Comparing Groups on Baseline Measures		Baseline Measures as Predictors of Dropout	
	OR	95% CI	OR	95% CI
FSCRS_IS	1.13	0.45–2.80	0.78	0.30–2.02
FSCRS_HS	0.94	0.52–1.70	0.88	0.48–1.63
FSCRS_RS	1.13	0.49–2.58	0.90	0.39–2.10
SCRS	1.04	0.35–3.06	0.73	0.23–2.32
FCS_CForOthers	0.84	0.35–2.03	1.39	0.55–3.51
FCS_CFromOthers	0.54	0.21–1.34	1.94	0.72–5.20
FCS_SelfC	0.91	0.43–1.92	1.16	0.54–2.51
EDE_Q Global	0.85	0.46–1.57	0.70	0.37–1.32
BI-AAQ	1.94	0.99–3.84	1.13	0.62–2.07
CIA	0.66	0.26–1.71	0.93	0.36–2.41
DASS_S	1.00	0.46–2.19	1.00	0.45–2.22
DASS_A	1.49	0.59–3.75	0.74	0.29–1.89
DASS_D	1.27	0.61–2.63	1.07	0.51–2.25

Abbreviations: OR = Odds ratio; 95% CI = Confidence intervals; FSCRS_IS = Forms of self-criticizing/attacking and self-reassuring scale (Inadequate-self subscale); FSCRS_HS = Forms of self-criticizing/attacking and self-reassuring scale (Hated-self subscale); FSCRS_RS = Forms of self-criticizing/attacking and self-reassuring scale (Reassuring-self subscale); SCRS = Self-critical rumination scale; FCS_CForOthers = Fear of compassion scale (Fear of expressing compassion for others subscale); FCS_CFromOthers = Fear of compassion scale (Fear of receiving compassion from others subscale); FCS_SelfC = Fear of compassion scale (Fear of self-compassion subscale); EDE_Q Global = Eating disorders examination questionnaire; BI-AAQ = Body image acceptance and action questionnaire; CIA = Clinical impairment assessment;

DASS_S = Depression anxiety stress scale (Stress subscale); DASS_A = Depression anxiety stress scale (Anxiety subscale); Depression anxiety stress scale (Depression subscale).

Table 6.7

Estimated group scores on outcome measures at baseline, 1-week, and 2-weeks post-randomisation

Variables	**Group**	M_B	SE_B	M_1	SE_1	M_2	SE_2
		Baseline		***1-week***		***2-week***	
FSCRS_IS	Treatment	2.93	0.16	2.59	0.18	2.04	0.26
	Waitlist	3.04	0.16	2.95	0.19	2.67	0.28
FSCRS_HS	Treatment	1.99	0.25	2.09	0.26	1.27	0.25
	Waitlist	2.01	0.25	1.89	0.26	1.45	0.27
FSCRS_RS	Treatment	1.54	0.18	1.78	0.22	2.26	0.21
	Waitlist	1.54	0.18	1.57	0.22	1.65	0.23
SCRS	Treatment	3.25	0.14	3.06	0.19	2.53	0.21
	Waitlist	3.33	0.14	3.12	0.19	3.01	0.22
FCS_CForOthers	Treatment	2.05	0.17	1.96	0.18	1.37	0.19
	Waitlist	1.96	0.17	1.86	0.19	1.73	0.21
FCS_CFromOthers	Treatment	2.06	0.18	1.98	0.19	1.37	0.20
	Waitlist	1.80	0.18	1.93	0.19	1.94	0.21
FCS_SelfC	Treatment	1.91	0.21	1.97	0.23	1.47	0.25
	Waitlist	1.93	0.20	1.82	0.23	1.77	0.27
EDE_Q Global	Treatment	4.07	0.24	3.55	0.28	3.10	0.37
	Waitlist	3.90	0.24	3.55	0.28	3.23	0.38

BI-AAQ	Treatment	2.43	0.24	3.11	0.38	3.64	0.40
	Waitlist	3.12	0.23	3.19	0.39	3.15	0.42
CIA	Treatment	1.85	0.16	1.57	0.19	1.09	0.20
	Waitlist	1.66	0.15	1.48	0.19	1.40	0.21
DASS_S	Treatment	1.68	0.19	1.55	0.20	1.11	0.21
	Waitlist	1.69	0.19	1.65	0.20	1.32	0.23
DASS_A	Treatment	1.09	0.16	0.90	0.17	0.68	0.18
	Waitlist	1.28	0.16	1.12	0.17	0.83	0.19
DASS_D	Treatment	1.44	0.20	1.35	0.22	0.92	0.23
	Waitlist	1.61	0.20	1.33	0.22	1.48	0.25

Abbreviations: M_B = Mean score at baseline; M_1 = Mean score at one-week post-randomisation; M_2 = Mean score at two-weeks post-randomisation; SE_B = Standard error at baseline; SE_1 = Standard error at one-week post-randomisation; SE_2 = Standard error at two-weeks post-randomisation; FSCRS_IS = Forms of self-criticizing/attacking and self-reassuring scale (Inadequate-self subscale); FSCRS_HS = Forms of self-criticizing/attacking and self-reassuring scale (Hated-self subscale); FSCRS_RS = Forms of self-criticizing/attacking and self-reassuring scale (Reassuring-self subscale); SCRS = Self-critical rumination scale; FCS_CForOthers = Fear of compassion scale (Fear of expressing compassion for others subscale); FCS_CFromOthers = Fear of compassion scale (Fear of receiving compassion from others subscale); FCS_SelfC = Fear of compassion scale (Fear of self-compassion subscale); EDE-Q Global = Eating disorders examination questionnaire; BI-AAQ = Body image acceptance and action questionnaire; CIA = Clinical impairment assessment; DASS_S = Depression anxiety stress scale (Stress subscale); DASS_A = Depression anxiety stress scale (Anxiety subscale); Depression anxiety stress scale (Depression subscale).

Table 6.8

Main effects and group-by-time interactions across each variable

Variables	Time *F*(df)*p*	Group *F*(df)*p*	Time x Group *F*(df)*p*
FSCRS_IS	***F*(2, 24.52) = 12.96, *p* < .001**	*F*(1, 39.35) = 2.09, *p* = .156	*F*(2, 24.52) = 2.88, *p* = .076
FSCRS_HS	***F*(2, 25.66) = 7.56, *p* = .003**	*F*(1, 36.90) = 0.00, *p* = .996	*F*(2, 25.66) = 0.76, *p* = .480
FSCRS_RS	***F*(2, 24.89) = 4.61, *p* = .020**	*F*(1, 35.43) = 1.16, *p* = .288	*F*(2, 24.89) = 2.44, *p* = .108
SCRS	***F*(2, 23.78) = 9.20, *p* = .001**	*F*(1, 37.09) = 0.78, *p* = .383	*F*(2, 23.78) = 1.77, *p* = .193
FCS_CForOthers	***F*(2, 27.43) = 4.11, *p* = .028**	*F*(1, 36.55) = 0.08, *p* = .776	*F*(2, 27.43) = 0.99, *p* = .383
FCS_CFromOthers	*F*(2, 25.02) = 3.00, *p* = .068	*F*(1, 34.15) = 0.14, *p* = .709	***F*(2, 25.02) = 4.64, *p* = .019**
FCS_SelfC	*F*(2, 24.33) = 2.06, *p* = .149	*F*(1, 35.59) = 0.04, *p* = .843	*F*(2, 24.33) = 1.05, *p* = .364
EDE_Q Global	***F*(2, 21.91) = 12.13, *p* < .001**	*F*(1, 36.33) = 0.002, *p* = .969	*F*(2, 21.91) = 0.42, *p* = .660
BI-AAQ	***F*(2, 21.56) = 4.69, *p* = .020**	*F*(1, 36.03) = 0.05, *p* = .827	***F*(2, 21.56) = 4.00, *p* = .033**
CIA	***F*(2, 24.56) = 14.96, *p* < .001**	*F*(1, 37.19) = 0.002, *p* = .968	*F*(2, 24.56) = 2.60, *p* = .094
DASS_S	***F*(2, 25.73) = 5.90, *p* = .008**	*F*(1, 37.01) = 0.18, *p* = .673	*F*(2, 25.73) = 0.44, *p* = .652
DASS_A	***F*(2, 25.66) = 7.20, *p* = .003**	*F*(1, 36.61) = 0.73, *p* = .397	*F*(2, 25.66) = 0.12, *p* = .889
DASS_D	***F*(2, 26.23) = 5.00, *p* = .014**	*F*(1, 37.38) = 0.82, *p* = .372	*F*(2, 26.23) = 1.57, *p* = .227

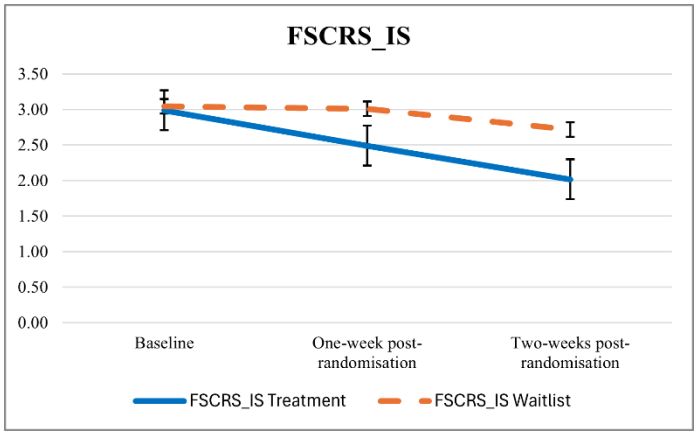
Note: Bolded results indicate significant main effects and interactions, evidenced by $p < .05$.
Abbreviations: FSCRS_IS = Forms of self-criticizing/attacking and self-reassuring scale (Inadequate-self subscale); FSCRS_HS = Forms of self-criticizing/attacking and self-reassuring scale (Hated-self subscale); FSCRS_RS = Forms of self-criticizing/attacking and self-reassuring scale (Reassuring-self subscale); SCRS = Self-critical rumination scale; FCS_CForOthers = Fear of compassion scale (Fear of expressing compassion for others subscale); FCS_CFromOthers = Fear of compassion scale (Fear of receiving compassion from others subscale); FCS_SelfC = Fear of compassion scale (Fear of self-compassion subscale); EDE_Q Global = Eating disorders examination questionnaire; BI-AAQ = Body image acceptance and action questionnaire; CIA = Clinical impairment assessment; DASS_S = Depression anxiety stress scale (Stress subscale); DASS_A = Depression anxiety stress scale (Anxiety subscale); Depression anxiety stress scale (Depression subscale).

Table 6.9

Between-group effect sizes and 95% confidence intervals

Variables	One-week post-randomisation *d* [95%CI]	Two-weeks post-randomisation *d* [95%CI]
FSCRS_IS	-0.43[-1.06: 0.19]	-0.52[-1.15: 0.11]
FSCRS_HS	0.18[-0.44: 0.80]	-0.16[-0.78: 0.46]
FSCRS_RS	0.21[-0.41: 0.83]	0.61[-0.03: 1.24]
SCRS	-0.07[-0.69: 0.55]	-0.49[-1.12: 0.13]
FCS_CForOthers	0.12[-0.50: 0.74]	-0.40[-1.03: 0.22]
FCS_CFromOthers	0.06[-0.56: 0.68]	-0.62[-1.26: 0.01]
FCS_SelfC	0.14[-0.48: 0.76]	-0.26[-0.88: 0.37]
EDE_Q Global	0.001[-0.62: 0.62]	-0.08[-0.70: 0.54]
BI-AAQ	-0.04[-0.66: 0.58]	0.27[-0.35: 0.89]
CIA	0.11[-0.51: 0.73]	-0.34[-0.96: 0.29]
DASS_S	-0.11[-0.73: 0.51]	-0.22[-0.84: 0.40]
DASS_A	-0.29[-0.91: 0.33]	-0.19[-0.81: 0.44]
DASS_D	0.01[-0.61: 0.63]	-0.53[-1.16: 0.10]

Abbreviations: M = Mean; SD = Standard deviation; FSCRS_IS = Forms of self-criticizing/attacking and self-reassuring scale (Inadequate-self subscale); FSCRS_HS = Forms of self-criticizing/attacking and self-reassuring scale (Hated-self subscale); FSCRS_RS = Forms of self-criticizing/attacking and self-reassuring scale (Reassuring-self subscale); SCRS = Self-critical rumination scale; FCS_CForOthers = Fear of compassion scale (Fear of expressing compassion for others subscale); FCS_CFromOthers = Fear of compassion scale (Fear of receiving compassion from others subscale); FCS_SelfC = Fear of compassion scale (Fear of self-compassion subscale); EDE_Q Global = Eating disorders examination questionnaire; BI-AAQ = Body image acceptance and action questionnaire; CIA = Clinical impairment assessment; DASS_S = Depression anxiety stress scale (Stress subscale); DASS_A = Depression anxiety stress scale (Anxiety subscale); Depression anxiety stress scale (Depression subscale).


FSCRS_IS
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3.00
2.50
2.00
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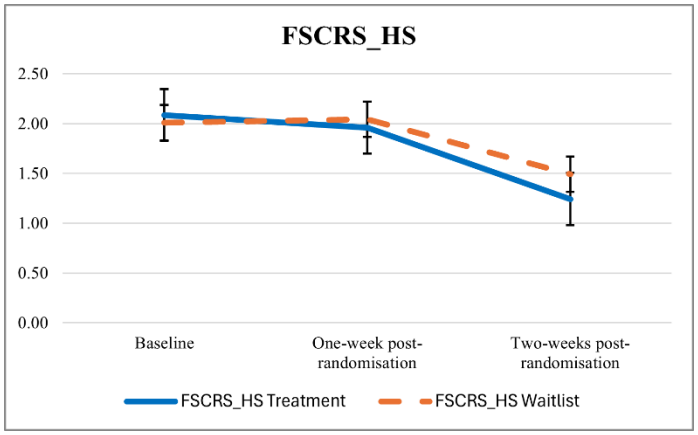
0.00
Baseline
One-week post-randomisation
Two-weeks post-randomisation
FSCRS_IS Treatment
FSCRS_IS Waitlist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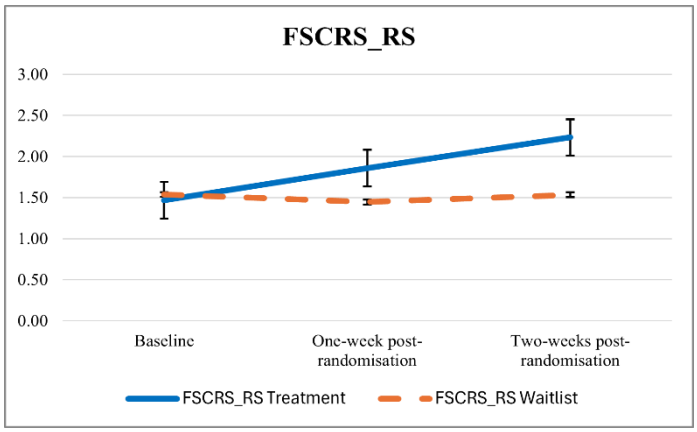
Two-weeks post-randomisation
FSCRS_HS Treatment
FSCRS_HS Waitlist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2.00
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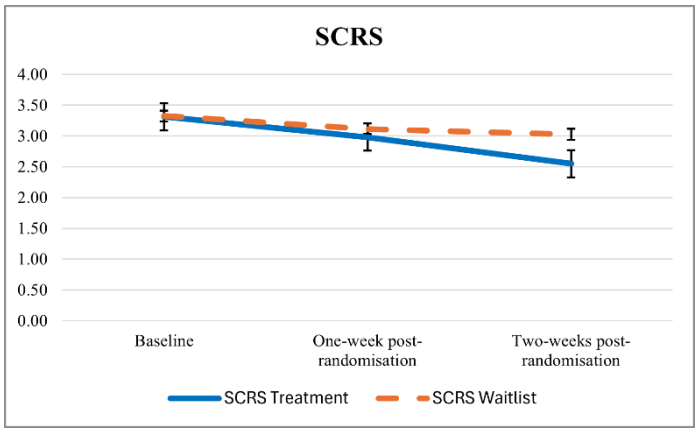
One-week post-randomisation
Two-weeks post-randomisation
FSCRS_RS Treatment
FSCRS_RS Waitlist


SCRS
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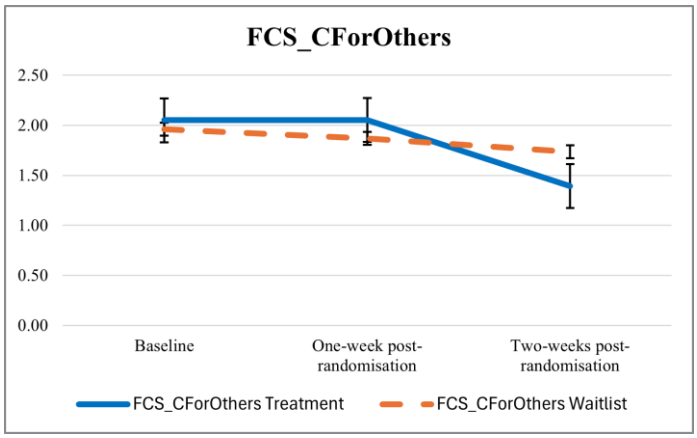
One-week post-randomisation
Two-weeks post-randomisation
SCRS Treatment
SCRS Waitlist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2.00
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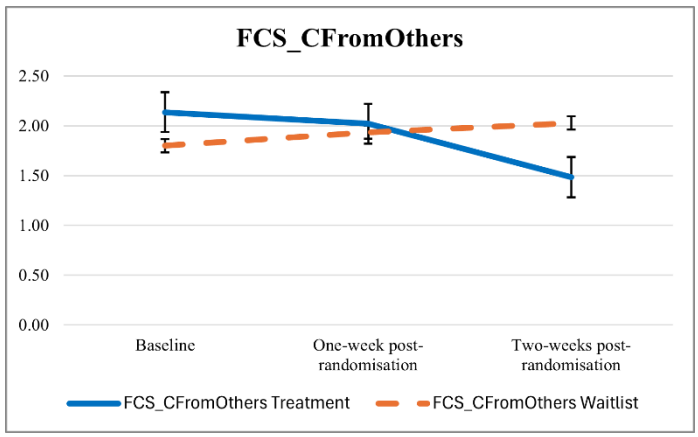
Baseline
One-week post-randomisation
Two-weeks post-randomisation
FCS_CForOthers Treatment
FCS_CForOthers Waitlist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Two-weeks post-randomisation
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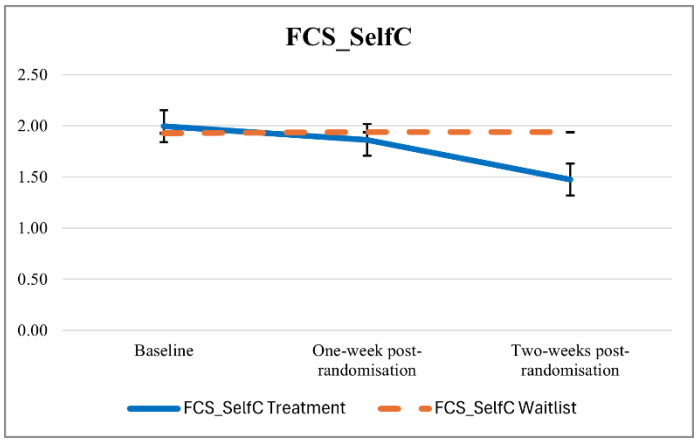
FCS_CFromOthers Waitlist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Two-weeks post-randomisation
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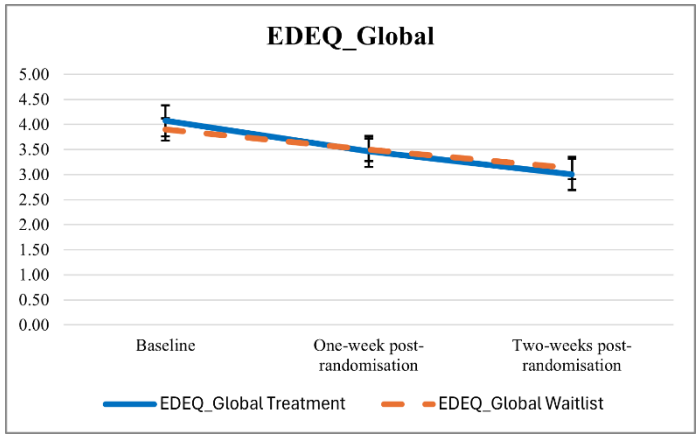
FCS_SelfC Waitlist


EDEQ_Global
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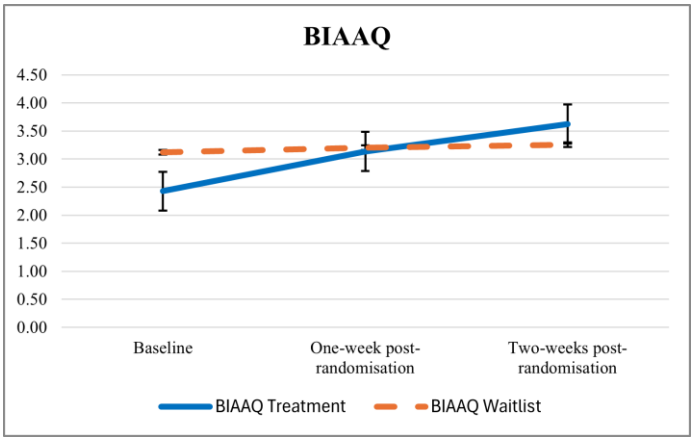
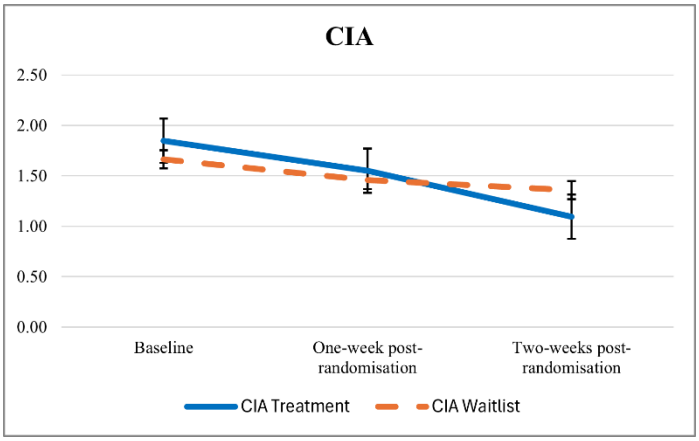
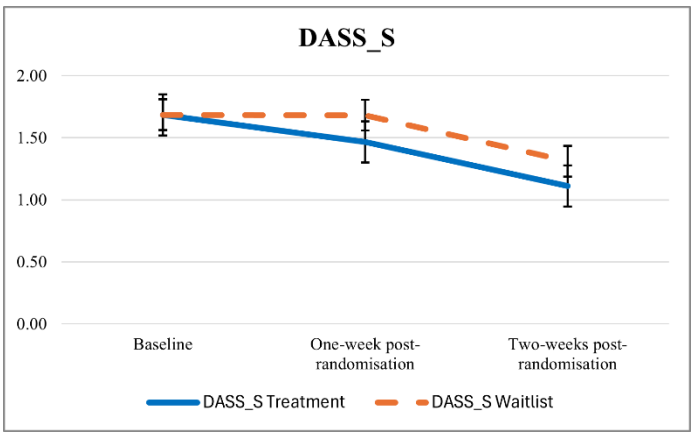
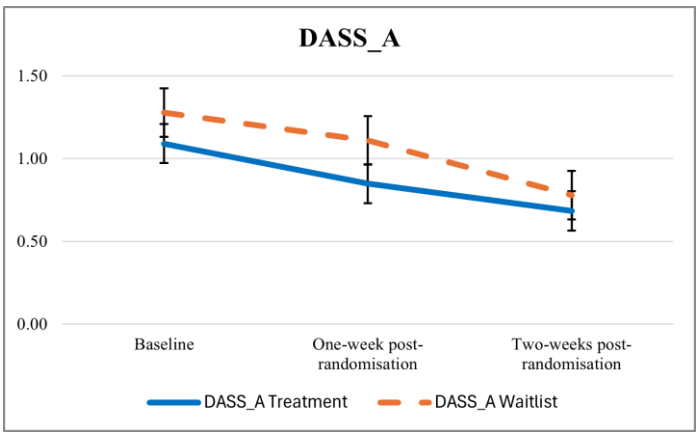
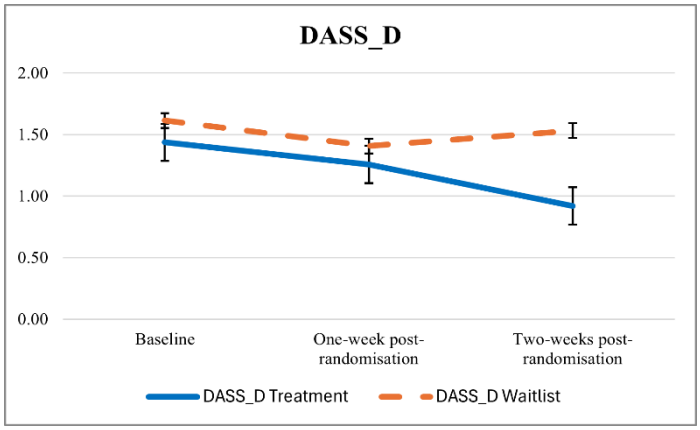
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Baseline
One-week post-randomisation
Two-weeks post-randomisation
EDEQ_Global Treatment
EDEQ_Global Waitlist











Figures 6.2 – 6.14. *Line graphs of outcomes across measurement points from the linear mixed models. Y-axes cover score ranges for each outcome. Error bars represent standard errors.* Abbreviations: M = Mean; SD = Standard deviation; FSCRS_IS = Forms of self-criticizing/attacking and self-reassuring scale (Inadequate-self subscale); FSCRS_HS = Forms of self-criticizing/attacking and self-reassuring scale (Hated-self subscale); FSCRS_RS = Forms of self-criticizing/attacking and self-reassuring scale (Reassuring-self subscale); SCRS = Self-critical rumination scale; FCS_CForOthers = Fear of compassion scale (Fear of expressing compassion for others subscale); FCS_CFromOthers = Fear of compassion scale (Fear of receiving compassion from others subscale); FCS_SelfC = Fear of compassion scale (Fear of self-compassion subscale); EDEQ_Global = Eating disorders examination questionnaire; BI-AAQ = Body image acceptance and action questionnaire; CIA = Clinical impairment assessment; DASS_S = Depression anxiety stress scale (Stress subscale); DASS_A = Depression anxiety stress scale (Anxiety subscale); Depression anxiety stress scale (Depression subscale).

Discussion

This study examined the effectiveness of a brief guided self-help intervention delivered virtually to reduce self-criticism and increase self-compassion in participants with DE. Consistent with previous literature, participants with greater self-criticism scores on the SCRS and the inadequate- and hated-self factors of the FSCRS experienced greater body image dissatisfaction and DE psychopathology. The relationship between self-criticism and DE has been established in the literature, with a meta-analysis indicating that greater self-criticism is linked with greater levels of DE (Paranjothy & Wade, 2024). While our hypothesis was not supported, with no significant between-group effect sizes at the end of the intervention, two significant interactions were found. Participants in the treatment group significantly improved in body image flexibility compared to waitlist controls. Whilst DE was not significantly different from the waitlist group post-treatment, changes in body image flexibility suggests that showing compassion towards the self which includes any body image-related thoughts and feelings could then lead to flow-on effect on DE in longer treatments, however further testing is warranted to determine if self-compassion interventions specifically targeting body image can be more effective compared to targeting DE. We did not see any other differences emerging for our self-criticism and self-compassion variables, which is somewhat puzzling. However, fear of receiving compassion from others decreased in the intervention group, while it was relatively stable in the control group. Whilst further replication is required to understand if our findings were an anomaly, it does imply that a compassion-focused adjunct that includes an additional focus on addressing fears of compassion and body image acceptance may be required to first challenge participants' fears about seeking care from others in order to subsequently detect changes in self-criticism, self-compassion and DE.

The present study includes several limitations. First, the lack of significant between-group effect sizes following baseline reflects the study's insufficient power to detect smaller effects. Future studies should look to examine these outcomes with bigger sample sizes. Second, since this study did not include any follow-up measures, exploring if improvements in the treatment group are

maintained long-term would be beneficial. Finally, 80% of the sample were females, a demographic heavily represented in lifetime prevalence rates of DE compared to males (Qian et al., 2022).

Conclusion

Targeting risk factors that maintain DE early in treatment may ensure that patients achieve the greatest psychological benefits during and after treatment. While an earlier pilot study showed promise in improving outcomes after the use of a self-criticism intervention, the current pilot study was less conclusive and still did not impact our intended target variable, self-criticism. Further work is required to develop effective interventions in this area. The next Chapter revisits the key aims of the thesis and synthesises the findings identified across the previous studies. How these results contribute to research and clinical settings are discussed, with limitations and directions for future research.

CHAPTER 7: GENERAL DISCUSSION[3]

[3] This chapter contains content from a paper that was published which can be found in **Appendix A**. The first author contributed 20% to the research design, 80% to data collection and analysis, and 80% to the writing and editing. The second author contributed 80% to the research design, 20% to data collection and analysis, and 20% to the writing and editing.

Paranjothy, S. M., & Wade, T. D. (2024). A meta-analysis of disordered eating and its association with self-criticism and self-compassion. *International Journal of Eating Disorders, 57*(3), 473–536. https://doi.org/10.1002/eat.24166

Overview of Thesis Aims

This thesis aimed to examine the associations between self-criticism and self-compassion and whether these factors would be efficacious to target in adjunct treatments for disordered eating (DE). We first examined the psychometric properties of the Forms of Self-Criticizing/Attacking and Self-Reassuring Scale (FSCRS; Gilbert et al., 2004) in a mixed undergraduate and clinical sample with eating disorders (EDs) to ensure that an appropriate measure can be utilised in both research and clinical settings (**Chapter 3**). Then, we looked at the literature that has previously explored the relationship between self-criticism, self-compassion, and DE to strengthen the evidence that greater self-compassion and reduced self-criticism are linked with lower DE symptoms (**Chapter 4**). We then explored if a fear of engaging in compassion-based processes might influence changes in self-criticism and DE during and after treatment to inform of the underlying relationships between these constructs and highlight the benefits of alleviating this fear early in treatment (**Chapter 5**). Finally, we examined the efficacy of an online guided self-help intervention to reduce self-criticism and increase self-compassion in participants with an elevated risk of developing an ED with comparisons between a treatment and waitlist control group (**Chapter 6**).

Summary of Key Findings

The Relationship between Self-Criticism and DE using the FSCRS

Chapter 3 first identified an appropriate psychometrically tested measure of self-criticism using a confirmatory factor analysis (CFA), which had previously not been examined with a focus on a DE population. The 3-factor Forms of Self-Criticizing/Attacking and Self-Reassuring Scale (FSCRS; Gilbert et al., 2004) was validated as a good fit in a clinical and undergraduate sample compared to a 2-factor (combined self-critical factors and reassuring-self factor) and unidimensional models, consistent with the original authors' findings as well as previous studies that have examined the factor structure of the 3-factor measure (Castilho et al., 2015; Gilbert et al., 2004; Leboeuf et al., 2019). While invariance was supported for factor loadings but not item thresholds, this supports the utility of the questionnaire, suggesting that the clinical population

scored more highly on the FSCRS items than the undergraduate sample. Further, correlation analyses in the undergraduate and clinical group (the latter of which was also utilised in **Chapter 5**), as well as correlational analysis in **Chapter 6** during our randomised controlled trial (RCT) aimed at reducing self-criticism and increasing self-compassion in participants at risk of developing EDs, found that participants with greater self-criticism scores on the inadequate- and hated-self of the FSCRS were linked with greater ED psychopathology and clinical impairment associated with ED. Test-retest reliability analyses in **Chapter 3** also found that the FSCRS remained stable over time, and self-criticism levels were not impacted by extraneous factors, strengthening confidence in this tool for DE populations.

As seen in **Chapter 3**, self-criticism also shared unique variance with DE, but this differed between the samples. In the undergraduate sample, depression was the only significant independent predictor of psychosocial impairment related to ED with no significant predictors from the self-criticism subscales, but in the clinical sample, the significant predictors of ED psychopathology were the inadequate-self subscale (capturing feelings of failure and inadequacy) and reassuring-self subscale (capturing feelings of compassionate feelings towards oneself) whilst significant predictors of psychosocial impairment related to ED were the inadequate- and reassuring-self subscale of the FSCRS as well as stress and depression. These findings suggest that early reductions in self-criticism may improve treatment outcomes through a greater reduction in ED symptomology and related constructs often impacted due to DE, including depression and stress. This was supported by a previous factor analysis of the FSCRS (Castilho et al., 2015), where both their clinical and non-clinical samples showed significant links between self-criticism, general health, depression and stress measures, highlighting the comorbidity observed between EDs and various psychological maladjustments, and Fennig et al. (2008) who similarly found self-criticism to be a strong predictor for ED symptoms.

The MA in **Chapter 4** also focused on the association between self-criticism and DE across 135 studies with data from over 40,000 participants. The integration of the literature strengthened

support for the relationship between self-criticism and DE, which was observed across both clinical and non-clinical samples, and longitudinal evidence of this relationship was also observed. Out of ten various measures related to self-criticism, the FSCRS also demonstrated the most robust relationship with DE. Previous meta-analyses similarly have captured the harmful impact of self-criticism for most psychopathological conditions, including across multiple ED diagnoses (Löw et al., 2020; van der Kaap-Deeder et al., 2016). The MA also looked at how self-critical perfectionism was associated with DE, given that perfectionism was one of the first transdiagnostic mechanisms identified to target for ED treatment (Fairburn et al., 2003) and its close relationship with self-criticism (Dunkley et al., 2006; Steele et al., 2011). Whilst self-critical perfectionism in this MA and previous research has been associated with DE (Egan et al., 2011), moderation analyses revealed that self-criticism predicted greater DE than self-critical perfectionism, highlighting that self-criticism might be more pertinent to target in adjunct treatments for DE compared to perfectionism.

The Relationship Between Self-Criticism, Self-Compassion, and DE

The interplay between self-criticism, self-compassion, and DE was examined across the literature in the MA (**Chapter 4**). This was to build on previous systematic reviews and meta-analyses that separately looked at the relationship between self-criticism and ED (Löw et al., 2020), between self-compassion and ED (Ferrari et al., 2019; Morgan-Lowes et al., 2023), or between self-compassion and self-criticism (Wakelin et al., 2021). The MA integrated these constructs to suggest that individuals with DE may benefit from an integrated treatment approach to reduce self-criticism and promote self-compassion, with greater self-compassion linked with reduced self-criticism and DE across 18 studies in the literature.

This relationship was subsequently explored in our RCT (**Chapter 6**), where correlational analyses revealed greater self-compassion was linked with reduced self-criticism and DE, suggesting the protective role of engaging in affiliative feelings towards the self. The CFA in **Chapter 3** also showed that greater inadequate- and hated-self subscale scores of the FSCRS were

strongly linked with lower self-reassurance, and regression analysis demonstrated that self-reassurance contributes unique variance to ED psychopathology and clinical impairment related to ED. Taken together, these results suggest that cultivating self-compassion could positively impact negative self-evaluation, ED psychopathology and general well-being, consistent with previous reports that self-compassion predicts less DE in both clinical and non-clinical populations (Ferreira et al., 2013; Linardon, 2021). Increasing levels of self-compassion have been previously proposed as an intervention target to reduce engagement in self-criticism (Wakelin et al., 2021), given that showing care and concern towards the self has been linked with a range of psychological benefits, including DE (Turk & Waller, 2020) and shown to enhance motivation for patients with anorexia nervosa seeking treatment (Kelly & Waring, 2018). This was backed by Kelly et al. (2014), who reported that ED patients who became more self-compassionate early in treatment demonstrated more positive treatment outcomes over 12 weeks, facilitating remission of symptoms even when self-compassion was not a direct treatment target. Surprisingly however, no significant changes emerged for self-criticism and self-compassion variables in the RCT (**Chapter 6**). This was quite different from what was previously found in literature, as Turk and Waller's (2020) meta-analysis reported that previous self-compassion interventions have been superior to control groups in reducing eating pathology.

Fears of Compassion as a Risk Factor for DE

While **Chapters 3 and 4** focused on self-compassion, **Chapter 5** highlighted the role fear of engaging in self-compassion plays in the relationship between self-criticism and DE. A longitudinal mediation analysis (LMA) was conducted using the clinical group utilised in **Chapter 3** to explore how fear of self-compassion interacts with self-criticism and ED psychopathology during and after treatment. Latent growth curve modelling revealed that mean levels of self-criticism over time mediated the relationship between fear of self-compassion levels at the start of treatment and change in the slope of ED symptoms over time. This meant that having a lower fear of self-compassion at the start of treatment was linked with lower levels of self-criticism during treatment

and, subsequently, greater reductions in ED symptoms during and after treatment. This was also supported in correlational analyses from the CFA (**Chapter 3**), where greater self-criticism was linked with greater fears of expressing compassion for others, greater fears of receiving compassion from others, and greater fears of self-compassion. The impact of fears of compassion on self-criticism and ED has previously been seen in patients with anorexia nervosa, with Kelly et al.'s (2021) qualitative analysis revealing a negative perception of engaging with self-compassion as it may lead to unwanted changes, personal failure and an inability to meet important standards due to a loss of self-criticism. However, actively resisting affiliative experiences and continuously engaging in self-criticism can be a barrier to recovery and is correlated with poorer treatment outcomes (Kelly et al., 2021).

Whilst no significant interactions emerged for self-criticism and self-compassion variables in the RCT (**Chapter 6**), participants in the treatment group showed significant reductions in fear of experiencing compassion from others and significant improvements in body image flexibility compared to waitlist controls. Whilst fear of self-compassion is more commonly examined compared to fears of expressing compassion to others or fear of receiving compassion from others, fear of receiving compassion has also been shown to link with self-critical attitudes towards the self, which may similarly trigger maladaptive eating behaviours and attitudes (Kelly et al., 2013; Oliveira et al., 2017). Linardon and colleagues (2024) also found that greater engagement with self-compassion at baseline predicted increased body image flexibility at a four-month follow-up, highlighting that encouraging engagement with affiliative feelings is key to positive body image outcomes, with positive body image closely associated with reduced ED psychopathology (Linardon et al., 2021).

Research and Clinical Implications

Self-Criticism as a Transdiagnostic Mechanism

Whilst diagnostic criteria are distinct, the various ED subtypes under the Diagnostic and Statistical Manual of Mental Disorders (DSM-5; American Psychiatric Association, 2013) share

cognitive and behavioural features, such as a preoccupation with eating, body shape and weight. However, longitudinal studies have found that up to half of individuals migrate between diagnoses over time (Milos et al., 2005; Schaumberg et al., 2020). As such, the transdiagnostic model of EDs postulates targeting core psychopathology in treatment, namely self-esteem, perfectionism, interpersonal relationships, and unhelpful emotional regulation strategies (Fairburn et al., 2003). Whilst targeting these mechanisms can lead to positive treatment outcomes (de Jong et al., 2018; Fairburn et al., 2009), these mechanisms are not always present in every individual, nor do they always coincide in conjunction with core ED psychopathology. Focusing on the most pertinent features of these mechanisms may help increase treatment efficiency instead of trying to address various psychopathologies maintaining DE.

With self-criticism being the primary transdiagnostic risk factor that our thesis examines, as reported in the CFA (**Chapter 3**) and RCT (**Chapter 6**), self-criticism was associated with self-compassion, fear of self-compassion, ED psychopathology, clinical impairment associated with ED, body image flexibility, and negative affect (depression, anxiety, and stress). This remains consistent with previous meta-analyses that have found that greater self-criticism is linked to symptoms of social anxiety disorder, personality disorders, psychotic symptoms, and interpersonal problems (Werner et al., 2019). Previous findings also demonstrated that self-criticism has been linked to depression among adults who have attempted suicide (Zhang et al., 2017), low affiliative behaviours towards others (Dinger et al., 2015), and pathological narcissism (Kealy et al., 2012), to name a few. Together, whilst our studies have primarily focused on the relationship between self-criticism, self-compassion and DE, other facets of psychopathology may show similar reductions if patients are encouraged to disengage from negative self-evaluations.

The Complexities of Self-Criticism

Whilst self-criticism has gained increasing attention as a transdiagnostic mechanism, how it interacts with psychopathologies remains less clear. For instance, whilst self-criticism has been suggested to be a risk factor for the maintenance of ED symptoms and other psychological disorders

(Werner et al., 2019), previous research has also found self-criticism to be a barrier to psychological change, leading to poorer treatment outcomes (Löw et al., 2020; Marshall et al., 2008), or a manifestation of perfectionism (Dunkley et al., 2006). Theoretical models also differ in how self-criticism is conceptualised, such as the ones described in **Chapter 2**, where self-criticism has been previously postulated as a form of introjective depression (Blatt & Zuroff, 1992) or a cognitive mode of how we see ourselves, the world and the future (Beck et al., 1979). However, the abovementioned theories were not originally designed to assess self-criticism, limiting empirical support for the theories.

Whilst it was beyond the scope of this thesis to provide an all-encapsulating definition, conceptualisation and accurate measure of self-criticism, the results of our MA improved confidence in two measures which showed the most robust relationship between self-criticism and DE, which were also the two measures utilized when examining the relationship between self-compassion, self-criticism, and DE in the MA. Firstly, the Self-Compassion Scale (SCS; Neff, 2003) consists of six subscales assessing three components of self-criticism and self-compassion: Self-kindness versus self-judgment, common humanity versus isolation, and mindfulness versus over-identification. The SCS has also shown good psychometric properties (Neff, 2003; Veneziani et al., 2017) and has been tested in clinical and nonclinical samples (Castilho et al., 2015; Costa et al., 2016), but the scale's factor structure is a subject of debate due to several studies rejecting the structure on the grounds of poor fits (e.g., Costa et al., 2016) and designed to primarily measure self-compassion rather than self-criticism (Montero-Marin et al., 2016).

On the other hand, the other measure identified (FSCRS) is based on the conceptualisation of self-criticism that Gilbert et al. (2004) put forward, which suggests that self-criticism has different forms, functions, and underlying emotions. Gilbert (2014) draws upon cognitive-evolutionary perspectives of the human brain and postulates three emotion regulation systems: Threat and protection central to the ability to identify and respond when threats emerge; drive related to seeking and attaining rewards and resources; and contentment and soothing linked with

recovery rather than detecting threats or seeking resources. To capture the various forms and functions of self-criticism, the FSCRS assesses two forms of self-criticism (inadequate-self and hated-self) and self-reassurance. Alongside the MA (**Chapter 4**), the CFA (**Chapter 3**) also found support for the inadequate-self and reassuring-self subscales being significant predictors of ED psychopathology and clinical impairment associated with ED. However, the FSCRS subscales were not significant predictors of ED psychopathology and clinical impairment associated with ED in the undergraduate sample. As the clinical population group scored significantly higher across all the subscales utilised compared to the undergraduate population, it may have been easier to detect an effect in the clinical population as the students displayed milder symptoms. The student sample may also be more heterogeneous in nature compared to a clinical group who have all met the criteria for an ED, which may lead to the relationship between self-criticism and ED being more pronounced in the clinical group compared to the student sample where other extraneous factors may be influencing this relationship.

Furthermore, the hated-self subscale (capturing contemptuous and self-hatred feelings) did not provide a unique variance to ED psychopathology or clinical impairment related to ED in both samples. Previous interventions have also similarly shown that the hated-self subscale did not show reductions in interventions (McEwan & Gilbert, 2016; Shahar et al., 2015) and was found to even increase between post-treatment and follow-up (Shahar et al., 2012). As self-hatred is reported to be more pathogenic than self-inadequacy (Baião et al., 2015; Gilbert et al., 2004), this implies that the negative self-evaluations related to feelings of failure and inadequacy may be an easier target to address compared to contemptuous feelings towards the self. Nonetheless, the inadequate-self and reassuring-self subscales demonstrating a unique predictor for DE provides confidence that the subscale can act as an appropriate tool in research and clinical settings, but future research could examine if the scale's psychometric properties improve if the hated-self subscale is removed.

Another complexity in the study of self-criticism is the relationship between self-critical perfectionism and DE, with the MA (**Chapter 4**) demonstrating that self-criticism predicted greater

DE compared to self-critical perfectionism. Whilst previous studies have similarly shown that self-criticism was associated with greater ED psychopathology over and above various forms of perfectionism (Steele et al., 2011), the results must be interpreted with caution given that there is also currently no 'gold standard' measure of self-critical perfectionism. Self-critical perfectionism was conceptualized using a combination of measures from the self-criticism subscale of the Depressive Experiences Questionnaire (Blatt et al., 1976), the concern over mistakes subscale of the Frost Multidimensional Perfectionism Scale (FMPS; Frost et al., 1990), and the socially prescribed perfectionism subscale of the Hewitt and Flett Multidimensional Perfectionism Scale (Hewitt & Flett, 1991). Whilst having multiple measures of self-critical perfectionism gives clinicians a choice with regards to which measure to use under different circumstances, it could be difficult to decide which test is most appropriate in a given context and makes comparing results between studies difficult when different measures are used, and also increases respondent burden. Using questionnaires that were not initially designed to measure self-critical perfectionism may also lead to ambiguity around conclusions drawn in research findings. Collectively, this highlights the need for a standalone measure of self-critical perfectionism that can be used in research and clinical settings and psychometrically tested across clinical and non-clinical populations before we can be confident that self-criticism is a more pertinent contributor to the maintenance of DE than perfectionism.

The Protective Nature of Self-Compassion

As highlighted by O'Cathain et al. (2019), complex interventions that require new behaviours to be learnt or have multiple outcomes to be addressed can be more effective if treatments include a focus on risk factors or mechanisms that trigger and maintain unhealthy behaviours. Given the significant associations between DE and self-criticism found across the thesis chapters and previous meta-analyses suggesting the relationship between self-criticism and poor treatment outcomes is greatest among patients with EDs (Löw et al., 2020), individuals with DE may benefit from self-criticism-focused interventions to protect against its harmful impact.

However, greater self-compassion was also found to be linked with reduced self-criticism and DE across the literature, as explored in the MA (**Chapter 4**), and as such, adjunct treatments with an integrated approach of dismantling self-criticism and building up self-compassion could be more efficient in reducing DE symptoms.

Growing literature has been exploring the impact of self-compassion-focused interventions in dismantling self-criticism and ED psychopathology, including compassion-focused therapy (CFT; Gilbert, 2009). While CFT relies primarily on compassionate mind training to target shame and self-criticism by helping individuals cultivate a compassionate inner voice (Leaviss & Uttley, 2015), it also helps people who experience difficulty with self-criticism such that it blocks the development of self-compassion to explore the functions it achieves. A systematic review (Craig et al., 2020) of CFT interventions concluded that it is likely CFT is more effective compared to no treatments or treatments as usual in people with DE, depression, and psychosis, and results in increased self-compassion and reduced psychopathology compared to interventions like mindfulness or behavioural self-help. Wakelin et al.'s (2021) meta-analysis also found that self-compassion-related interventions significantly lowered self-criticism when compared to controls ($g = 0.51$), with even greater reductions when interventions were longer. Augmenting standard cognitive behavioural therapy for ED with CFT has also produced promising results, with 75% of BN patients making clinically reliable and significant improvements post-treatment (Gale et al., 2014). Patients also described developing self-compassion as central to their recovery (Gale et al., 2014). However, given that self-critical perfectionism damages the therapeutic alliance and predicts poorer response to treatment (Blatt et al., 1995; Blatt et al., 1998; van der Kaap-Deeder et al., 2016), and early reductions in self-criticism during treatment are related to improvements in ED symptoms, depression, and anxiety (Löw et al., 2020), it may be that a routine and earlier focus on self-criticism before building up self-compassion is required to enhance the effects of self-compassion interventions.

Similar to the multifaceted nature of self-criticism, the conceptualisation of self-compassion has also varied in the literature. For instance, whilst the reassuring-self subscale of the FSCRS and the SCS were the two measures utilised in research that has explored the relationship between self-criticism, self-compassion and DE (**Chapter 4**), they propose different definitions of self-compassion despite being highly correlated (Hermanto & Zuroff, 2016). For instance, self-reassurance is the ability to be kind and compassionate towards the self in the face of hardship (Gilbert et al., 2004), but self-compassion under the SCS is more multifaceted, defined as being kind towards oneself, viewing life stressors as a universal part of humanity, and being mindful of one's distress (Neff, 2003). Whilst this thesis did not examine the psychometric properties of the SCS, different assessment methods of self-compassion may be producing mixed findings in research. Namely, whilst the FSCRS and SCS propose two forms of self-compassion, self-reassurance may be distinct from self-compassion, but this has yet to be explored. Hence, greater consensus regarding the most appropriate conceptualization of self-compassion is also needed.

Shifting the Risk Factors to Target

Whilst this thesis advocates for adjunct treatments that encourage participants to develop a more affiliative voice towards the self, our RCT (**Chapter 6**) results were unexpected due to no significant interactions for both self-criticism and self-compassion variables, in stark contrast to previous self-compassion-related interventions where reductions in self-criticism and ED were observed (Morgan-Lowes et al., 2023; Turk & Waller, 2020; Wakelin et al., 2021). A lack of response to treatment in the face of high levels of self-criticism has previously been observed (Kelly et al., 2013); Those high in self-criticism can have increased sensitivity to threats that view warmth and acceptance as frightening, while those high in self-compassion utilize more affiliative brain systems (Gilbert, 2014). As participants in the treatment group showed significant reductions in fear of experiencing compassion from others compared to waitlist controls, our results may thus signal a need to first examine the fears of practising compassion and targeting this early on in treatment to then bring about changes in self-criticism, self-compassion, and DE.

Gilbert et al. (2011) previously proposed three different flows of compassion: Expressing compassion towards others, receiving compassion from others, and compassion towards the self. Having a fear of engaging in these flows of compassion, especially for oneself and receiving it from others, has been linked with various psychopathologies, including increased depression, stress, body image shame, obsessive-compulsive disorder, and social and generalised anxiety (Dias et al., 2020; Ferreira et al., 2019; Kirby et al., 2019; Merritt & Purdon, 2020). With regards to ED, fear of receiving compassion has also been shown to link with self-critical attitudes towards the self, which has been associated with maladaptive eating behaviours and attitudes (Kelly et al., 2013; Oliveira et al., 2017).

Kelly et al. (2017) also previously reported that fear of receiving compassion from others and fear of self-compassion significantly improved post-treatment for ED outpatients attending a standard treatment with an adjunct compassion-based group therapy component, providing support that fears of compassion can be a promising adjunct treatment target. Namely, interventions which promote greater engagement in self-compassionate behaviours may help to challenge participants' fears about the risks of opening up to others and encourage more help-seeking behaviour. As engaging in self-criticism is linked with poorer therapeutic outcomes (Kannan & Levitt, 2013) and in-session disclosure is a predictor of therapeutic success (Sloan & Kahn, 2005), compassion-based interventions may thereby help to facilitate treatment response by encouraging clients to share their experiences more openly. This is supported by Dupasquier et al. (2018), who found that self-compassion training weakened the link between fears of receiving compassion from others and perceived risks of disclosing distress. Whilst existing treatment manuals for EDs incorporate strategies to manage self-critical and perfectionistic tendencies, the benefits of addressing fear of compassion on treatment outcomes may signal a need to target this early on in self-compassion-related treatment to ensure that patients are less treatment-resistant and achieve the greatest gains from therapeutic interventions for ED. Future interventions could adopt a similar approach to Kelly and colleagues (2017) by comparing a standard ED treatment against a standard ED treatment with

a compassion-focused adjunct that includes an additional focus on addressing fears of compassion to evaluate if this would pose an effective early intervention target or if our findings were an anomaly.

Limitations and Directions for Future Research

Whilst limitations specific to each study are discussed in the previous Chapters, there are four other unexplored limitations which would be pertinent to explore in future research. The first was in the RCT (**Chapter 6**), where participants in the treatment group significantly improved in body image flexibility compared to the waitlist controls. This suggests that delivering an acceptance-based treatment through cultivating self-compassion helped to subsequently increase acceptance of body-related thoughts and feelings. Having greater body image flexibility, which refers to one's ability to experience thoughts or feelings about one's body without trying to act on or change them (Linardon et al., 2021), has been linked with increased self-compassion in previous research. Turk and Waller's (2020) meta-analysis found that greater self-compassion was significantly linked with reduced body image difficulties and eating pathology, with brief self-compassion interventions still effective for improving body image. Wasylkiw et al. (2012) found that controlling for self-esteem, female undergraduates with greater self-compassion experienced greater body appreciation and fewer body image concerns, and Albertson and colleagues' (2015) three-week online self-compassion meditation intervention resulted in reduced body dissatisfaction and body-related self-worth compared to a control group. Whilst this intervention did not find significant reductions in DE compared to the control group, it may be that self-compassion does not directly contribute to changes in ED symptoms but that intentional efforts to increase acceptance towards body-related thoughts and feelings are necessary to increase body image flexibility, before subsequently being a change agent on DE behaviours. Future longitudinal and experimental research could explore the benefit of modifying adjunct treatments to target body image flexibility alongside ED psychopathology, and assess whether changes in flexibility through increased self-compassion lead to subsequent improvements in DE symptoms.

Second, the RCT also provided the opportunity to examine how another conceptualisation of self-criticism through the self-critical rumination scale (SCRS) was related to self-compassion and ED, given that a systematic review of the utility of existing self-criticism measures posited the FSCRS and SCRS to be the best measures of the construct (Rose & Rimes, 2018). The measure of ruminative self-criticism has previously been replicated with good to excellent fits (Martínez-Sanchis et al., 2021; Moreira & Maia, 2021), with good internal consistency of the measure also reported in these replication studies and our RCT as well. Our study showed that the SCRS had strong correlations with the three FSCRS subscales, especially the inadequate-self subscale, and future research is required to investigate multi-collinearity and whether the shorter SCRS can be a good substitute in an ED population for the much longer FSCRS. Our study also found correlations between self-critical rumination, self-criticism, self-compassion and negative affect, similar to prior research (Martínez-Sanchis et al., 2021; Moreira & Maia, 2021; Smart et al., 2016) and demonstrated that self-critical rumination is also correlated with ED psychopathology, clinical impairment associated with ED, and body image flexibility. However, Rose and Rimes (2018) noted that most of the self-criticism measures demonstrated poor content validity and moderate internal consistency, structural validity, construct validity, and test-retest reliability. Their study also highlighted that self-criticism was defined broadly or imprecise at times, which could lead to measuring overlapping constructs such as perfectionism or shame, and some studies had only been validated in non-clinical populations, all of which may lead to uncertainty about the conclusions drawn in research settings. Hence, as our study did not conduct a factor analysis of the SCRS, caution should still be taken if researchers wish to use this measure in ED populations, given that no previous validation studies have examined how the SCRS performs in that sample.

Third, self-report measures were utilised throughout the thesis, which is a common method of data collection (Olino & Klein, 2015). Whilst diagnostic interviews are posited to be a more reliable form of measurement (Hyland & Shevlin, 2024), self-report questionnaires are a more cost-efficient, quicker, and easier method of data collection without the same geographical limits as

diagnostic interviews (Belisario et al., 2015). However, several measures that have been utilised in the thesis have demonstrated inconsistent factor structures (e.g., EDE-Q; Allen et al., 2011; Rand-Giovannetti et al., 2017), but global scores were utilised over individual subscales to correct for this. As recommended by Turk (2024), more qualitative data could help to assist with the conceptualisation of self-criticism, particularly with exploring if the advantages and disadvantages of engaging in negative self-evaluation differ between population groups (e.g. if culture influences this engagement), which would allow therapists to adapt their approach when attempting to challenge participants' fears of engaging in compassion-based processes.

Finally, whilst the scope of this thesis has centred around self-criticism and its relationship with self-compassion and ED/DE, other constructs have shown similar relationships with self-compassion and ED that warrant attention if they are more pertinent to target in treatment. One such variable is shame, which is closely related to self-criticism, self-compassion, and ED. Similar to self-criticism, shame is a central component that can contribute to the development of EDs, defined as a defensive mechanism that stems from the perception of being judged by others, contributing to negative self-evaluations and feelings of inadequacy (Nechita et al., 2021). Self-criticism and shame are closely interlinked, with Kelly and Carter's (2013) mediation analysis revealing that greater self-criticism leads to greater feelings of shame, which is then linked with greater ED pathology. Shame is also considered a transdiagnostic risk factor, given its associations with other psychopathologies, such as depression and anxiety, both of which frequently co-occur with EDs (Burnette & Davis, 2024). Fortunately, increasing engagement in self-compassion in participants with high levels of shame seems to provide similar benefits as seen in people with high levels of self-criticism. For instance, Kelly et al. (2014) examined if improvements in shame and self-compassion early in treatment accelerated the rate of change in ED symptoms over twelve weeks, with their findings indicating that intervening early in treatment to boost self-compassion and reductions in shame brought about greater decreases in ED symptoms. Together, future research

could explore if adjunct treatments for self-compassion that include a dual purpose of reducing shame and self-criticism would produce more robust effects.

Conclusion

In summary, this thesis adds to the literature by the relevance of targeting self-criticism, a transdiagnostic risk factor, in future interventions for ED. Self-criticism has been proposed as an important treatment target, given its harmful impact on ED and general well-being. We first explored the factor structure of a self-criticism measure in a mixed ED and undergraduate sample and found the 22-item 3-factor FSCRS to be a valid and reliable measure. A meta-analytic review also showed a small but robust association between self-criticism and ED and found support for self-compassion as a promising adjunct to safeguard against self-criticism and ED. However, a longitudinal mediation analysis indicated that holding a fear of engaging in self-compassion can act as a barrier to treatment, emphasising the relevance of addressing patients' fears of compassion during early intervention. This was further supported by our intervention trial designed to reduce self-criticism and increase self-compassion in participants at risk of developing an ED, where, surprisingly, no changes in self-criticism and self-compassion were observed. However, participants were less fearful of receiving compassion from others. Results found that participants experienced reduced fear of experiencing compassion from others and had greater body image flexibility compared to the waitlist control group. This demonstrates that adjunct self-compassion interventions may help cultivate greater acceptance of thoughts related to body image and facilitate treatment response by encouraging clients to engage in more help-seeking behaviour, which may then subsequently bring about changes in self-criticism, self-compassion, and DE. Further research is required to replicate the novel findings presented in this thesis and to extend the findings in terms of identifying robust augmentations to ED therapy that can impact a wide range of outcomes.

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APPENDICES

Appendix A: Published Study

Accepted manuscript referenced in Chapter Four. This is the peer reviewed version of the following article: Paranjothy, S. M., & Wade, T. D. (2024). A meta-analysis of disordered eating and its association with self-criticism and self-compassion. *International Journal of Eating Disorders. 57*(3), 473– 536. https://doi.org/10.1002/eat.24166, which has been published in final form at https://doi.org/10.1002/eat.24166.

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A Meta-Analysis of Disordered Eating and its Association with Self-Criticism and Self-Compassion

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Data availability statement: The data that support the findings of this study are available on request from the corresponding author.

Key Words: disordered eating, self-criticism, self-critical perfectionism, self-compassion, meta-analysis

Abstract

Objective: Future treatments for eating disorders (ED) need to be enhanced by targeting maintaining mechanisms. Literature suggests self-criticism and self-critical perfectionism act as key mechanisms exacerbating ED, and self-compassion protects against self-criticism. This meta-analysis examines associations between self-criticism and self-critical perfectionism on disordered eating (DE), and reviews how self-compassion and self-criticism relate to each other with respect to DE.

Method: Searches across three databases yielded 135 studies across 42,952 participants. Heterogeneity, publication bias, and quality assessments were analyzed. Moderation analyses between self-criticism measures, self-compassion measures, between clinical and non-clinical samples, and between cross-sectional and experimental studies were also conducted.

Results: Random-effects models showed a medium positive link between self-criticism and DE (r = .37), and 10 subgroups pertaining to various measures of self-criticism utilized in literature showed small to large positive links with DE (r = .20 – .52). Preliminary evidence also suggests negative relationships between self-compassion and DE (r = -0.40 – -0.43) and negative relationships between self-compassion and self-criticism (r = -.04 – -.88).

Discussion: Greater levels of self-criticism is linked with greater levels of DE and reduced levels of self-compassion, suggesting a need to tackle self-criticism and nurture self-compassion in standard treatments for ED. Understanding these interactions better in conjunction with dismantling intervention studies can help develop more effective and efficient interventions targeting self-criticism and self-compassion for people with DE.

Key Words: disordered eating, self-criticism, self-critical perfectionism, self-compassion

Public Significance Statement: Higher levels of self-criticism are linked with higher levels of DE and lower self-compassion. Self-compassion interventions could be more effective and efficient in reducing ED symptoms if self-criticism is tackled early in such treatments.

Based on recent trends the prevalence of disordered eating is expected to increase (Galmiche et al., 2019), and the advent of COVID-19 has exacerbated this trend, with increases in eating disorder (ED) rates, severity, and comorbidity (Linardon et al., 2022). With current outpatient treatments associated with remission in less than half of people across different diagnoses, treatments, and age groups (Byrne et al., 2017; Linardon & Wade, 2018), augmentation of treatment through careful consideration of key mechanisms is an important pathway to explore in terms of improving treatment outcomes (Wade et al., 2024).

The transdiagnostic model of ED postulates four key mechanisms to target in treatment, namely self-esteem, perfectionism, interpersonal relationships, and unhelpful emotional regulation strategies (Fairburn et al., 2003). While targeting these risk factors in treatment promotes a modest improvement in outcomes (Fairburn et al., 2009), the mechanisms remain rather broadly defined and conceptualized. Focusing on pertinent dimensions of these mechanisms may increase the helpful impact on treatment. The focus of the current review is whether self-criticism may be a pertinent mechanism to target in the treatment of EDs. This suggestion is based on the following rationale.

First, self-criticism can be argued to represent a more focused and therefore efficient treatment mechanism. Gilbert (2009) proposed that the tendency to be self-critical, namely, defined as having a highly negative attitude towards the self, may make one more susceptible to mental health difficulties and act as a maintenance factor for psychopathology. Evidence supports self-criticism as a risk factor for depression, anxiety, post-traumatic stress (Fennig et al., 2008; Marshall et al., 2008; Shahar et al., 2014; Thew et al., 2017) and different facets of disordered eating including fasting, purging, and excessive exercise (Zelkowitz & Cole, 2020), as well as having negative impacts on interpersonal relationships (Warren et al., 2016). It is also moderately correlated with two of Fairburn et al's (2003) proposed mechanisms, low self-esteem, r=.64 (Steele et al., 2007) and perfectionism, r=0.54 (Turk et al., 2021).

Second, interlinked with self-criticism, self-critical perfectionism is postulated to be the key dimension of perfectionism that predicts maladjustment (Dunkley et al., 2006). Factor analyses have developed the concept of self-critical perfectionism (Dunkley et al., 2006; Stoeber & Otto, 2006), defined as being overly critical and unable to derive satisfaction from one's behaviour as well as having chronic concerns about others' criticism (Dunkley et al., 2003). It includes a combination of measures such as the self-criticism subscale of the Depressive Experiences Questionnaire (Blatt et al., 1976), the concern over mistakes and doubts about actions subscales of the Frost Multidimensional Perfectionism Scale (FMPS; Frost et al., 1990), and the socially prescribed perfectionism subscale of the Hewitt and Flett Multidimensional Perfectionism Scale (HMPS; Hewitt & Flett, 1991).

Similar to those with high self-criticism, literature has shown that individuals with high levels of self-critical perfectionism present with a greater risk of experiencing symptoms including binge eating, diet restrictions and body dissatisfaction (Boone et al., 2012; Mackinnon et al., 2011). With Boone et al.'s (2012) study revealing that priming self-critical perfectionism increases the likelihood of engaging in binge eating the day following the prime, and Boone et al's (2011) study indicating that self-critical perfectionism predicted increases in bulimic symptoms over 2 years, high self-critical perfectionism could make one more susceptible to develop disordered eating. Furthermore, higher levels of self-critical perfectionism impacts adversely on therapeutic processes and outcomes through engagement with treatment. Self-critical perfectionism predicts poorer response to treatment for depression (Blatt et al., 1995; Blatt et al., 1998), and postulated mechanisms for this relationship include interference with the therapeutic alliance particularly in the second half of treatment (Zuroff et al., 2000) as well as poorer social networks (Shahar et al., 2004).

Third, higher levels of self-critical perfectionism have been found to reduce self-compassion over time which then leads to higher levels of general distress (Tobin & Dunkley, 2021). This phenomenon is familiar to therapists who work with people with EDs, who typically refuse to practice self-compassion due to a corrosive level of self-criticism and fear being self-compassionate

will lead to an inability to meet important standards (Kelly et al., 2021). However, recent interest has focused on self-compassion, defined as treating yourself with kindness, care, and concern during life struggles or when confronting personal inadequacies, mistakes, and failures (Warren et al., 2016), as an adaptive approach to regulating self-critical thoughts (Gilbert, 2014). Individuals high in self-compassion are likely to have lower self-criticism, although the constructs are not simply inverses of each other (Neff, 2003). Increasing one's levels of self-compassion has been linked with widespread benefits such as improved resilience to stress (Terry & Leary, 2011), reduced psychopathology (Macbeth & Gumley, 2012), and cognitive and psychological wellbeing (Zessin et al., 2015). Systematic reviews have found that self-compassion-related interventions significantly lowered self-criticism when compared to controls (g = 0.51; Wakelin et al., 2021). Additionally, a meta-analysis (Turk & Waller, 2020) showed that higher self-compassion was associated with lower eating pathology, reduced body image concerns and greater positive body image, and that self-compassion interventions for eating pathology and body image were effective and superior compared to control groups (g = 0.39). Self-criticism therefore needs to be explicitly targeted to be dismantled, in order for the helpful aspects of self-compassion to have more impact.

Research has conceptualized self-criticism in different ways which has led to multiple self-report measures varying in design and structure. Without a 'gold standard' questionnaire readily available, some authors have opted to measure self-criticism using an assortment of items from several measures or scales that were not originally established to measure self-criticism. This includes the self-criticism factor from the Depressive Experiences Questionnaire (Blatt et al., 1976) which aimed to measure introjective depression, or the self-criticism factor from the Dysfunctional Attitudes Scale (Weissman & Beck, 1978). Having multiple definitions and scales to measure self-criticism, some of which may have yet to attain adequate psychometric quality or only validated in non-clinical populations, can make it difficult to identify which one would be the most appropriate to utilize.

As such, the first aim of this systematic review and meta-analysis was to investigate the association of self-criticism with disordered eating. Namely, we conducted 10 meta-analyses that grouped together studies based on the self-criticism measure they used, which could help to identify which dimensions of self-criticism demonstrate the most robust links with disordered eating. We also conducted additional subgroup analyses that explored potential moderating effects of variables (i.e., the difference between clinical and non-clinical populations, between self-criticism and self-critical perfectionism measures, and between experimental and cross-sectional studies), to gain insight into whether the type of sample group, conceptualization or study design moderates the impact on disordered eating. Longitudinal studies will also be examined to help answer the question of whether self-criticism predicts disordered eating. Whilst such evidence cannot demonstrate causality, it would satisfy two of the three essential criteria for establishing causation (i.e., association and temporal precedence), which could highlight a need for further research to consider the long-term impact of self-criticism on disordered eating. The second aim was to examine how self-compassion and self-criticism relate to each other with respect to disordered eating, to inform a model that can be used to develop future interventions for disordered eating.

Method

Search Strategy

The meta-analysis was conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Page et al., 2021). A comprehensive literature search was conducted using the PsycINFO (OvidSP) and Scopus databases. A search of grey literature using the ProQuest Dissertations and Theses Global database was also searched. As the factors found to have loaded onto self-critical perfectionism include Hewitt and Flett Multidimensional Perfectionism Scale (HMPS) socially prescribed perfectionism and Frost Multidimensional Perfectionism Scale (FMPS) concerns over mistakes factors (Dunkley & Blankstein, 2000; Dunkley et al., 2006), the search terms were used in a three-component strategy (Eating Terms; Self-Criticism Terms; and Self-Critical Perfectionism Terms). These were searched

for in the title and abstract in the articles to locate pertinent publications in all journals: (("eating disorder*" or "disordered eating" or anorexi* or "Binge eating" or bulimi* or ednos or "eating disorder not otherwise specified" or osfed or "Other Specified Feeding and Eating Disorder") and (self-critic* or "self critic*" or "self-critical perfectionis*" or "concern over mistakes" or "socially prescribed perfectionism")). Additional articles from references lists and extended searches were also included in the literature search. Where further information was required from articles to calculate effect sizes, the first author requested this information from the corresponding authors of those articles.

Inclusion Criteria

No restrictions on the year of publications, publication type or sample types were set. Studies will then be inspected for meeting the following criteria: (1) The study was written in English, (2) The publication included a quantitative association between disordered eating and self-criticism or self-critical perfectionism, (3) Valid and reliable quantitative instruments or subscales in the instruments used in the study measured self-criticism, self-critical perfectionism, and disordered eating. Studies were determined to measure disordered eating if they were evaluating any cognitions, attitudes, feelings, behaviors related to eating, weight, and shape concern, as well as measures examining the presence of various EDs.

Study Identification

The first author (SP) conducted the search on Scopus and PsychINFO databases which yielded 1131 published studies in March 2023 and an additional search conducted on the 25th of August 2023 resulted in three additional studies. The first author (SP) and a research assistant (JD) independently screened all titles and abstracts to determine whether papers broadly related to the research question. Abstracts that did not examine quantitative associations between disordered eating and perfectionism or self-criticism were removed. Seven studies were also identified in the ProQuest Dissertations and Theses Global database, with four papers meeting inclusion criteria for data extraction. Twenty-two papers were also excluded as they were not in English (See

supplementary materials for the full reference list of these papers). Interrater reliability was excellent with 98.5% alignment, who resolved disagreements through discussion. When insufficient data was supplied within the study to extract effect sizes, authors were contacted (N = 64); 20 (31%) replied and provided additional data. Forty-four studies were ultimately excluded due to absence of replies from the corresponding authors. In total, the first author (SP) selected 135 studies to be included in the meta-analysis. Figure 1 presents a PRISMA flow of the diagram of the study selection process. The data that support the findings of this study are available from the corresponding author upon reasonable request.

Coding of Studies

A coding sheet was completed for each study included in the meta-analysis in the full-text screening process. The coding sheet included: (a) publication information (authors/year), (b) sample size, (c) sample characteristics (including mean age, sample type, race, ethnicity and socioeconomic status), (e) the measures or subscales used to assess self-criticism or self-critical perfectionism, (f) the measures or subscales used to assess ED symptomology, (f) the bivariate correlations and 95% confidence intervals between the perfectionism or self-criticism measures and ED measures, and (g) the Fisher's Z score for each study and (h) the bivariate correlations, 95% confidence intervals and Fisher's Z scores between the self-compassion measure and ED measure, as well as between the self-compassion and self-criticism measures. For the longitudinal studies, the table included the time between measurement points. Table 1 lists all the self-criticism measures that were utilized in the meta-analysis classified into whether they were measuring self-criticism or self-critical perfectionism and Table 2 lists all the measures that were utilized to assess disordered eating in the meta-analysis; coded information for each study is presented in Table 3.

Quality Assessment

Risk of bias and quality assessments were conducted by a research assistant, in consultation with the first author. The Cochrane Effective Practice and Organisation of Care (EPOC) risk of bias (RoB) tool (2017) was used to assess the internal validity and risk of bias assessment of each study

according to seven domains. Each domain was classified as either low risk (plausible bias unlikely to seriously alter the result), high risk (plausible bias that seriously weakens confidence in the results), or unclear risk (plausible bias that raises some doubt about the results).

Meta-Analytic Procedures

All studies examining the relationship between disordered eating and self-criticism or self-critical perfectionism reported zero-order correlation coefficients, *r*. As such, the zero-order correlation coefficients were selected as the effect size metric. Cohen's (1992) benchmarks were used to interpret small (r = .10), medium (r = .30), and large (r = .50) effects. Following recommendations, all analyses were performed using Fisher's Z scale (Borenstein et al., 2009). The online Campbell Collaboration tool (https://campbellcollaboration.org/research-resources/effect-size-calculator.html), was used to calculate Fisher's Z through inputting sample sizes and correlations.

The meta-analyses were conducted in R, a free software environment for statistical analyses (R Core Team, 2021). Multi-level meta-analyses were conducted, to account for non-independence of effect sizes where more than one effect was reported from a study (e.g., male and female samples, community or clinical samples). The metafor package (Viechtbauer, 2010) was used to run the multi-level models and produce forest plots and funnel plots. Moderator analyses between clinical and non-clinical samples, self-compassion measures, between self-criticism and self-critical perfectionism, and between experimental and cross-sectional studies were also conducted using the metafor package (Viechtbauer, 2010).

Heterogeneity, the indication of whether the variability in effect sizes within the included studies is greater than what would be expected due to random error alone (Cuijpers, 2016), was evaluated using the *Q* statistic, a measure of weighted squared deviations around the weighted mean effect size where a significant result suggests that variability is unlikely due to chance (Laird et al., 2017), and the I^2 statistic, whereby 25%, 50%, and 75% suggest low, medium, and high levels of heterogeneity, respectively (Higgins and Thompson, 2002). *Q* was obtained through the metafor

package (Viechtbauer, 2010) and I^2 was obtained through the dmetar package (Harrer et al., 2019). Evidence of publication bias was assessed using Egger's regression intercept (ERI) was also used to assess for publication bias (Moreno et al., 2009) using the metagen package (Möbius, 2014), with a significant result suggesting that publication bias may be present.

Results

Sample Characteristics

In total, 42,952 participants were included in the meta-analysis. Data were extracted for 151 samples from 135 articles (including 12 longitudinal studies, 14 experimental studies and 18 studies that also included self-compassion measures). Samples were based in 22 countries, with USA ($k = 30$, 23.4%), UK ($k = 20$, 15.6%), and Canada ($k = 19$, 14.8%) being the most highly represented countries. The average mean of participant age was 23.49 years (SD = 5.003; range = 16.45–39.82). Females were highly represented, comprising a mean of 87.68% (SD = 18.60; range = 0–100). Where information on this was available, the included studies tended to report that most of their participants were white, comprising a mean of 75.66% (SD = 24.20; range = 0 – 100; $k = 65$) in combined studies. See Table 3 for information about each of the included articles.

Twenty-five studies used clinical samples, which includes participants that were formally diagnosed with ED based off the Diagnostic and Statical Manual of Mental Disorders (DSM; American Psychiatric Association, 2013) criteria or the International Classification of Diseases (ICD; World Health Organization, 2016). The average mean of participant age in the clinical sample was 24.71 years (SD = 9.76) at T1. Females were highly represented, comprising a mean of 98.76% (SD = 2.10; range = 93.46–100). Where information on this was available, the included studies tended to report that most of their participants were White, comprising a mean of 86.04% (SD = 10.30; range = 62.1 – 100; $k = 11$), with Australia (24%; k = 6), USA (20%; k = 5), and Canada (16%; k =4) being the most highly represented countries. Out of 4,530 clinical participants, nearly half (48.6%) of participants (n = 2,202) were diagnosed with Anorexia Nervosa (AN; Range = 13 – 732; k = 21), 24.5% were diagnosed with Bulima Nervosa (BN; n = 1,109; Range = 4 – 204;

k = 18), 14.2% diagnosed with Eating Disorder Not Otherwise Specified (EDNOS; *n* = 642; Range = 13 – 264; *k* = 8), 8.4% were diagnosed with Binge Eating Disorder (BED; *n* = 382; Range = 8 – 236; *k* = 6), and 3.9% were diagnosed with Other Specified Feeding and Eating Disorder (OSFED; *n* = 177; Range = 2 – 156; *k* = 3).

Measures Utilized

A range of measures examining disordered eating behaviors were also used across the included studies, the most utilized measures being the global score of the Eating Disorder Examination Questionnaire (EDE-Q) which measures ED psychopathology (Fairburn & Beglin, 2008; *n* = 56, 41.5%), the Eating Disorder Inventory (EDI) which examines the presence of ED (Garner, 1991; *n* = 26, 19.3%) and the Eating Attitudes Test (EAT) which examines people's attitudes, feelings, and behaviors towards eating (Garner et al., 1982; *n* = 16, 11.9%). The most utilized self-criticism measure were the self-criticism subscales of the Fear of Self-Criticizing/Attacking and Self-Reassuring Scale (FSCRS; Gilbert et al., 2004; *n* = 22, 44.0%), the SCS (Neff, 2003; *n* = 9, 18.0%) and the self-criticism subscale of the Depressive Experiences Questionnaire (Blatt et al., 1976; *n* = 7, 14.0%). The most utilized self-critical perfectionism measure was the Frost Multidimensional Perfectionism Scale (FMPS; Frost et al., 1990; *n* = 50, 38.2%) and Hewitt and Flett Multidimensional Perfectionism Scale (HMPS; Hewitt & Flett, 1991; *n* = 33, 25.2%). In both clinical and non-clinical samples, the most utilized self-criticism and self-critical perfectionism measures were the FSCRS (Gilbert et al., 2004; *n* = 4, 16% in clinical samples, and *n* = 16, 13% in non-clinical samples) and the FMPS (Frost et al., 1990; *n* = 10, 40% in clinical samples, *n* = 40, 32% in non-clinical samples), respectively. As self-criticism measures greatly differed between studies, the empirical evidence of the 135 studies were synthesized into 10 subgroups pertaining to the various dimensions of self-criticism/self-critical perfectionism measures. Table 3 indicates the subgroup(s) each study was classified under.

Quality Assessment

Potential methodological issues were considered for each study according to the EPOC RoB tool. Low RoB ratings were most common for domains “Shape of the intervention effect pre-specified”, “Selective outcome reporting”, and “Intervention independent of other changes”. Low RoB ratings were also commonly found for the “Intervention unlikely to affect data collection” domain, with some studies scored as high risk due to a change in methodology or sources of data collection due to difficulties during recruitment. The domain “Knowledge of the allocated interventions adequately prevented during the study” most frequently included unclear risk of bias scores, often due to there being insufficient information to determine whether the allocation sequence was concealed to participants. For the “Incomplete outcome data adequately”, most studies scored with an unclear risk of bias frequently because it was unclear whether all the participants were accounted for in the results or there was an absence of reports of data screening to determine if the missing outcome data was likely to bias the results. Finally, several studies scored as high risk under the “Other risks of bias” domain as they presented with biases such as allegiance bias, over-reporting bias, recall bias, or seasonality concerns. Interrater reliability between the first author (SP) and a research assistant (JD) was excellent with 95.5% alignment.

Whilst studies at high risk of bias should be given reduced weight in meta-analyses compared to studies with a lower risk of bias (Spiegelhalter, 2003), sensitivity analyses were performed to distinguish between higher and lower quality papers. A cut-off score of five or more ‘low risk’ responses in a study based on the EPOC RoB was selected as being high quality, with a moderation analysis conducted between high- and low-quality papers. This cut-off score was selected as there would have only been one paper that scored as low-quality if the cut off-score was four and below. It was found that there was no significant difference between high-quality (k = 114) and low-quality papers (k = 21; p = .451), and as such papers that were deemed low-quality were not removed from the analysis. Figure 2 shows a summary of EPOC RoB by domain expressed as percentages, and Table 4 includes the RoB evaluation for each study.

Meta-analytic results between Self-Criticism and Disordered Eating

Overall, 133 out of 135 studies identified a positive relationship between self-criticism and disordered eating, with greater levels of self-criticism linked with greater levels of disordered eating. Only two studies by Redden et al. (2022) and Jones et al. (2007) identified a negative relationship between the constructs, with greater self-criticism levels linked with reduced disordered eating symptoms. Whilst 44 studies were excluded on the basis of their authors not providing effect sizes, 17 studies did not report if there was a presence or absence of a relationship between self-criticism and disordered eating, 17 studies did not provide an effect size but suggestive of a positive relationship between the two constructs, seven studies reported that there was a significant positive correlation but did not provide an effect size, with only three studies reporting that there was no significant correlation between self-criticism and disordered eating.

The meta-analyses indicated that all 10 self-criticism subgroups showed significant small to large positive relationships with disordered eating (*r*s = .20-.52; See Table 5). Self-critical perfectionism measures including the Hewitt and Flett Multidimensional Perfectionism Scale (HMPS; $k = 33$, $n = 9{,}671$), Eating Disorder Inventory Socially Prescribed Perfectionism Subscale (EDI-SPP; $k = 6$, $n = 1{,}143$), and Children and Adolescent Perfectionism Scale (CAPS; $k = 12$, $n = 4, 516$) reported small positive relationships with disordered eating ($r = 0.29$, Fisher's $Z = 0.30$, 95% CIs = 0.26, 0.33, $p < .0001$), ($r = 0.20$, Fisher's $Z = 0.21$, 95% CIs = 0.10, 0.32, $p < .01$), and ($r = 0.29$, Fisher's $Z = 0.30$, 95% CIs = 0.23, 0.37, $p < .0001$), respectively.

Self-criticism measures including the Self-Rating Scale (SRS; $k = 3$, $n = 442$) and Levels of Self-Criticism Internalized Self-Criticism Subscale (LOSC; $k = 3$, $n = 754$) reported medium positive relationships with disordered eating ($r = 0.43$, Fisher's $Z = 0.46$, 95% CIs = 0.26, 0.66, $p < .01$), and ($r = 0.36$, Fisher's $Z = 0.38$, 95% CIs = 0.18, 0.57, $p < .05$), respectively. Self-criticism subscales from the Depressive Experiences Questionnaire (DEQ; $k = 7$, $n = 1{,}408$), and Dysfunctional Attitudes Scale (DAS; $k = 6$, $n = 1{,}542$) also reported medium positive relationships with disordered eating ($r = 0.36$, Fisher's $Z = 0.38$, 95% CIs = 0.16, 0.60, $p < .01$), and ($r = 0.31$, Fisher's $Z = 0.33$, 95% CIs = 0.26, 0.39, $p < .0001$), respectively. The self-critical perfectionism

measure from Frost's Multidimensional Perfectionism Scale (FMPS; k = 50, n = 14,183) reported medium positive relationships with disordered eating (r = 0.38, Fisher's Z = 0.40, 95% CIs = 0.34, 0.46, p < .0001). Finally, the Self-Compassion Scale (SCS; k = 9, n = 2,639) and Fear of Self-Criticizing/Attacking and Self-Reassuring Scale (FSCRS; k = 22, n = 6,654) showed the most robust relationship between self-criticism and disordered eating (r = 0.52, Fisher's Z = 0.58, 95% CIs = 0.47, 0.70, p < .0001), and (r = 0.50, Fisher's Z = 0.55, 95% CIs = 0.46, 0.64, p < .0001), respectively.

Separate analyses for clinical (k = 25, n = 4,502) and non-clinical studies (k = 126, n = 38,450) both indicated medium positive relationships between self-criticism and disordered eating (r = 0.42, Fisher's Z = 0.45, 95% CIs = 0.33, 0.49, p < .0001), and (r = 0.37, Fisher's Z = 0.39, 95% CIs = 0.34, 0.39, p < .0001), respectively. Similarly, separate analyses for cross-sectional (k = 136, n = 39,593) and experimental studies (k = 15, n = 3,359) both indicated medium positive relationships between self-criticism and disordered eating (r = 0.38, Fisher's Z = 0.40, 95% CIs = 0.35, 0.41, p < .0001), and (r = 0.31, Fisher's Z = 0.33, 95% CIs = 0.20, 0.42, p < .0001), respectively. Together, the combined effect size of all the studies found a significant medium positive relationship with self-criticism (r = 0.37, Fisher's Z = 0.39, 95% CIs = 0.36, 0.42, p < .0001). As only a small number of studies were considered to be outliers (k = 7; Davies et al., 2009; Jones et al., 2007; Penniment & Egan, 2012; Redden et al., 2022; Kelly & Tasca, 2016; Kelly & Carter, 2013; Barrow, 2007), they were included in the analysis.

Out of the 135 studies that were utilized to examine the relationship between self-criticism and disordered eating, moderation analyses were also conducted between clinical and non-clinical groups, between cross-sectional and experimental studies, and between self-criticism and self-critical perfectionism measures (See Table 5). Results found that there was no significant difference between clinical and non-clinical samples (p = .074) nor between cross-sectional and experimental data (p = .060). However, there was a significant difference identified between self-criticism and

self-critical perfectionism ($p < 0.0001$), demonstrating that constructs measuring self-criticism predicted increased disordered eating compared to those examining self-critical perfectionism.

Longitudinal Studies

Twelve studies comprising 7,997 participants were used to examine the longitudinal impact of self-criticism on disordered eating. Duration between timepoints ranged from one day to one year, with the most common follow-up time being 6 months ($k = 4$). Overall, there was a statistically significant medium positive correlation between self-criticism and disordered eating ($r = 0.32$, Fisher's $Z = 0.38$, 95% CIs = 0.27, 0.38, $p < .001$). Figures 21 and 42 under the Supplementary Materials displays the Forest Plots and Funnel Plots of the analyses. There was evidence of moderate heterogeneity ($Q(31) = 128.22$, $p < .01$; $I^2 = 75.80$), which was attributed to within-study variance ($I^2 = 75.90$), not between-study variance ($I^2 = 0.00$). No outliers were identified. Time between measurement points was not a significant moderator ($p = .827$). As there was a range of follow-up lengths between studies, a moderation analysis was also performed to explore if the link between self-criticism and disordered eating changes with different follow-up times. A moderation analysis between studies with follow-ups less than three months and more than three months was conducted, which found that follow-ups more than three months apart predicted increased self-criticism and disordered eating compared to follow-ups less than three months apart ($p < .01$).

Associations between Self-Compassion, Self-Criticism, and Disordered Eating

Of relevance to our second aim, 18 studies and 19 samples included measures of self-compassion, self-criticism, and disordered eating. Only two measures were used to measure self-compassion: The Reassuring-Self Subscale of the Fear of Self-Criticizing/Attacking and Self-Reassuring Scale (FSCRS; $k = 7$, $n = 2{,}242$), and the Self-Compassion Scale (SCS; $k = 12$, $n = 2{,}966$). A significant negative small to large relationship ($r = -.04 – -.88$) between self-compassion and self-criticism was identified, indicating greater self-compassion is linked with reduced self-criticism. All 18 studies presented a significant medium negative relationship between self-

compassion and disordered eating, with greater levels of self-compassion linked with reduced disordered eating (r = -0.42, Fisher's Z = -0.45, 95% CIs = -0.54, -0.36, p < .0001). Two further meta-analyses were conducted which grouped together studies based on the self-compassion measure they used, and both the FSCRS and SCS showed significant medium negative relationships between self-compassion and disordered eating (r = -0.40, Fisher's Z = -0.43, 95% CIs = -0.64, -0.22, p < .01), and (r = -0.43, Fisher's Z = -0.46, 95% CIs = -0.56, -0.36, p < .0001), respectively. As all the studies were cross-sectional and none were experimental studies, only a separate analyses for clinical (k = 4, n = 315) and non-clinical studies (k = 15, n = 4,893) were conducted with both indicating medium negative relationships between self-criticism and disordered eating (r = -0.46, Fisher's Z = -0.50, 95% CIs = -0.77, 0.02, p < .05), and (r = -0.41, Fisher's Z = -0.44, 95% CIs = -0.48, -0.34, p < .0001), respectively. As only two studies were considered outliers (Barrow, 2007; Pullmer et al., 2019), they were included in the analysis.

Out of the 18 cross-sectional studies that were also utilized to examine the associations between self-criticism, self-compassion and disordered eating, moderation analyses were also conducted between clinical and non-clinical groups and between self-compassion measures (See Table 6). However, there was no significant moderation identified between the self-compassion measures (p = .604) and no significant difference between clinical and non-clinical groups that used self-compassion measures (p = .620).

Heterogeneity

An analysis of the heterogeneity of the total weighted mean effects across the 135 studies indicated the probability of factors extraneous to sampling error were responsible for the observed variability across effect sizes (Q(150) = 1100.05, p < .001). The I^2 statistic indicated a high degree of heterogeneity (86.40%). As such, additional analyses were used to explore heterogeneity of the 10 subgroups pertaining to the various dimensions of self-criticism and self-critical perfectionism by calculating Q and I^2 for each category separately (see Table 5 for Q and I^2 values for all categories). Further analyses revealed high but ultimately decreased degrees of heterogeneity,

supporting the usefulness of focusing on the observed effect sizes for each ED subgroup rather than total effect of the 135 included papers. However, the FSCRS subgroup displayed slightly greater heterogeneity than the combined analysis (I^2 = 88.30%), and the non-clinical samples (I^2 = 87.20%) and cross-sectional samples (I^2 = 86.50%) also displayed slightly greater heterogeneity than the combined analysis. The Self-Rating Scale and DAS Self-Criticism results indicated that all variability in the observed effect sizes was due to sampling error within studies and heterogeneity was absent (I^2 = 0%).

Regarding the studies that included self-compassion measures, an analysis of the heterogeneity of the total weighted mean effects across the 18 studies indicated the probability of factors extraneous to sampling error were responsible for the observed variability across effect sizes ($Q(18) = 104.08$, $p < .001$), and I^2 statistic indicated a high degree of heterogeneity (82.70%). As such, additional analyses were used to explore heterogeneity of the 2 subgroups pertaining to the various dimensions of self-compassion by calculating Q and I^2 for each category separately. Further analyses revealed the FSCRS subgroup (I^2 = 89.00%) and the clinical sample (I^2 = 86.60%) displayed greater heterogeneity than the combined analysis whilst SCS subgroup displayed a decreased degree of heterogeneity (I^2 = 76.90%). The 18 studies combined in a single analysis did not indicate publication bias (ERI = -0.18, p = 0.859). Similarly, when each subgroup was analyzed, Egger's regression did not indicate publication bias (see Table 6 for ERI values across all categories and Supplementary Materials for the Forest Plots and Funnel Plots of each subgroup and the combined analyses). Together, these findings highlight that greater self-criticism and self-critical perfectionism are linked with greater disordered eating, whilst greater self-compassion is linked with reduced self-criticism and disordered eating.

Publication Bias

To assess publication bias, a p value of <. 05 was used as the metric, as it indicates a significant relationship between the effect size and precision. Additionally, the 95% confidence interval of Egger's regression coefficient was indicative of publication bias if it was not greater than

zero (Laird et al., 2017). The 135 studies were initially combined in a single analysis, which did not indicate publication bias (*ERI* = -0.32, $p = 0.749$). Similarly, when each subgroup was analyzed, Egger's regression did not indicate publication bias (see Table 5 and Table 6 for ERI values across all categories and Supplementary Materials for the Forest Plots and Funnel Plots of each subgroup and the combined analyses).

Discussion

In addressing our first aim, our meta-analysis showed that self-criticism had a significant relationship with disordered eating, supporting previous literature findings indicating that greater self-criticism is associated with greater disordered eating (Stice et al., 2011; Kelly & Tasca, 2016). Our study further adds to current literature indicating that the SCS (Neff, 2003) and FSCRS (Gilbert et al., 2004) demonstrated the most robust relationships between self-criticism and disordered eating, and the longitudinal impact between self-criticism and disordered eating also identified a medium positive relationship between the constructs. Our second aim examined the associations of self-compassion, self-criticism, and disordered eating, assessed in 18 studies, with preliminary evidence suggesting that a self-compassionate and self-reassuring stance can helpfully attenuate the relationship between self-critical perfectionism and disordered eating.

Given the harmful effects of self-criticism on psychological wellbeing (Shahar et al., 2014) and different facets of disordered eating (Zelkowitz & Cole, 2020), the present study's results are not surprising. Previous meta-analyses have found greater self-criticism is linked to symptoms of social anxiety disorder, personality disorders, psychotic symptoms, interpersonal problems (Werner et al., 2019), non-suicidal self-injury (Zelkowitz and Cole, 2019), and a meta-analysis investigating the effects of self-criticism on treatment outcomes reported that self-criticism could be a harmful prognostic factor for most psychopathological conditions, including EDs (Löw et al., 2020). The transdiagnostic theory of EDs previously postulated that low self-esteem and perfectionism are at the core of all EDs (Fairburn et al., 2003) and self-criticism may capture this impact more efficiently. An expanding body of research is finding that people with ED report levels of greater

self-criticism compared to healthy controls (Noordenbos, 2013), and high levels of self-criticism have similarly been observed across multiple ED diagnoses (van der Kaap-Deeder et al., 2016). Consequently, our findings support previous literature that self-criticism remains a unique predictor in understanding what contributes to and maintains ED psychopathology.

Self-critical perfectionism was also positively associated with disordered eating, consistent with previous research that self-critical perfectionism across clinical and non-clinical samples is linked with symptoms including binge eating, dieting and body dissatisfaction (Egan et al., 2011; van der Kaap-Deeder et al., 2016). However, whilst perfectionism is a core mechanism under the transdiagnostic theory of EDs (Fairburn et al., 2003), our moderation analyses indicated that self-criticism predicted greater disordered eating compared to self-critical perfectionism. Whilst research emphasizes that perfectionism acts as a risk factor for disordered eating (e.g., Egan et al., 2011), literature has indicated that the tendency to self-criticize is more pathogenic than having high standards of oneself. For instance, Steele et al. (2011) found that self-criticism was linked with greater ED psychopathology when controlling for various forms of perfectionism, and Dunkley et al. (2006) found the link between perfectionistic standards and disordered eating was explained by the former's shared variance with self-criticism. Together, our findings and literature suggest that self-criticism might be a more pertinent contributor to the maintenance of disordered eating compared to perfectionism.

Our findings further contribute to research around how self-compassion, self-criticism and disordered eating relate to each other, suggesting that lower levels of self-compassion is linked with greater levels of self-criticism and disordered eating. Self-compassion has previously been shown to help promote reduced maladaptive body image eating-related behaviours, more intuitive eating, reduced body image concerns, less eating-related guilt (Wasylkiw et al., 2012), as well as reduced drive for thinness in both clinical and non-clinical groups (Ferreira et al., 2013). Self-compassion can also influence patients' response to treatment. ED patients who became more self-compassionate early in treatment demonstrated more positive treatment response over 12 weeks,

facilitating remission of symptoms even when self-compassion was not a direct treatment target (Kelly et al., 2014).

On the other hand, low self-compassion can act as a barrier to treatment. Kelly and colleagues (2021) found that patients with anorexia nervosa perceived negative consequences to building self-compassion as it may lead to unwanted changes, personal failure and an inability to meet important standards due to a loss of self-criticism. Whilst their self-criticism may be rooted in a desire to self-improve and self-correct, this strategy can backfire given that self-criticism encourages the emphasis on one's flaws and feelings of inferiority (Gilbert et al., 2004), leading to severe forms of ED psychopathology, depression, and anxiety (Williams & Levinson, 2022). Gilbert (2014) explains how fears of self-compassion can manifest by drawing upon the cognitive-evolutionary perspective and suggests three emotion regulation systems: The ability to identify and respond to threats; drive related to attaining rewards and resources; and soothing linked with recovery over detecting threats and resources. Those high in self-criticism are shown to have increased sensitivity to threats that view warmth and acceptance as frightening, whilst those high in self-compassion utilize more affiliative brain systems. However, actively resisting affiliative experiences and continuously engaging in self-criticism acts as a barrier to recovery and associated with poorer treatment outcomes (Kelly et al., 2021). To efficiently address potential barriers to expect from patients during treatment, clinicians could be encouraged to work more sensitively and effectively when trying to shift attention away from self-criticism and nurture self-compassion in patients with disordered eating.

Research and Clinical Implications

Our findings identified two robust measures for self-criticism, including the FSCRS (Gilbert et al., 2004) and the SCS (Neff, 2003), which were also the two measures utilized when examining the relationship between self-compassion, self-criticism, and disordered eating. The FSCRS includes two factors measuring self-criticism, the 'Inadequate-self' which attempts to capture feelings of failure and inadequacy, and 'Hated-self' focused on self-hating and contemptuous

feelings, as well as the 'Reassuring-self' focused on assessing positive and compassionate feelings directed towards oneself. The FSCRS has been psychometrically tested across various clinical and non-clinical samples (e.g., Biermann et al., 2020; Leboeuf et al., 2019), with some also finding a 2-factor structure with a combined 'Inadequate-self' and 'Hated self' demonstrating a stronger fit (Halamová et al., 2018). The SCS consists of six subscales assessing three components of self-criticism and self-compassion: Self-kindness vs Self-judgement, Common Humanity vs Isolation, and Mindfulness vs Over-identification. The SCS has also shown good psychometric properties (Neff, 2003; Veneziani et al., 2017) and tested in clinical and non-clinical samples (Castilho et al., 2015), but the scale's factor structure is a subject of debate due to several studies rejecting the structure on the grounds of poor fits (e.g., Costa et al., 2016) or finding the subscales were independent and fails to measure an overarching self-compassion construct (Williams et al., 2014).

It is important to acknowledge that the FSCRS and SCS have different definitions of self-compassion despite being highly correlated (Hermanto & Zuroff, 2016). Whilst self-reassurance under the FSCRS is simply the ability to be soothing, encouraging and supportive towards oneself when faced with setbacks (Gilbert et al., 2004), self-compassion under the SCS includes being kind to oneself, viewing life challenges as a community part of humanity, and being mindful of one's distress (Neff, 2003). Whilst both are characterized as ways of relating to oneself with care and concern considering personal struggles (Hermanto & Zuroff, 2016), these different methods of assessment of self-compassion may produce mixed findings in research, and greater consensus regarding the most appropriate conceptualization of self-compassion is needed.

Furthermore, whilst having multiple measures of self-critical perfectionism gives clinicians a choice with regards to which measure to use under different circumstances, it could be difficult to decide which test is most appropriate in a given context, and makes comparing results between studies difficult when different measures are used. It also increases respondent burden. Using questionnaires that were not initially designed to measure self-critical perfectionism may also lead to ambiguity around conclusions drawn in research findings. Collectively, this highlights the need

for a standalone measure of self-critical perfectionism that can be used in research and clinical settings, and psychometrically tested across clinical and non-clinical populations.

As highlighted by O'Cathain et al. (2019), complex interventions that require new behaviours to be learnt or have multiple outcomes to be addressed can be more effective if treatments include a focus on risk factors or mechanisms that trigger and maintain unhealthy behaviours. Given the significant associations between disordered eating and self-criticism found in the current investigation, and previous meta-analyses suggesting the relationship between self-criticism and poor treatment outcomes is greatest among patients with EDs (Löw et al., 2020), we suggest that individuals with disordered eating may benefit from self-criticism-focused interventions to protect against its harmful impact. What we need to understand better, however, is whether adding a focus on dismantling self-criticism adds to the impact of building up self-compassion given the benefits of greater self-compassion in people with disordered eating (Kelly et al., 2014; Turk et al., 2020).

Growing literature has been exploring the impact of self-compassion-focused interventions as a beneficial adjunct to dismantling self-criticism and ED psychopathology, including Compassion-focused therapy (CFT; Gilbert, 2009). While CFT relies primarily on compassionate mind training to target shame and self-criticism by helping individuals cultivate a more compassionate inner voice (Leaviss & Uttley, 2015), it also helps people who experience difficulty with self-criticism such that it blocks development of self-compassion to explore the functions it achieves. A systematic review (Craig et al., 2020) of CFT interventions concluded that it is likely CFT is more effective compared to no treatments or treatments as usual in people with disordered eating, depression, and psychosis, and results in increased self-compassion and reduced psychopathology compared to interventions like mindfulness or behavioural self-help. Wakelin et al.'s (2021) meta-analysis also found that self-compassion-related interventions significantly lowered self-criticism when compared to controls (g = 0.51), with even greater reductions when interventions were longer.

In terms of improving symptoms, Turk and Waller's meta-analysis (2020) found that greater self-compassion was significantly linked with reduced body image and eating pathology, with brief self-compassion interventions still effective for improving body image. Augmenting standard Cognitive Behavioural Therapy (CBT) for ED with CFT have also produced promising results, with 75% of Bulimia Nervosa patients making clinically reliable and significant improvements posttreatment and described developing self-compassion as central to their recovery (Gale et al., 2014). Consequently, integrating self-compassion-focused interventions into standard treatments could be more effective and efficient in reducing self-criticism and disordered eating. However, given that self-critical perfectionism damages the therapeutic alliance and predicts poorer response to treatment (Blatt et al., 1995; Blatt et al., 1998; van der Kaap-Deeder et al., 2016), and early reductions in self-criticism during treatment are related to improvements in ED symptoms, depression, and anxiety (Löw et al., 2020), it may be that a routine and earlier focus on self-criticism before building up self-compassion is required to enhance the effects of self-compassion interventions. It would also be of interest to examine the impact of dismantling self-criticism without a focus on self-compassion to examine impacts on self-compassion.

Limitations and Future Directions

Our findings should be interpreted in the context of several important limitations, which highlight several directions for future research. First, to capture as many studies as possible for the meta-analysis to get a robust representation of the link between self-criticism, self-compassion and disordered eating, most studies included in this meta-analysis were cross-sectional. This limits the causal conclusions that can be derived from concerning the relationship between disordered eating with self-criticism and self-compassion, as there would be several characteristics that vary between the different intervention groups. Hence, more randomized controlled trials (RCTs) that could examine brief interventions that dismantle the relative impacts of treating self-criticism versus self-compassion versus targeting both are required, as well as more longitudinal studies that can test

modelled interactions between the variables and if shorter follow-up lengths during treatment aid in enhancing and maintaining the impact of interventions.

A second limitation was the high levels of heterogeneity observed within all analyses, which may suggest the need for subgroup analyses (Cuijpers et al., 2021). However, with an average benchmark of ten studies required for subgroup analyses (Dalton & Dalton, 2008), two out of ten of the subgroup analysis categories (i.e., dimensions of self-criticism) included nine studies, and only three out of ten of our subgroup analysis categories (i.e., dimensions of self-criticism) included more than ten studies. Furthermore, whilst our paper identified 135 studies for this meta-analyses, 44 (34%) were unable to be included due to non-response from the authors, and our findings should be interpreted in light of potential missing data. Third, the lack of diversity in the samples should be acknowledged. Most of the studies in the meta-analysis did not include the socioeconomic status of the participants, and more than half of the studies included omitted reporting the race or ethnicity of the sample. Where it was included, majority of participants were white females which limits the generalization of results. Whilst the prevalence of ED is high in this sample (Galmiche et al., 2019), further research may aim to examine the impact of self-criticism on self-compassion and ED with other population groups.

Finally, there were a variety of measures examining disordered eating included in the analyses, all of which vary in how widely they are used within literature and how many validation studies have examined the factor structure, reliability, and validity of the measures. Including measures such as the Eating Disorder Inventory (EDI) that comprise subscales measuring perfectionism (Garner et al., 1983) could also account for higher correlations due to its ability to measure both ED and self-critical perfectionism. Whilst the EDE-Q (Fairburn & Beglin, 2008) was the most utilized measure in our meta-analysis, this may lead to uncertainty about the conclusions drawn in research setting as it remains unclear which conceptualization of disordered eating has the most meaningful relationship with self-criticism and self-compassion.

Conclusion

The present study provides the first meta-analytic review showing a small to large association between disordered eating and self-criticism and a medium association of the longitudinal impacts of self-criticism on disordered eating, as well as identifying two measures of self-criticism that demonstrated the most robust links with disordered eating. The study also found a significant link between self-compassion, self-criticism, and disordered eating, in that being high in self-compassion is linked to reduced self-criticism and disordered eating symptoms. Understanding these interactions better in conjunction with dismantling intervention studies can be used to help us develop more effective and efficient interventions targeting self-criticism and self-compassion for people with disordered eating.

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Appendix B: Modules used in the intervention referenced in Chapter 6

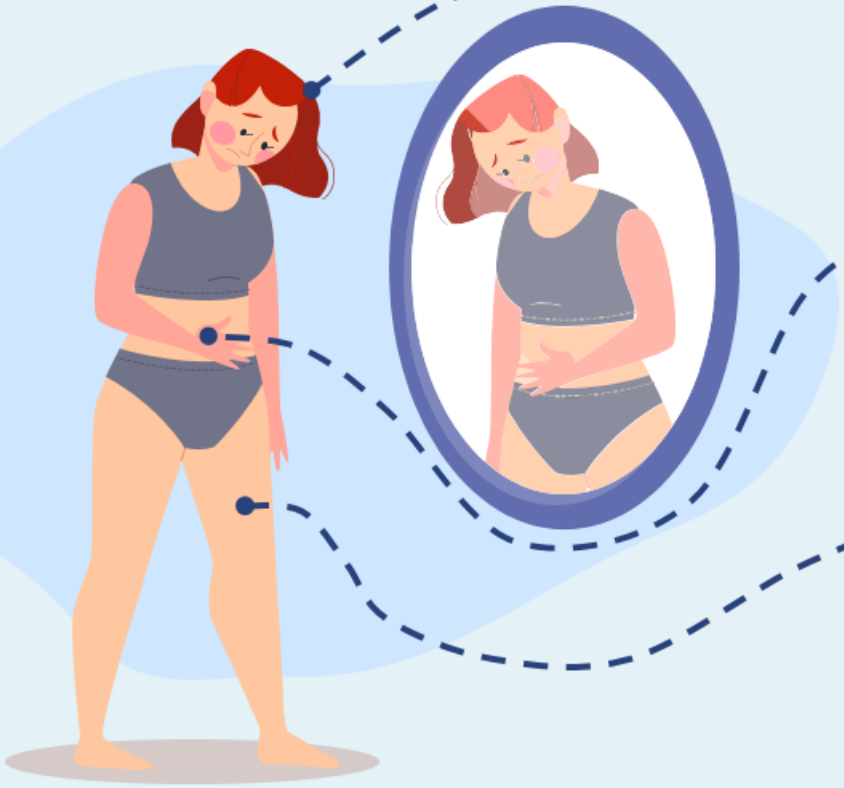
Session 1

Flinders University

Developing a Balanced Life

4 brief modules to help you adjust the balance of self-criticism and self-compassion in your life to improve disordered eating, psychological wellbeing and productivity.

What do we mean by Disordered Eating?



Disordered eating includes limiting or restricting food choices, skipping meals, being preoccupied over fat/calorie content of food or your appearance, excessive exercising or purging in an effort to control weight or shape, and/or binge eating.

Self-criticism is where one tends to compare themselves unfavourably with others and assume others evaluate them negatively. Engaging in self-criticism promotes unhealthy eating patterns, increases the drive to be thin, increases depression and anxiety, and makes people less productive.

Self-compassion can act as a potential antidote against self-criticism, which involves treating yourself with kindness, care and concern during struggles or confronting personal inadequacies, mistakes and failures. This allows us to pick ourselves up more quickly so we can pursue valued goals.

Aims

Over these four modules, we'll discuss achieving balance in life: pursuing important goals whilst also practicing self-care.

Throughout the modules, we'll keep the information as simple and uncluttered as possible but provide references at the end, so you can look up the evidence for yourself.

What we'll be exploring over the four sessions

01

The Tripod for Achieving Balance in Life

02

Self-Criticism and Self-Compassion

03

Practicing Self-Compassion

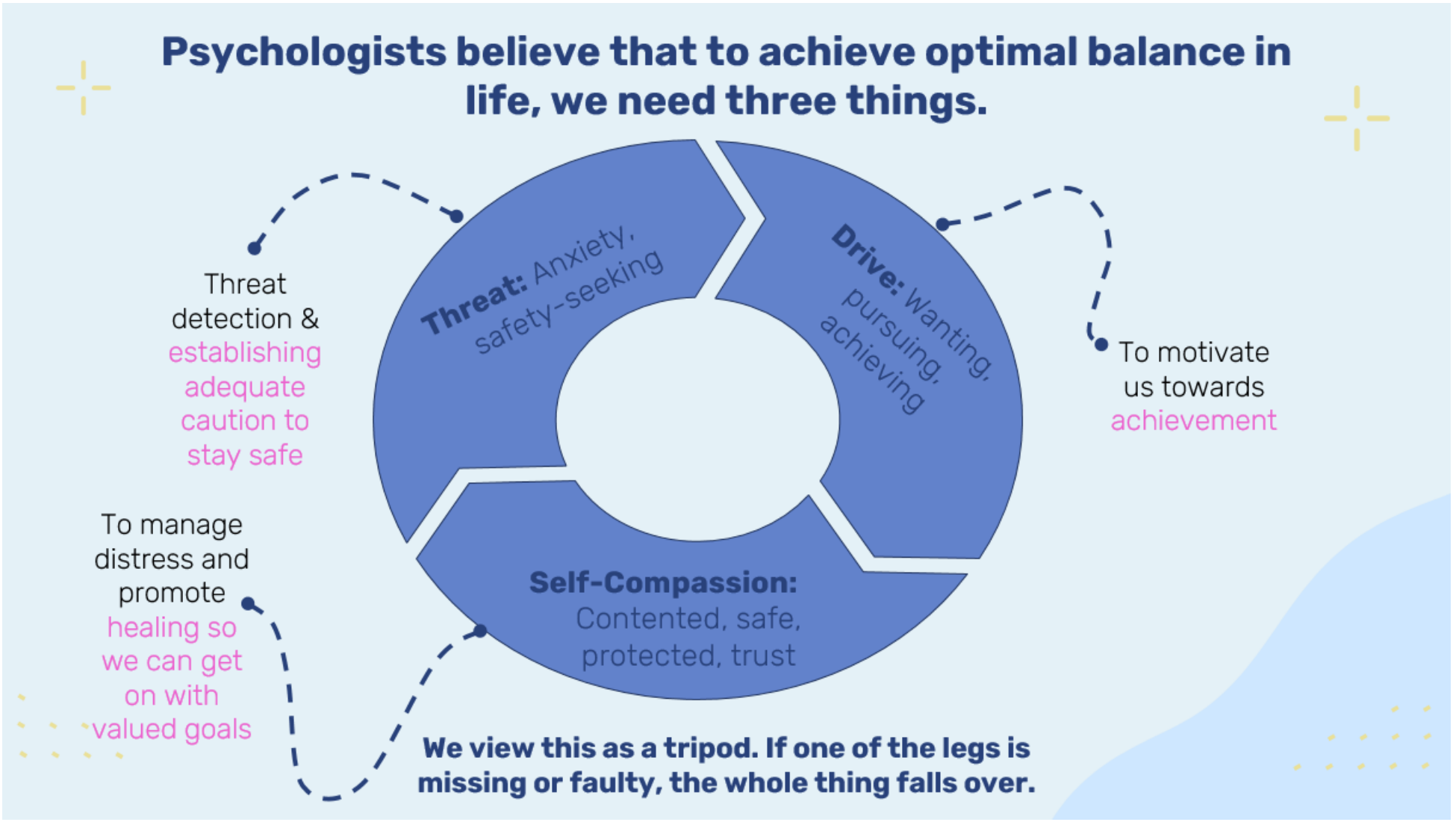
04

Self-Compassion and Social Media Use

01

Balancing Self-Criticism and Self-Compassion

The Tripod for Achieving Balance in Life


Psychologists believe that to achieve optimal balance in life, we need three things.
Threat: Anxiety, safety-seeking
Drive: Wanting, pursuing, achieving
Self-Compassion: Contented, safe, protected, trust
Threat detection & establishing adequate caution to stay safe
To motivate us towards achievement
To manage distress and promote healing so we can get on with valued goals
We view this as a tripod. If one of the legs is missing or faulty, the whole thing falls over.

Applying the Balanced Tripod to Ryan

Drive

He has a dream to become a journalist and is currently doing a journalism degree. The workload is more difficult than he expected. What would happen if he lacked drive?

Self-Compassion

Ryan gets one assignment back where he did worse than he expected, as he had misunderstood the question. What would happen if he lacked self-compassion?

Threat

He finds that his part-time job means he does not have enough time to do as well in his coursework as he needs to get him the interstate job he wants. What would happen if he lacked a sense of threat?

Applying the Tripod on Ryan

What might have happened if Ryan did not practice self-compassion in the previous example? If Ryan was self-critical, he may have decided that he was incapable of reaching his goals and be too embarrassed to go and talk to his tutor about his marks.

Having a sense of drive is linked with seeking and acquiring goals and rewards that we find intrinsically satisfying. Being able to identify and respond to threats when they emerge helps to protect us. However, whilst many people appreciate the value of drive and threat, fewer are convinced about the value of self-compassion from maintaining balance in life.

These modules help you to examine the place of self-compassion in your life and whether you need to reduce your self-criticism.

Self-Compassion

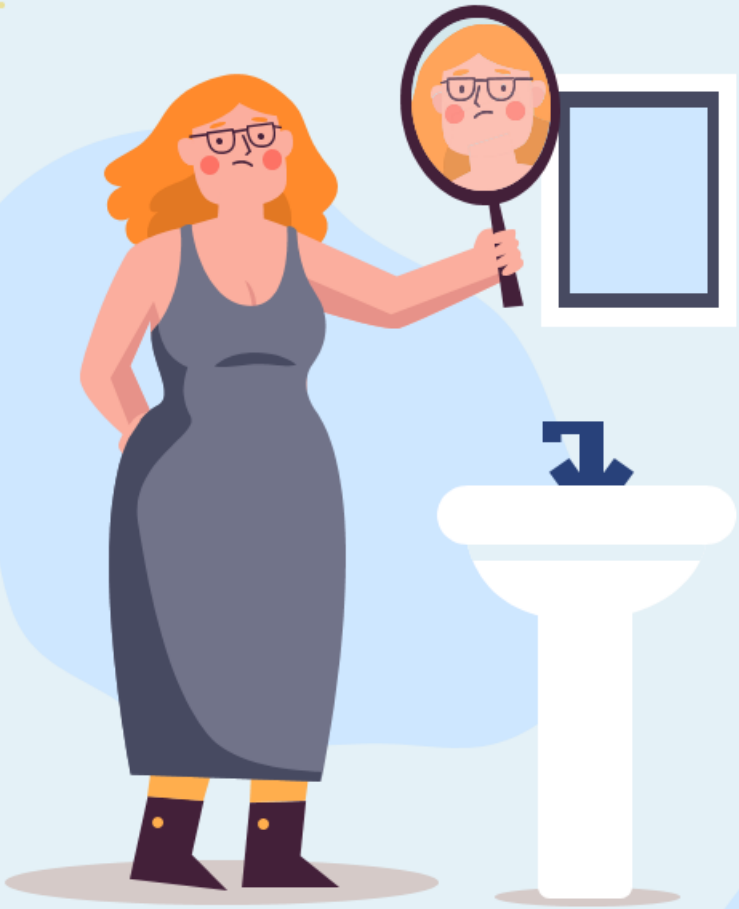
Researchers have found that self-compassion is associated with:

Being more productive, in terms of:

- Reaching goals
- Resilience when a goal is not achieved, with a quicker recovery time
- Less procrastination
- Less worry and fear of failure about study
- Conscientiousness

Feeling better emotionally, in terms of:

- Happiness
- Optimism
- Agreeableness



Self-Criticism

In contrast, self-criticism is associated with:

- Depression, anxiety, and disordered eating
- Less involvement in social activities and less intimate connections
- Rumination (going over the same negative thoughts again and again)
- Loss of self-esteem
- Less progress toward valued goals
- Greater levels of procrastination and avoidance

Self-criticism can be triggered by many things and might depend on the things about you that most concern you.

Some examples of things that can trigger self-criticism include:

- Making a mistake on an assignment
- Having an unkind thought about someone
- Noticing a pimple on your face
- Not playing as well in a sporting match as usual
- Telling a joke that no one laughs at
- Having an argument with someone
- Seeing a photo of someone on social media who you think looks better than you
- Feeling bad about your body

Comparing the Self-Critical and Self-Compassionate Voice

Examples of the self-compassionate voice:

- "I may not always love my body, but I can still live happily and well"
- "It's okay to eat when I feel hungry and not starve myself"
- "Just keep trying, you will get there"
- "My friends do not care about the way I look"
- "I don't have to get absolutely everything right, everyone makes mistakes"
- "My body gives me strength and the ability to heal, to move, to adapt"

Examples of the self-critical voice:

- "I look fat and ugly"
- "If I don't skip my meals, I'm going to get fatter and be rejected by everyone"
- "You should just give up now"
- "If you get fat, no one will like you"
- "If you make a mistake, everyone will think you are stupid"
- I don't look as good as the people on Instagram"

Homework

This exercise is designed to help you learn about the balance between self-criticism and self-compassion in your life.

- For the next few days, keep a note of any situations where you experienced self-critical or self-compassionate thoughts around your appearance, eating and/or exercise habits.
- Write down what the situation was, and note if your immediate thought was self-compassionate or self-critical. Look at how you felt at the time. See the next page for a format that could work for you.
- Keep notes using the table provided or on your phone if that is easier for you. Try to write down at least 5 examples, so you can see if you tend to use self-compassion or self-criticism more.

Homework

Situation	Self-Critical Thought(s)	Self-Compassionate Thought(s)	Feelings
Eating a whole pizza	*I can't believe I did that. I'm going to get so fat*		*Guilty*

Alternative Resources

Centre for Clinical Interventions. (2019). *Self-Compassion.* https://www.cci.health.wa.gov.au/Resources/Looking-After-Yourself/Self-Compassion

Warren, R., Smeets, E., & Neff, K. (2016). *Self-criticism and self-compassion: Risk and resilience. Current Psychiatry, 15*(12), 18-33. https://self-compassion.org/wp- content/uploads/2016/12/Self-Criticism.pdf

Session 2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Flinders University
02
Self-Criticism and Self-Compassion


Homework Review
Read through the diary you have been keeping and answer the following questions.

Reflection

- Did you notice if you used self-criticism more than self-compassion?
- Did you notice any patterns in the types of situations that make you self-criticize? For instance, were you self-critical around your studies, work, personal relationships, eating habits or body image?
- If you do not notice any patterns in your self-criticism, you might like to do the diary again for a couple more days and then come back to this question. Write down 1 or 2 things that most commonly cause you to self-criticize based on your diary:

Reflection

What do you notice about the thoughts and feelings you have when you self-criticize?

Do you think they are helpful or unhelpful for you in terms of helping you get on with your life?

Write a quick reflection on what you learned about your self-critical thoughts and how they make you feel and how they impact your motivation to achieve your valued goals.

The Problems with Self-Criticism

As we discussed in the last module, self-criticism promotes unhealthy eating patterns, increases the drive to be thin and eating psychopathology like binge eating. One way that researchers think we can protect ourselves against the unwanted effects of self-criticism is to develop more self-compassion.

Self-compassion involves showing yourself kindness and care when you experience setbacks, make mistakes, or notice things about yourself that you don't like. It looks at the whole picture, rather than just the bits that show you in the worst light.

Watch the YouTube clip below to see what happens when you practice "selective attention" (i.e., when you don't look at the whole picture).

Harrison, G. (2009, October 20). *Transport for London: Do the test (moonwalking bear)* [Video file]. Retrieved from https://www.youtube.com/watch?v=1_UuZQhlZ5k

The Problems with Self-Criticism

- Important information is missed when people focus on selective aspects rather than the whole picture, and this will bias the decisions and choices you make in a way that wouldn't happen if you were looking at all the evidence available (rather than just some bits).
- Self-compassion is FUNCTIONAL – it can help you broaden your attention, so that you don't miss parts of the story, and therefore act on more informed thoughts and decisions.

Self-Compassion involves three parts, which all work together

Treating yourself kindly (as opposed to harshly)

Realizing that you are a person, and all people make mistakes (as opposed to feeling like your mistakes set you apart from other people)

Being more mindful during negative experiences (i.e., acknowledging bad or painful aspects of the experience without exaggerating them or ignoring the neutral or positive aspects)

The easiest way to generate self-compassionate statements is to think of the things you would say to a friend: Someone you care about and someone you want to see do well.


Why do people find self-compassion so hard to practice?
The next slide will have a series of statements that we would like you to think carefully about and then select the number that best describes how each statement fits you.

1. I feel that I don't deserve to be kind and forgiving to myself.	0 1 2 3 4
2. If I really think about being kind and gentle with myself it makes me sad.	0 1 2 3 4
3. Getting on in life is about being tough rather than compassionate.	0 1 2 3 4
4. I would rather not know what being 'kind and compassionate to myself' feels like.	0 1 2 3 4
5. When I try and feel kind and warm to myself, I just feel kind of empty.	0 1 2 3 4
6. I fear that if I start to feel compassion and warmth for myself, I will feel overcome with a sense of loss/grief.	0 1 2 3 4
7. I fear that if I become kinder and less self-critical to myself then my standards will drop.	0 1 2 3 4
8. I fear that if I am more self-compassionate, I will become a weak person.	0 1 2 3 4
9. I have never felt compassion for myself, so I would not know where to begin to develop these feelings.	0 1 2 3 4
10. I worry that if I start to develop compassion for myself, I will become dependent on it.	0 1 2 3 4
11. I fear that if I become too compassionate to myself, I will lose my self-criticism and my flaws will show.	0 1 2 3 4
12. I fear that if I develop compassion for myself, I will become someone I do not want to be.	0 1 2 3 4
13. I fear that if I become too compassionate to myself others will reject me.	0 1 2 3 4
14. I find it easier to be critical towards myself rather than compassionate.	0 1 2 3 4
15. I fear that if I am too compassionate towards myself, bad things will happen.	0 1 2 3 4

Here are a series of statements that we would like you to think carefully about and then select the number that best describes how each statement fits you.

Please use this scale to rate the extent that you agree with each statement:
0 = Don't Agree at All
4 = Agree Completely

A higher rating on the items indicate a greater fear of self-compassion. How did you score?

Why do people find self-compassion so hard to practice?

- **Early Life Experiences:** Experiencing limited care, kindness and nurturing from other may lead to underdeveloped self-compassion. If you were never taught or received much compassion from others in earlier life, it can be more difficult to develop self-compassion.

- **The Threat System:** Under the tripod model we previously discussed, our brain is hard wired to shift into threat mode easily to protect ourselves. Seeing the negative is our default attention bias. Re-shifting our focus to more self-compassionate thoughts thus overrides this attention bias, which may not come naturally to us.

Why do people find self-compassion so hard to practice?

- **Lack of Awareness:** Many of us may not be aware of the unhelpful critical ways we may be treating ourselves. We may be going through life on autopilot, doing what we have always done, and may not occur to us that treating ourselves kindly is an option.
- **Negative Beliefs about Self-Compassion:** Some of us may cringe at the idea of self-compassion. Some people think being self-compassionate is too 'touchy feely', and leads to laziness, self-indulgence or self-pity. A way to address this misconception is to think of people you admire – are they self-compassionate? What does this say about your negative beliefs about self-compassion?

Homework

Over the next four days, we would like you to first try using your normal patterns (including self-criticism), and then self-compassion, to see what impact these approaches have on you.

- For the first two days, don't make any effort to change anything about your habits. Keep a record of how many times you self-criticize that day and rate your productivity in several areas using the record on the next page. Also, make a note of how you felt that day.
- For the next two days, choose a self-compassionate message or messages. Keep reminding yourself of that message(s); you might like to write it on the back of your hand or set up a reminder of the message on your phone to pop up several times that day. If you feel the urge to self-criticize, think about your self-compassionate message instead. Again, rate your productivity for that day and how you felt using the record below. An example has been provided for you on the next page.

Day One - Normal

How many times did you self-criticize today?	
On a scale of 1-10, where 1 means not productive at all and 10 means the most productive you could possibly be, rate how productive you felt in the following areas of your life today:	
Study	
Work (if you have a job)	
Hobbies	
Social life	
On a scale of 1-10, where 1 means not feeling good at all and 10 means feeling the best you could possibly feel, how did you feel today?	

Day Two - Normal

How many times did you self-criticize today?	
On a scale of 1-10, where 1 means not productive at all and 10 means the most productive you could possibly be, rate how productive you felt in the following areas of your life today:	
Study	
Work (if you have a job)	
Hobbies	
Social life	
On a scale of 1-10, where 1 means not feeling good at all and 10 means feeling the best you could possibly feel, how did you feel today?	

Day Three — Self-Compassion

Write the self-compassionate message(s) you chose here:

How many times did you use self-compassion today?	
On a scale of 1-10, where 1 means not productive at all and 10 means the most productive you could possibly be, rate how productive you felt in the following areas of your life today:	
Study	
Work (if you have a job)	
Hobbies	
Social life	
On a scale of 1-10, where 1 means not feeling good at all and 10 means feeling the best you could possibly feel, how did you feel today?	

Day Four — Self-Compassion

Write the self-compassionate message(s) you chose here:

How many times did you use self-compassion today?	
On a scale of 1-10, where 1 means not productive at all and 10 means the most productive you could possibly be, rate how productive you felt in the following areas of your life today:	
Study	
Work (if you have a job)	
Hobbies	
Social life	
On a scale of 1-10, where 1 means not feeling good at all and 10 means feeling the best you could possibly feel, how did you feel today?	


Alternative resources

Resources

Centre for Clinical Interventions. (2017). *Understanding Self-Compassion.* https://www.cci.health.wa.gov.au/-/media/CCI/Consumer-Modules/Building-Self-Compassion/Building-Self-Compassion---01---Understanding-Self-Compassion.pdf

Neff, K. (2020). *Self-Compassion*. https://self-compassion.org/

Neff, K., & Germer, C. (2017). *The Power of Self-Compassion.* https://www.youtube.com/watch?v=BTQP7XzDxjI

Session 3

03

Trying Something New

PRACTICING SELF-COMPASSION

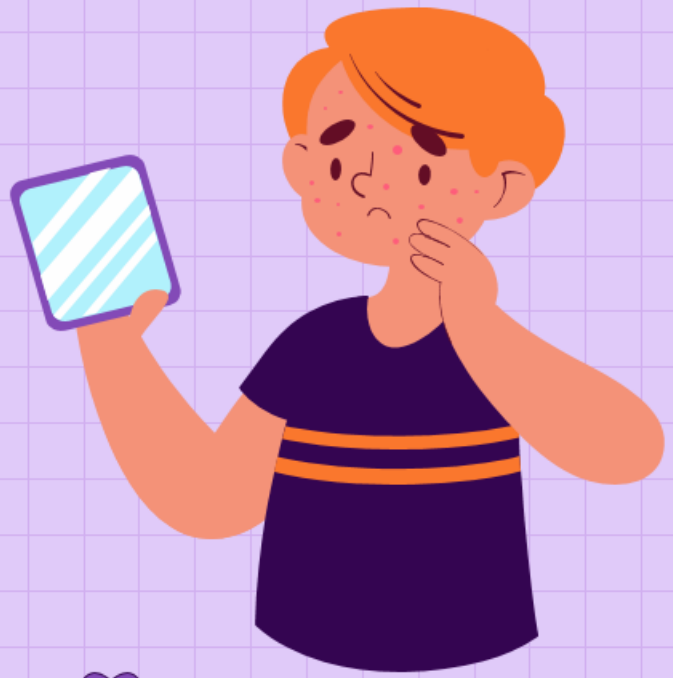
Flinders University

Homework Review

Now that you have recorded your productivity and feelings on a normal day and a self-compassionate day, does either approach seem to be a better fit for you?

Of course, you only compared these approaches for two days, so it is possible that other things might have impacted on you. But, based on these two days, what were your impressions on how each of these approaches affected your productivity and wellbeing? Write a quick reflection.

The Self-Critical and Self-Compassionate Voice

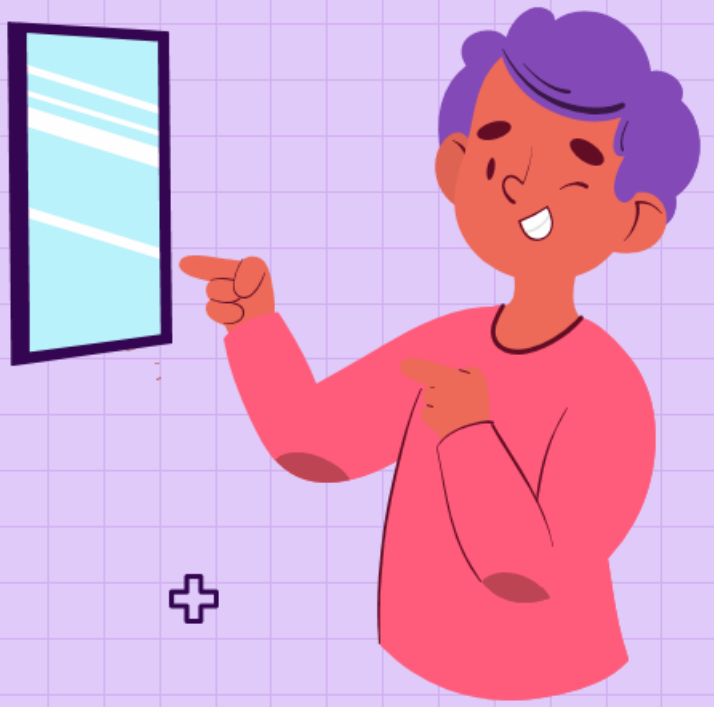


Based off your experiences in the homework activity, did you find that there were some self-critical statements that kept coming up over the past few days? Many people often experience having a self-critical voice and find it diffcult to incorporate self-compassionate statements. Did you have a similar experience in the previous activity? The following video includes some stories of people that have shared their experiences of their self-critical voice.

Sounds True. (2017, October 5). *The power of self-compassion: Kristen Neff and Chris Germer* [Video file]. Retrieved from https://www.youtube.com/watch?v=BTQP7XzDxjI

Practicing Self-Compassion in the Face of Adversity

We are now going to pull together the best self-compassionate statements for you to keep close and practice. There are a variety of approaches to doing this. Here are some ideas:



Self-Compassionate Statements

Help a Friend

Think about a recent time you spoke with a friend who was going through a challenging time and the compassionate things you said to them.

Compassion from Others

Think about a recent time a friend spoke to you when you were going through a challenging time, what compassionate things did they say to you?

Review Messages

Reflect on the self-compassionate messages you used or thought of using in the Module 2 homework – which was/were your favourite(s)?

Quotes

Look up famous quotes on failure and making mistakes on a web search – are there quotes there that reflect self-compassion that you would like to use?

When in Need...

Think about a time where you encountered adversity and then think about a compassionate person (you don't need to know this person; it can be someone you imagine to be compassionate) – what would they have said to you in that situation?

Practicing Self-Compassion in the Face of Adversity

We are now going to pull together the best self-compassionate statements for you to keep close and practice. List them here, an example has been provided for you.

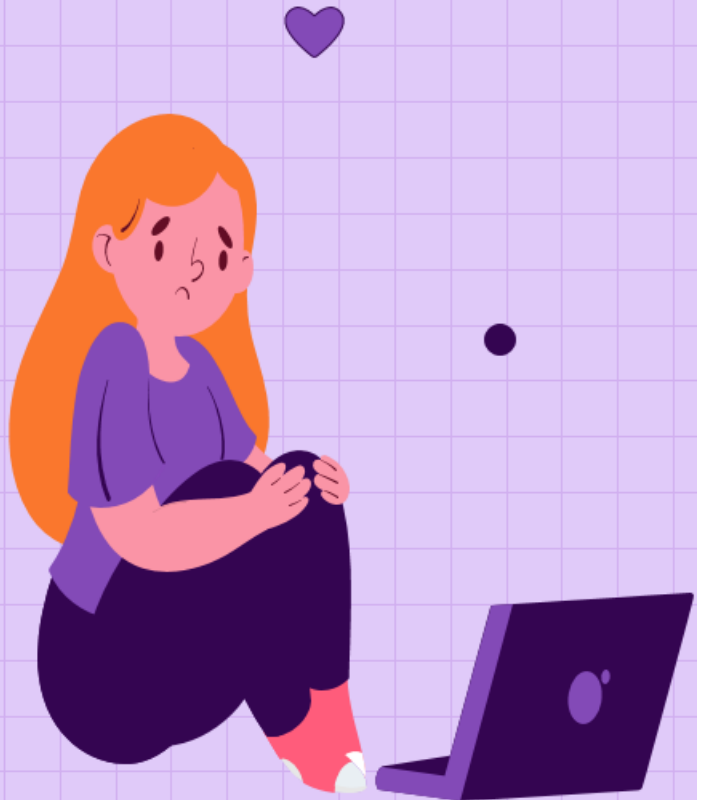
Self-Compassionate Statements
e.g., Treating yourself with compassion helps you to succeed in life because it makes you more resilient to setbacks.

Trying Something New with Something Old

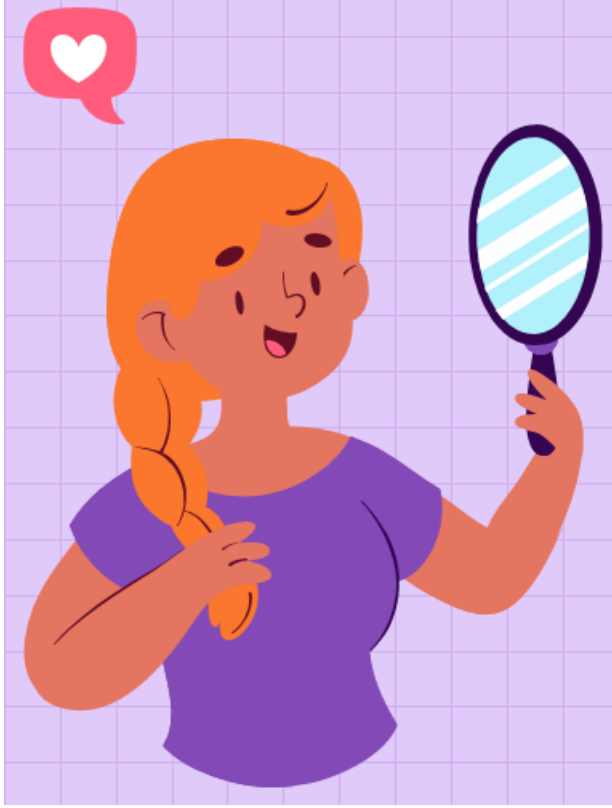
You have spent a few days now thinking about self-criticism and self-compassion, and it is likely that you have begun taking more notice of your self-criticism. We would like you to pick one instance from the last few days in which you engaged in self-criticism about your **appearance** for this next exercise. If you have not done this recently, then you can write about a time you did this that was longer ago.

Visualise the Event

Bring to mind all the details you can remember from that instance of appearance-related self-criticism and write about what happened here. Imagine yourself back in that situation as if it were happening now. Aim to include enough information to answer the following questions: Where were you? Who were you with? What time of day was it? What were you doing (i.e., how did it start)? What did you think and feel during and after that situation?



Re-imagine the event



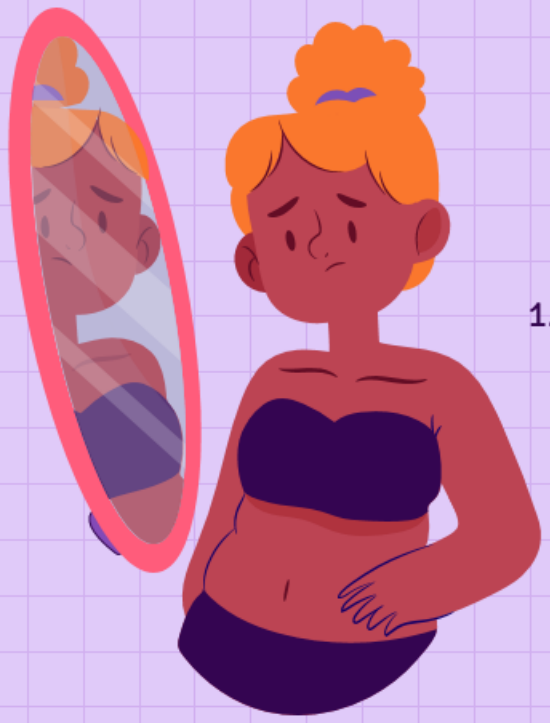
Next, think back to that same situation, but imagine what it would look like if the current version of yourself, who is a little older, a little wiser, and a little more self-compassionate, were watching the situation unfold from a third-person perspective. What do you think about the situation now, as an observer? What do you think the original version of yourself needs to know with the value of self-compassionate hindsight.

Click to add title

Provide Self-Compassion

Lastly, imagine yourself in that situation again, as the original version of yourself, but this time the more self-compassionate version of yourself appears when you start to self-criticize. Write about what happens here, including what the more self-compassionate version of yourself says or does in response to your self-criticism and what the original version of yourself would be likely to think and feel afterwards. This exercise sounds a little strange but have some fun with it!

HOMEWORK –
Changing your Critical Self-Talk



This activity should be done over several weeks to eventually let it form as a blueprint for managing your self-critical voice with self-compassionate thoughts.

1. The first step towards changing the way to treat yourself is to notice when you are being self-critical. Whenever you're feeling bad about something, think about what you've just said to yourself. What words do you use when you're self-critical? Are there key phrases that keep coming up? For instance, if you feel you have eaten too much, does your inner voice say something like "you're so disgusting," "you make me sick," and so on? Really try to get a clear sense of how you talk to yourself.

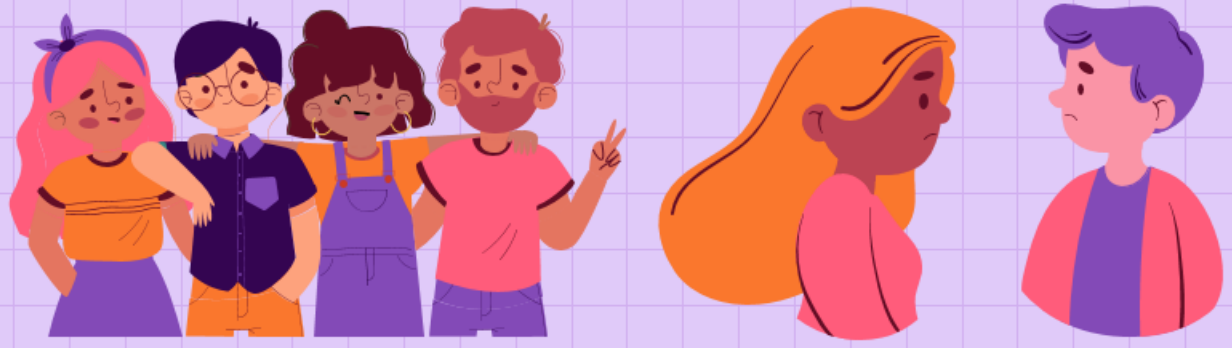
HOMEWORK –
Changing your Critical Self-Talk

2. Make an active effort to soften your self-critical voice but do so with compassion rather than self-judgment (i.e., don't say "you're an idiot" to your inner critic!). Reframe the observations made by your inner critic in supportive way that will motivate you to action and not shame. If you're having trouble thinking of what words to use, you might want to start by first imagining what a compassionate friend would say to you in this situation. For instance, you can say something like "I know you ate those biscuits because you had a desire for something sweet. But now, you feel guilty. Why don't you call up a friend or go for a walk so you feel better?" The important thing is that you start acting kindly, and feelings of true warmth and caring will eventually follow.

HOMEWORK —
Changing your Critical Self-Talk

3. If you find yourself struggling with this activity, re-read the version of the situation you just wrote in the previous activity where the self-compassion version of yourself stands up for you. Really try to imagine yourself back in that situation and picture what it would look and feel like if the self-compassionate version of yourself were there to counter your self-critical thoughts.

ALTERNATIVE RESOURCES

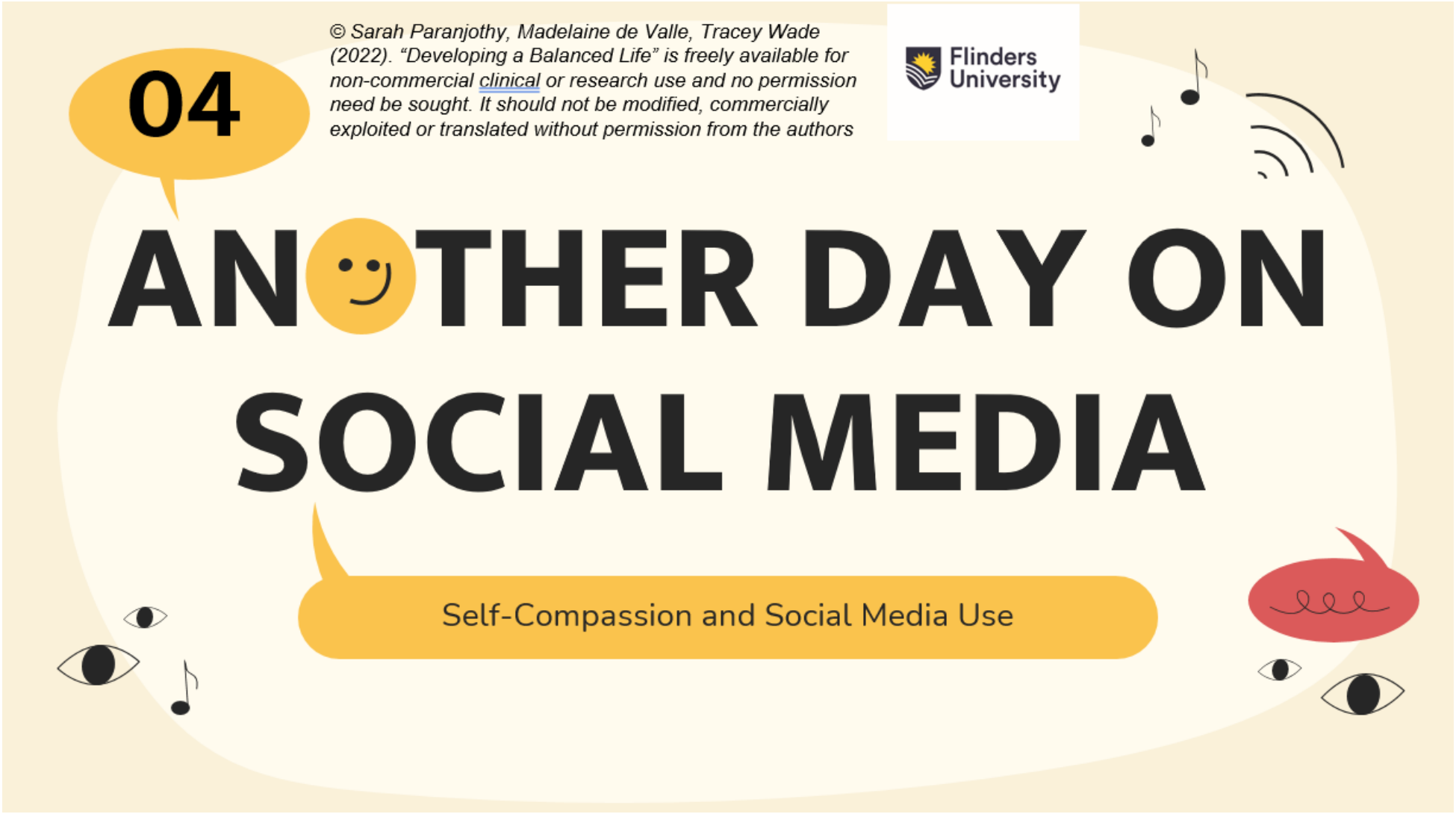


Resources

Gilbert, P. (2010). Training our minds in, with and for compassion: An introduction to concepts and compassion-focused exercises. https://www.getselfhelp.co.uk/docs/GILBERT-COMPASSION-HANDOUT.pdf

Gilbert, P. (2014). The origins and nature of compassion-focused therapy. *British Journal of Clinical Psychology, 53*, 6-41. https://self-compassion.org/wp-content/uploads/publications/GilbertCFT.pdf

Session 4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Flinders University
04
ANOTHER DAY ON SOCIAL MEDIA
Self-Compassion and Social Media Use

Homework Review

In the last module, we asked you to re-read your recount of a situation in which you self-criticized, imagining how it would look and feel different if a more self-compassionate version of yourself werethere to intervene. How did you feel after doing this? Did you learn anything from this experience? Write a quick reflection on it.

Problem-Solving your Social Media Use

We now invite you to apply what you have learned in these modules to a specific activity and area of your wellbeing where we know self-criticism can be damaging: using social media, and how this impacts on your body image. Research suggests that using social media can lead to you comparing yourself to other people, particularly comparing your appearance to the appearance of the people you see on social media, and that this can make you feel negatively about how you look.

Why does Social Media Use affect Body Image?

The Rise of Influencers

A rising number of social media influencers are emerging, offering 'solutions' to their followers on how they can improve their appearance, body and life. However, users may not realise that these opinions shared may not be evidence-based health advice. Exposure to content relating to eating, nutrition and exercise can even be potentially harmful.

Social Comparison

Comparing onself to others on social media which we perceive to be more attractive or leaner can cause body dissatisfaction and shame, when we cannot achieve the same body type. However, users may be unaware that the widespread use of filters and photoshop may be in use to alter these images, which may lead to comparisons with unattainable and unhealthy proportions.

Ditch the Label. (2017, February 20). *Are you living an insta lie? Social Media vs. Reality* [Video file]. Retrieved from https://www.youtube.com/watch?v=0EFHbruKEmw

To understand your motivations for engaging in social media use currently, here are a series of statements that we would like you to think carefully about and then select the number that best describes how each statement fits you. If you score 2 and above on any items from 7-11, go on to do the next activity in the following slides.

Items	Never (1)	2	3	4	Always (5)
1. I use social media otherwise I might miss out on what is going on with my friends.					
2. I would feel left out if I wasn't on social media.					
3. I use social media to increase my popularity.					
4. I use social media so that more people know and like me.					
5. I use social media to impress people.					
6. I use social media so that my friends know what I am doing.					
7. I use social media to know if my pictures look attractive.					
8. I use social media to get my friends' opinion on how I look.					
9. I use social media to learn how I can improve my look.					
10. I use social media to compare how I look with how my friends look.					
11. I use social media because I can filter the photos I post.					
12. I use social media so people see me the way I want them to.					
13. I use social media to campaign for things I care about.					
14. I use social media to connect with people who care about the same things as me.					
15. I use social media to promote issues that matter to me.					

Activity

This activity asks you to use problem-solving techniques to come up with things you can do that might help reduce potentially harmful impacts of social media use on your body image. When completing the steps in this activity, it might be helpful to keep in mind some of the reasons for using social media, which could include:

- To know if your pictures look attractive
- To get your friends' opinion on how you look
- To learn how you can improve how you look
- To compare how you look with how your friends look
- Because you can filter the photos you post

Tying It All Together

Identify and Define the Problem

State this as clearly as possible, be objective and specific (e.g., who does what, how many times, with what, and where?).

Step One: Identify and Define the Problem

- Identify the problem – i.e., How social media use can impact your body image; Be objective and specific (e.g., who does what, how many times, with what, and where?).
- For example, I am using Instagram 10 times a day, around 30 minutes each time, for appearance related purposes, and it makes me feel more body dissatisfied


Tying It All Together
Come up with
Possible Solutions
Start by making a list of all possible solutions, without worrying too much about how good they are, how much you like them, or how easy they are to apply. Then, select your three most preferred solutions.
STEP 1
STEP 2
STEP 3
STEP 4
Identify and Define
the Problem
State this as clearly as possible, be objective and specific (e.g., who does what, how many times, with what, and where?).

Step Two: Come up with Possible Solutions

- Start by making a list of all possible solutions to reduce the impact of social media use on your body image, without worrying too much about how good they are, how much you like them, or how easy they are to apply. Then, select your three preferred solutions.
- For example, not following fitness influencers on social media because I feel more body dissatisfied after looking at them

Tying It All Together

Come up with Possible Solutions

Start by making a list of all possible solutions, without worrying too much about how good they are, how much you like them, or how easy they are to apply. Then, select your three most preferred solutions.

STEP 1 STEP 2 STEP 3 STEP 4

Identify and Define the Problem

State this as clearly as possible, be objective and specific (e.g., who does what, how many times, with what, and where?).

Consider your Options

Write down the pros (i.e., advantages) and cons (i.e., disadvantages) of the three preferred solutions you choose in Step Two.

Step Three: Consider your Options

Write down the pros (i.e., advantages) and cons (i.e., disadvantages) of the three preferred solutions you chose in Step Two in the table below.

Solutions	Advantages	Disadvantages
For example, Potential Solution 1 (Not following influencers on social media)	I won't be comparing myself to them as much and feel better about my own body	It would make me feel outdated from current trends
Potential Solution 2		
Potential Solution 3		
Potential Solution 4		

Tying It All Together

STEP 1

Identify and Define the Problem

State this as clearly as possible, be objective and specific (e.g., who does what, how many times, with what, and where?).

STEP 2

Come up with Possible Solutions

Start by making a list of all possible solutions, without worrying too much about how good they are, how much you like them, or how easy they are to apply. Then, select your three most preferred solutions.

STEP 3

Consider your Options

Write down the pros (i.e., advantages) and cons (i.e., disadvantages) of the three preferred solutions you choose in Step Two.

STEP 4

Choose a solution

Pick one solution you wrote about in the last step that you think is most likely to succeed, based on its pros and cons. Make a list of the specific steps you will need to take to make this solution work and when you will take these steps. Being specific about this will make it easier for you to use this solution.

Step Four: Choose a Solution

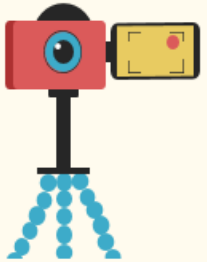
Pick one solution you wrote about in the last step that you think is most likely to succeed, based on its pros and cons. In the table below, make a list of specific steps you will need to take to make this solution work and when you will take these steps. Being specific about this will make it easier for you to use this solution.

Action Step	When To Do It
For example, No longer following influencers on ALL my platforms (Instagram and Facebook)	Tomorrow
Look up accounts that are more body neutral and place less emphasis on diet and exercise	This weekend
Finding inspiring landscapes and cute animals to fill your Instagram feed to help you remember there's more to life than what you look like	Next weekend
Pick one strategy from the research to implement	Next weekend
Review effectiveness of strategy and add one more to implement	Start of next month

Homework

Step 5: Implement the Solution

Try implementing the solution(s) you picked, using the action steps you outlined above. You might like to wait a couple of days before completing the next, final step in the process.



Step 6: Evaluate the Outcome

Think about the changes you made over the past couple of days and write a reflection. In this reflection, write about whether the solution(s) seemed effective and whether there are any changes tobe made to the solution to make it work better for you.

Step Five: Implement the Solution(s)

Try implementing the solution(s) you picked, using the actions steps you outlined. You might like to take a few days before completing the next, final step in the process.

Action Step	When To Do It

Step Six: Evaluate the Outcome

- Think about the changes you made over the past few days and write a reflection. In this reflection, write about whether the solution(s) seemed effective and whether there are any changes to be made to the solution to make it work better for you.


ALTERNATIVE RESOURCES

Resources

Butterfly Foundation. (2022). What Role does Social Media play in the Development of Negative Body Image and Eating Disorders? https://butterfly.org.au/what-role-does-social-media-play-in-the-development-of-negative-body-image-and-eating-disorders/

Heger, E. (2022, May 19). The sneaky ways social media can sabotage your body image – and 3 easy tips to help you break the cycle. *Insider Reviews*. Retrieved from https://www.insider.com/guides/health/mental-health/how-social-media-affects-body-image

Hilton Head Health. (n.d.). *Practicing body neutrality*. Retrieved from https://www.hhhealth.com/wp-content/uploads/2020/04/Practicing-Body-Neutrality.pdf