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UNDERSTANDING THE RELATIONSHIP BETWEEN SELF-COMPASSION AND BODY DISSATISFACTION

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ABSTRACT

Body dissatisfaction is the result of a person's negative perception, thoughts, and feelings regarding their own body. Research suggests that two protective factors— (1) self-compassion, a positive attitude of self-acceptance despite one's flaws, and (2) gratitude, the capability to notice and appreciate the positive aspects of life—may help reduce body dissatisfaction. However, more work is needed to replicate these results. This thesis has two aims: 1) to provide further evidence for the effectiveness of identified protective factors in reducing body dissatisfaction, specifically self-compassion, and gratitude and 2) to examine a range of potential mechanisms that may explain the relationship between the key predictors (self-compassion, gratitude) and body dissatisfaction. This thesis reports three online studies that address these questions, with samples of adult women recruited in the United Kingdom. Results from Study 1 showed that self-compassion, rather than gratitude, significantly predicted lower levels of body dissatisfaction. Furthermore, Study 3 demonstrated that participating in a three-week meditation programme—whether focused on self-compassion or relaxation—increased women's levels of trait self-compassion over time and reduced their levels of body dissatisfaction. Studies 1, 2 and 3 also explored various possible mediators of the relationship between self-compassion and body dissatisfaction: self-objectification (Study 1), cognitive mechanisms (positive momentary-thought action repertoires and negative momentary-thought action repertoires; Study 2), implicit associations (appearance schema activation and non-appearance schema activation; Study 2), affective mechanisms (positive affect and negative affect; Studies 2 and 3), and body image resilience (Study 3). Results showed that positive affect and body image resilience were the only significant mediators underpinning the relationship between self-compassion and body dissatisfaction. Overall, this research work can help women to love, accept and appreciate their body and to become more comfortable with themselves, regardless of their body flaws.

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CONTENTS

CHAPTER 1

INTRODUCTION AND OVERVIEW OF THESIS

The human body comprises numerous ingenious systems that function harmoniously as a whole (National Institute of Health, 2021). The human body is capable of gross motor strength, fine motor accuracy, and of achieving expertise through practice. Beyond the biological functions provided by the human body, it also serves as a basis for display and ornamentation. People seek to present their physical appearance in particular ways to feel attractive and look attractive to others (Cash, 1990). There is wide variety in the physical appearance of people both between and within racial/ethnic groups, with respect to features such as skin and eye colour, hair texture and colour, height, and body shape.

The centrality of the body in both the function and appearance of human beings means that it forms an important part of a person's sense of self. An important aspect of having a sense of self is the associated motives to engage in self-evaluation and compare oneself to others (Festinger, 1954). People continually evaluate different aspects of themselves, such as their abilities, performance, characteristics, and appearance (Bailey, 2003). The body is an important source of such evaluation, providing the basis of people's body image, which is a constellation of people's evaluative perceptions, feelings, and behaviours regarding their body (Cash & Smolak, 2011).

People who have a "healthy" body image usually 1) appreciate the uniqueness of their body and the functions that it performs for them; 2) accept their body regardless of the discrepancy between their actual body and idealized images; 3) feel comfortable, beautiful and happy with their body; 4) highlight their body strengths rather than focusing on their flaws; 5) interpret external information in a body-protective fashion where negative body-related information is rejected or reframed into a positive way (Wood-Barcalow et al., 2010;

Tylka & Wood-Barcalow, 2015). Yet there are many people who are dissatisfied with their bodies, especially women.

The Women and Equalities Committee (July, 2020) reported that people across the U.K. have struggles with poor body image and that 6 in every 10 women feel negatively about their bodies. Poor body image is significant, as it can have negative consequences for people's physical and psychological health. The negative self-evaluation that is central to poor body image is associated with lower levels of psychological well-being, such as depression (Keel et al., 2001) and anxiety (Tiggemann, 1992). Poor body image can be one contributing factor that leads to extreme actions seeking to control body shape and size, which can manifest as anorexia nervosa (which includes extreme levels of portion control and/or exercise) and bulimia nervosa (which includes binging and purging behaviours). These disordered actions can result in serious physical health problems (National Health Service England, 2015).

It is estimated that 1.25 million people across the UK are dealing with an eating disorder, where the majority are likely to be women (Beat Eating Disorders, 2018). Research has identified body dissatisfaction as a risk factor in eating disorders (Stice & Shaw, 2002; Ferreiro et al., 2011). Specifically, body dissatisfaction has been associated with bulimia nervosa (Spoor et al., 2007), the onset of anorexia nervosa (Abbate-Daga et al., 2007), and relapses of anorexia nervosa (Carter et al., 2004). Therefore, understanding why women are dissatisfied with their bodies is important, as it will help to tackle this social problem.

The root cause of body dissatisfaction—at least in Western countries—appears to be a socio-cultural pressure to achieve an "ideal" thin body (Cafri et al., 2005), which is reinforced and perpetuated by the media through magazines, commercials, social media, and internet advertising (Tiggemann, 2003; Knauss et al., 2007; Paterna et al., 2021). Within this social context, research identified a range of proximal predictors that promote the

internalization of this thin body ideal, such as influence from peers and family, social comparisons made between oneself and others who represent the thin ideal, and personality traits that promote a desire to conform to social norms (Festinger, 1954; Thompson et al.,1999; Keery et al., 2005; Cash, 2012).

To date, research has mainly focused on explaining the role of negative affect and risk factors that exacerbate the negative experience of body dissatisfaction. However, little research has looked at the role of protective factors in reducing body dissatisfaction. The overall purpose of this thesis is to investigate the value of two specific protective factors that have been investigated in the literature: 1) self-compassion, a kind and understanding attitude towards oneself when experiencing failure or pain (Neff, 2003) and 2) gratitude, the capability to notice and appreciate the positive aspects of life (Wood et al., 2010) for understanding and addressing body dissatisfaction in women.

1.1 Aims of this thesis

Building on the preliminary evidence that interventions to improve either self-compassion or gratitude have been found to help lower women's levels of body dissatisfaction (e.g., Geraghty et al., 2010; Albertson et al. 2015; Toole & Craighead, 2016; Amy et al., 2020), the aims of this thesis were to 1) provide further evidence for the relationship between self-compassion and body dissatisfaction, as well as the relationship between gratitude and body dissatisfaction; and 2) identify mechanisms that can potentially explain the relationship between self-compassion and body dissatisfaction as well as gratitude and body dissatisfaction.

1.2 Overview of chapters

This thesis has been divided into six chapters. Chapter 2 reviews the theories and conceptual frameworks that underpin the three main variables examined in this thesis: self-compassion, gratitude, and body dissatisfaction. In addition, the literature review (Chapter 2) introduces theory and research for the potential mechanisms considered in this thesis.

Chapter 3 presents the first empirical study of this thesis. Study 1 built on previous work to show that gratitude and self-compassion are associated with body dissatisfaction. Study 1 examines whether lower level of self-objectification can explain the relationship between self-compassion and body dissatisfaction as well as the relationship between gratitude and body dissatisfaction. Thus, Study 1 follows a correlation design in which participants complete measures of self-compassion, gratitude, self-objectification, and body dissatisfaction. The findings of Study 1 informed decisions regarding which predictor to further investigate—self-compassion and/or gratitude—in the next two studies.

Chapter 4 presents the second empirical study. Study 2 builds on the first study by further testing the relationship between self-compassion and body dissatisfaction, and examining potential mediators of this relationship, including affective mechanisms (positive affect and negative affect), cognitive mechanisms (positive momentary-thought action repertoires) and implicit associations (appearance schema activation and non-appearance schema activation). Study 2 follows a between-participants experimental design, in which participants complete one of two pieces of writing: a task focused on self-compassion related to body image (high self-compassion condition) or a neutral task that did not mention self-compassion (control baseline condition).

Chapter 5 presents the last study, which builds on Study 2 by examining the longer-term experimental effects of a three-week self-compassion meditation intervention: participants were assigned to complete either a series of self-compassion meditations (high

self-compassion condition) or a series of relaxation meditations (active control comparison condition). Study 3 further tests the mediation role of affective mechanisms (e.g., positive affect and negative affect) and body image resilience in explaining the relationship between self-compassion and body dissatisfaction. This study was conducted online before the COVID-19 pandemic started and during the pandemic. The impact of the pandemic on the results of study 3 are explained and discussed in detail in the General Discussion (Chapter 6).

The final chapter presents a general discussion of the findings of the thesis. Chapter 6 summarises the findings from the three studies and relates these results to the broader literatures on self-compassion and body dissatisfaction. Theoretical and practical implications are analysed and discussed. The final section discusses the empirical limitations that characterise the studies in the thesis and presents some recommendations for overcoming these issues in future research.

CHAPTER 2

LITERATURE REVIEW

2.1. Overview of body image and body dissatisfaction.

This chapter reviews the literature to set out the conceptual frameworks underpinning body dissatisfaction in adult women.[1] First, it introduces the concepts of body image and body dissatisfaction, followed by two theoretical models used for understanding body dissatisfaction. It then introduces the risk factors that increase body dissatisfaction, and the protective factors that decrease body dissatisfaction. Finally, it presents mechanisms that may explain the impact of protective factors on body dissatisfaction.

The term "body image" was first introduced by Paul Schilder in 1950 to describe the psychological and social aspects of the way people feel about their body (Grogan, 2016). Body image is a broad concept (Cash, 2004) that reflects a constellation of people's specific perceptions (e.g., individual's mental representation of the body as overweight when the person is underweight), feelings (e.g., pride or shame), thoughts (e.g., preoccupation with body weight and shape), and behaviours (e.g., actions to change one's body such as restricted eating).

The study of body image has received considerable attention of researchers around the world because of its link with people's physical and psychological well-being. Body image has been considered as continuum that goes from healthy to unhealthy body perceptions (Hosseini & Padhy, 2019). As described in more detail below, people's negative views of their bodies can result in eating disorders and other health problems (Cash & Pruzinsky,

[1] The literature review was conducted in June-December 2017 by searching scholarly databases (e.g., PsycInfo, Google Scholar) for keywords pertaining to the topics of interest (body image development, antecedents of body dissatisfaction, body dissatisfaction, models to explain body dissatisfaction, risk factors of body dissatisfaction, self-objectification, body shame, objectification, self-objectification, self-compassion, gratitude, protective factors, interventions, theory of positive emotions, positive affect, negative affect, positive emotions, self-compassion interventions . A systematic approach was not taken due to time and resource constraints. The review was updated in May-August 2022 based on feedback from the examiners of the thesis.

1990; Peat et al., 2008), which has negative implications for both individuals (i.e., more pain and suffering, limited capacity to actively engage with others) and broader society (i.e., increasing healthcare costs, less capacity for overall vitality and growth.

The negative self-assessment of one's body can focus on its shape, weight, and specific body parts such as stomach and hips (Stice & Shaw, 2002), and can lead to body dissatisfaction. Research has found that higher levels of body dissatisfaction predict an onset of eating disorders and bulimic symptomatology (Stice, 2002). Moreover, body dissatisfaction has been identified as a maintenance factor of eating disorders (Thompson et al., 1999; Corning et al., 2006).

The fact that the human body goes through several changes across people's life span makes body dissatisfaction a problem at different stages of development. For example, Dion et al. (2016) documented the levels of body dissatisfaction in Canadian boys and girls aged 9-14 years. Their results showed that 50.5% of the girls desired a thinner body shape whereas only 35.9% of boys had the same desire. Their findings are consistent with previous research (e.g., Ricciardelli & McCabe, 2001; Ricciardelli et al., 2003).

In adolescence, the human body goes through significant physical and psychological changes that mark a maturation into adulthood. Girls' bodies grow taller and stronger, and puberty activates hormonal changes such as menstruation and the accumulation of body fat in breasts, hips, thighs, and buttocks (Cash & Smolak, 2011). Such changes have a marked impact on body image. For instance, a study found that girls who perceived themselves as overweight before the onset of puberty changes reported feeling dissatisfied with their body (Ackard & Peterson, 2001).

By the time that women enter adulthood at age 18, they have typically been exposed to enduring messages regarding their body image for a long period of time across their life. For example, in popular culture (e.g., TV shows, movies, music videos) and the media (e.g.,

newspapers, magazines, advertising), the most common image of the "ideal woman" is portrayed as thin, young, attractive and white-skinned (Wykes & Gunter, 2004). Such images present a specific body appearance that only a small percentage of women have, and that can be very difficult for the average woman to attain. Research shows that ongoing exposure to portrayals of the "thin ideal" in the media (e.g., in fashion magazines) is associated with the acceptance and internalization of this beauty standard (Tiggemann, 2003) and higher levels of body dissatisfaction (Hawkins et al., 2004).

The prevalence of body dissatisfaction and its association with psychological and health issues is a growing concern, especially in the female population. Research has found that approximately 64% of women report having thoughts about their weight almost every day and 62% claim to have concerns about their shape or weight that have negatively impacted their lives at least once (Gagne et al., 2012). This thesis investigates body dissatisfaction in adult women because this group is typically featured in representations of unrealistic thin ideals and is thus especially vulnerable to body dissatisfaction and its negative effects (Tiggemann & Pennington, 1990; Pingitore et al.,1997; Quittkat et al., 2019; Fischetti et al., 2020).

The next section provides an overview of two theoretical models that have been widely used for understanding the predictors of body dissatisfaction.

2.2. Models for understanding antecedents of body dissatisfaction.

This section introduces the sociocultural model and the cognitive-behavioural model as two approaches for understanding the social psychological predictors of body dissatisfaction. Key concepts and processes—and the empirical evidence to support them—are discussed for each model.

2.2.1 Sociocultural model

The sociocultural model (Polivy & Herman, 2004; Cafri et al., 2005; Tiggemann, 2012; Girard et al., 2018; Frederick, et al., 2022) provides an analysis of the cultural and social forces that shape body dissatisfaction. The sociocultural model posits that societal ideals of beauty are disseminated via sources such as 1) peers, 2) parents, and 3) the media. These sources have a great influence on individuals, and thus the standards that they communicate are likely to be internalized by people as valued and important. In this way, people's level of appearance (dis)satisfaction will depend on the extent to which they perceive that they have met the ideal standard. As outlined in more detail below, research has documented the influence of each of these sources on individuals' levels of body dissatisfaction (Curtis & Loomans, 2014; Dohnt & Tiggemann, 2006; Posluszny et al., 2021).

First, research has documented the relationship between ideals of beauty espoused by peers and body dissatisfaction among adolescent girls. For example, literature review of 55 studies found that appearance teasing from friends and appearance conversations with friends are strongly associated with increased body dissatisfaction among adolescent girls (Webb & Zimmer-Gembeck, 2014).

The second disseminator of sociocultural ideals presented in this model is parents. A meta-analysis of 57 studies found a positive association between appearance-related comments from parents and body dissatisfaction (Menzel et al., 2010). Moreover, it has been found that patients with eating disorders reported having heard their parents speak negatively about their body shape and weight (Schneider et al., 2013). A more recent study (Laporta-Herrero et al., 2021) showed that greater trust and communication-based attachment with parents are negatively associated with body dissatisfaction.

Although individual parents and peers play an important role in disseminating sociocultural ideas of beauty, the mass media (e.g., magazines, the internet, social media) has

a broader reach (i.e., accessible to more individuals) and, arguably, a more powerful influence (i.e., appearing to represent widely accepted norms and beliefs) to shape individuals' levels of body dissatisfaction. Research has found that Facebook users' increased engagement with photographs of themselves (i.e., posting one's photographs or seeing oneself on friends' photos) was associated with higher levels of thin-ideal internalization and body surveillance (Cohen et al., 2017). Another study showed that female social media users who actively engaged with the profiles of attractive peers reported higher levels of body dissatisfaction than did female social media users who actively engaged with the profiles of their family members (Hogue & Mills, 2019). Together these findings demonstrate the role of the media, and social media specifically, in shaping body dissatisfaction and eating disorders.

In summary, the sociocultural model provides an analysis of the social and cultural forces that promote a particular body shape for women (i.e., the thin ideal) via peers, family, and the media. However, this framework does not specify how these messages have such a powerful influence on individual's thoughts, emotions, and behaviour. In other words, how do people come to accept and internalize the message of the thin ideal? The cognitive-behavioural model offers an answer to this question.

2.2.2. Cognitive-behavioural model

The cognitive-behavioural model (Butters, & Cash, 1987; Reas & Grilo, 2004; Cash, & Smolak, 2011) begins by acknowledging the role of historical factors (e.g., past events, experiences) in shaping how people think, feel, and behave regarding their body. The cognitive-behavioural model goes further, however, in examining how people come to accept and internalize these messages from society. Specifically, the cognitive-behavioural model suggests that individuals are always systematically processing information regarding sensory inputs from the world around them, including what they see and hear. The model emphasizes 1) the role of social learning and conditioning processes and 2) that emotions and behaviours

(Cash, 2012) mediate the relationship between people's evaluative beliefs about their body (or body image attitudes) and their subsequent levels of body (dis)satisfaction.

Body image attitudes entails two elements: body image investment and body image evaluation. Investment refers to the extent to which individuals commit to their appearance. Evaluation refers to the positive and negative beliefs that the individuals have regarding their appearance (Cash, 2004). In the specific case of body dissatisfaction, researchers have found that a negative evaluation of the body comes from a certain level of discrepancy between the individual's perception of physical features and an internalized thin ideal (Szymanski & Cash, 1995). An attitudinal construct that indicates that the person is involved in body image investment are self-schemas. Self-schemas have been defined as a cognitive framework about oneself created from past experiences that help the individual to arrange and direct the self-related information received from their social context (Markus, 1977). Thus, body image schemas are an indicator of body image investment. Body image schemas show when an individual has beliefs about the importance of her appearance in life and usually focus on her appearance (Cash et al., 2004).

The cognitive-behavioural model differentiates between two types of influences on body image attitudes. The more distal set of predictors are historical influences, which focus on development and socialization processes that over time contribute to one's awareness and evaluation of body image (Cash, 2011). The second set of predictors are proximal influences, which focus on the specific events and interactions in people's immediate environment that activate appearance-related schemas (i.e., a pattern of thought) and thus influence their body image (Cash, 2011).

2.2.2.1. Historical influences

This section introduces and defines the historical and proximal influences that are part of the cognitive-behavioural model.

Cultural socialization. Each culture possesses and passes on information about human appearance through cultural messages that suggest standards or expectations. For example, in Western culture, women are expected to be thin and attractive; this "thin ideal" is reinforced and perpetuated by the mass media whose broad reach presents this representation to individuals across multiple platforms and channels.

Interpersonal Experiences. This term refers to the range of verbal and non-verbal communications that individuals may have with people in their lives, including family, friends, peers, acquaintances, and strangers. The role of parents and siblings in the family is especially crucial as their comments and criticisms regarding body image will potentially build standards against which individuals will compare themselves. If these standards reinforce the essentially unattainable thin ideal, continued exposure over time can lead to body dissatisfaction (Keery et al., 2005).

Physical characteristics and physical changes. Body image development begins in early childhood and continues across the lifespan. Throughout adolescence, women experience several biological and physical changes (e.g., acne, increase of body fat) that are not part of the cultural standard for a woman's appearance (e.g., thin, perfect skin). Importantly, the individual's self-evaluation will depend on how well the person's appearance correspond to the cultural standards (Cash, 2004).

Personality traits. People have stable personality traits, which refer to patterns of thoughts, feelings, or behaviour that are consistent across different contexts, interactions, and activities. Personality traits such as gratitude (i.e., the ability to appreciate the positive aspects in life) (Wood et al., 2010) and self-compassion (i.e., the ability to treat oneself with kindness and understanding when experiencing failure) (Neff, 2003a) have been found to lower levels of body dissatisfaction (Stice & Whitenton, 2002; Geraghty et al., 2010; Albertson et al.,

2014). In addition, some personality traits may boost resilience and help individuals to adopt positive body image attitudes (Cash, 2004).

2.2.2.2 Proximal influences

This section introduces and defines proximal events and processes that are part of the cognitive-behavioural model.

Activating events and cognitive processing. This factor refers to events that activate an appearance schema, which can lead to individuals having subjective thoughts, interpretations, and conclusions about one's appearance that may or may not match objective reality. Schema activating events include social feedback (e.g., from peers), encountering certain kind of clothing (e.g., swimming suit), exposure to bodies (e.g., seeing other people at the beach), or engaging in activities that emphasize the body (e.g., exercising, trying on clothes). Some people have more easily accessible appearance schemas, which makes them more sensitive to cues or events that may lead to self-assessment of their physical appearance (Cash, 2004).

Body image coping. Coping with a negative body image emotions and thoughts lead individuals to engage in certain behaviours and adopt a range of reactions (Cash, 2004). For example, adjustment reactions include appearance checking and social reassurance seeking.

2.2.2.3 Applications of the cognitive behavioural model

Thee cognitive-behavioural model identifies a range of historical and proximal predictors of body image attitudes and has been used to develop several scales and tools. For example, Jakatdar et al. (2006) developed and validated the Assessment of Body Image Cognitive Distortions (ABCD). The ABCD consists of 37 items that assess cognitive distortions related to body image cognitions in several situations (e.g., "asking participants to imagine a blind date scenario and asking if the date not contacting them afterwards was likely due to their appearance"

Interventions to improve body image attitudes have also drawn on the cognitive behavioural model, with an emphasis on tackling the historical and proximal influences that shape the development of body dissatisfaction (Cash & Smolak, 2011). This model thus focuses on addressing the risk factors that influence body dissatisfaction, which are described in more detail in the next section.

2.3. Risk factors of body dissatisfaction in women

Risk factors are defined as elements that contribute to the individual's vulnerability to develop, progress or relapse a (physical or mental) health condition or disorder (Stice & Whitenton, 2002). These factors can contribute to the development of body image issues such as body dissatisfaction. Research has identified risk factors that increase people's chances of developing body dissatisfaction. Three specific risk factors—self-objectification, appearance contingent self-worth, and body shame—have been directly associated with body dissatisfaction (Fredrickson & Roberts, 1997; Tiggemann & McGill, 2004; Ferreira et al., 2013; Homan & Tylka, 2015).

2.3.1. Self-objectification

Objectification theory (Fredrickson & Roberts, 1997) provides a general framework for understanding the mental health risks that women often suffer in cultures that sexually objectify the female body. Sexual objectification occurs when a woman is separated from her body parts, or sexual functions and her whole as human being, thus, women are treated as objects to be looked at, or touched. Sexual objectification experiences make women to socialize and treat their body as an object that can be controlled and modified. Therefore, women are evaluated based on their body appearance (Fredrickson & Roberts, 1997). Such internalization of a third person's perspective upon one's own body is called *self-objectification.*

Objectification theory posits that western cultures indirectly and directly train women of all ages to adopt and assimilate a third person's perspective as a main view of themselves (i.e., see themselves as they would be viewed by someone else, rather than through their own eyes. Noll and Fredrickson (1998) have identified scenarios where objectification of women is frequent. These scenarios include social environment, visual media generally and visual media that specifically shows women's body parts. They point out that appearance standards promoted through the media and these scenarios may lead to social comparisons. Research has found that Australian women are the target of objectifying gaze every other day and witness an objectifying event in media, such events are related to increased self-objectification in women (Holland et al., 2017). In addition, a review found that the most common mean of transmitting sexual objectification is the media and that exposure to objectifying media could lead to self-objectification in women (Ward, 2016).

Fredrickson and Roberts (1997) posit that women who self-objectify may develop habitual maladaptive behaviours such as body monitoring (i.e., the experience of usually observing one's body from a third person's perspective). According to the theory, such behaviours put women at a higher risk for feeling body shame and anxiety.

Shame has been described as the pain of not feeling loved and not being able to be loved by others (Campbell, 1984). In addition, shame is the result of general attributions of failure (Lewis, 1971). In other words, failure is attributed to the self (e.g., "I am a bad person") and not to specific actions of the self (e.g., "I did something bad). Body shame is a negative emotion that results from comparing oneself against either the cultural standard or perceiving oneself as not meeting this standard (Morandi & Huang, 2008). The unrealistic body thin ideal that Western society promotes among women and that some of them aim to pursue creates a conflict between the thin-ideal and the real self (Slater & Tiggemann, 2010). Body shame has been associated with body image and eating difficulties in clinical and non-

clinical populations (Gee & Troop, 2003; Goss & Allan, 2009). Women who have internalized the thin-ideal body are more likely to feel shame when they compare themselves to such ideal (Fredrickson & Roberts, 1998). Research has found that women with high levels of shame are vulnerable to self-criticism (Ferreira, Pinto & Duarte, 2013). For example, one study found that women high in shame and body dissatisfaction showed a greater desire to be thin (Ferreira, Pinto & Duarte, 2013). However, further research is needed to identify protective factors that may help women to lower levels of body shame.

Tiggemann and McGill (2004) found that women exposed to images of the body (parts or full) had high levels of negative mood and body dissatisfaction. This relationship was mediated by the level of social comparison reported. They concluded that media image engagement contributes to negative effects. Research has found that high levels of self-objectification raise women's levels of body focus shame, general shame, and body-related cognitions (Fredrickson et al., 1998; Quinn, et al., 2006). In addition, experimental studies suggest that high levels of self-objectification increase appearance anxiety, and negative affect (Roberts & Gettman, 2004).

In sum, objectification theory posits that self-objectification and body surveillance are promoted by women's gender-role socialization and sexual objectification experiences. In addition, self-objectification and body surveillance promote body shame and anxiety which can reduce flow and awareness of internal bodily states such as emotions (Fredrickson & Roberts, 1997). To date research on body dissatisfaction has mainly focused on identifying risk factors that may contribute to develop body dissatisfaction in women. However, further research is needed to identify protective factors that can prevent the development of body dissatisfaction in women.

2.4. Protective factors of body dissatisfaction in women

Research, theory, and clinical practice has mainly focused on the negative predictors, or risk factors, that increase body dissatisfaction and other negative aspects of body image. However, body image can also be improved by positive predictors or protective factors that encourage a more constructive and affirming approach to body image. Understanding the protective factors that may contribute to build a positive body image (operationalized as body appreciation) is key for prevention and developing treatments. The approach draws on positive psychology (Geraghty et al., 2010) to design and develop interventions that can help women to appreciate, respect and honour the body.

Protective factors are defined as elements that help to interrupt the processes by which risk factors lead to the onset or perpetuation of negative outcomes (Levine & Smolak, 2016). In addition, protective factors can reduce the strength or duration of a negative outcome when it occurs (Levine & Smolak, 2016). Lastly, protective factors anticipate and increase the chances of obtaining a positive outcome (Smolak, 2012). As such, protective factors can help individuals to 1) interrupt the start of body dissatisfaction, 2) interrupt the intensity of body dissatisfaction and 3) lessen the impact of body dissatisfaction. In addition, individuals can learn a new way to accept, respect and love their body. Understanding how protective factors can benefit women with body dissatisfaction is key to the development of effective strategies to reduce or prevent body dissatisfaction.

2.4.1 Prior research on protective factors

Over the last decade there has been a growing number of studies on protective body factors of body image. For example, qualitative research has identified constructs that help women to build a positive body image. Positive body image has been defined as a multifaceted construct that entails unconditional love, respect, and acceptance of women's body, regardless of its appearance and whether it meets the societal standards (Tylka &

Wood-Barcalow, 2015c; Wood-Barcalow et al., 2010). Understanding protective factors and risk factors of body dissatisfaction can help researchers to develop holistic approaches to protect women against the negative consequences of body dissatisfaction (Piran & Tylka, 2019). This thesis focuses on self-compassion and gratitude as potential protective factors. Below a brief review research on three other protective factors – protective filtering, body appreciation, and body image flexibility – has been conducted for context, before moving onto self-compassion and gratitude in more detail.

Protective filtering has been defined as accepting information consistent with positive body image while rejecting messages that could undermine this positive self-view (Tylka & Wood- Barcalow, 2015b). Wood-Barcalow et al. (2010) found that participants who reported having received an ambiguous appearance-related comment from their significant other, decided to interpret such comment in a positive manner to protect their positive body image. In addition, participants who reported being aware and critical of the beauty-ideal standards also reported having used such awareness as a shield to protect them from harmful appearance-related messages that could harm their positive body image.

Body appreciation is defined as the result of a positive view, acceptance, love, and respect of the body regardless its shape, flaws, physical appearance, and weight (Avalos et al. 2005). Andrew et al. (2015) found that women high in body appreciation did not show any changes in body dissatisfaction after viewing thin-ideal media imagery. However, women low in body appreciation showed greater body dissatisfaction after viewing the same images. In a similar fashion, research has found that women high in body appreciation and high thin-ideal internalization reported appearance discrepancies as irrelevant, when exposed to thin-ideal imagery and control images (Halliwell, 2013).

Body image flexibility is defined as an individual's ability to accept the present-moment experience of their body, which may involve thoughts, emotions, physical

sensations, among others (Sandoz et al., 2013). In addition, body image flexibility entails the capacity to consciously choose to have a lifestyle aligned with personal values regardless of experiencing negative events regarding the body (Sandoz et al., 2013; Webb et al., 2015). Body image flexibility has been found to be positively associated with self-compassion (Ferreira et al., 2011), mindfulness (Lee et al., 2017; Moore et al., 2014).

This thesis focuses on self-compassion and gratitude as potential protective factors for three main reasons. First, evidence shows that both gratitude (e.g., Geraghty et al., 2010) and self-compassion (e.g., Duarte et al., 2015) are associated with body dissatisfaction. Second, experimental research has demonstrated that gratitude and self-compassion are promising constructs in the treatment of body dissatisfaction (e.g., Geraghty et al., 2010; Albertson et al., 2014; Amy et al., 2020). Specifically, gratitude has been found to protect women from the negative effects of thin-ideal exposure (Homan et al., 2014; Wolfe, 2022). Third, research has found that gratitude and self-compassion may help individuals to build resilience against poor body dissatisfaction (Neff, 2003a; Fredrickson, 2001). The following section will review the theoretical and empirical literatures on self-compassion and gratitude as well as their impact on body dissatisfaction.

2.4.2. Self-compassion

Self-compassion draws on Buddhist psychology (i.e., a spiritual, philosophical, and psychological tradition of thought initiated from India) and has been defined as the capability of treating oneself with kindness when experiencing difficult times (Neff, 2003a). Self-compassion encompasses three main components; self-kindness, common humanity, and mindfulness and each of them has a counterpart which are self-criticism, isolation and over-thinking (Neff, 2003a; 2003b).

The first component, self-kindness, is the ability to recognize and accept that failure and imperfection are part of being human. Self-kindness enables people to be less

judgmental, and therefore helps them lower their levels of self-criticism (Neff, 2003a). The second component, common humanity refers to the fact that all people experience pain and failure through life. By accepting that all humans have these negative experiences, any individual can have a sense of company even while suffering alone. Thus, people reduce the feeling of being isolated when suffering for a problem (Neff, 2003a; Van Dam et al., 2011). The final component, mindfulness, is the ability to remain open and present in the moment when painful feelings or emotions arise. Mindful people develop the capacity to observe their negative thoughts and emotions, thus promoting awareness of the experience they are having in the present moment (Neff, 2003b). Mindfulness is important because it helps individuals to reduce over-identification (i.e., the tendency to exaggerate feelings of isolation and negative aspects of one's life experience or oneself) that leads them to self-criticism and negative judgements (Neff, 2003b). High levels of self-kindness, common humanity, and mindfulness work jointly to increase levels of self-compassion.

Self-compassion can be conceptualized as a personality trait (where it is constant across time and similar situations) or as a state that is specific to a particular situation and moment in time (Schmitt & Blum, 2020). Trait self-compassion has been defined as an unconscious and autonomous strategy of emotion regulation by making people less judgemental and more accepting towards potential inner and external causes of stress (Svendsen, 2016). In this way, trait self-compassion can be conceptualized as a skill that can be developed and improved (Neff & Garner, 2013), rather than as a static and immutable individual difference variable.

2.4.2.1 Research on Self-compassion and Body Dissatisfaction.

Correlational studies have provided evidence of a link between self-compassion and body dissatisfaction. For example, research conducted with undergraduate women has shown that women high in self-compassion have lower levels of body dissatisfaction (Wasylkiw et

al., 2012). There is also some evidence that self-compassion is associated with less negative social comparison, which is a risk factor of body dissatisfaction (Ferreira et al., 2013; Pinto-Gouveia et al., 2014). In addition, research has found that self-compassion is a protective factor in the sense that it weakens the relationship between higher body mass index (BMI) and body image (Kelly et al., 2014). Taken together these findings suggest that self-compassion has a negative association with body dissatisfaction.

Researchers have also used self-compassion interventions to lower individuals' levels of body dissatisfaction. For example, Albertson, Neff, and Dill-Shackleford (2015) conducted a longitudinal intervention study that randomly assigned women to either complete a three-week self-compassion audio meditation program, or to a waitlist control group. Self-compassion and body dissatisfaction were assessed at baseline, immediately after the intervention and at a three-month follow-up. However, although this study included a rigorous method, it has two major limitations. First, it lacked an active control group that could be compared with the self-compassion meditation group. Participants were either assigned to the meditation group or to the waitlist for the self-compassion meditation, and thus also differed in the expectation of positive results: high in the case of the meditation group and low in the case of the waitlist control group. Thus, the positive effect of the self-compassion meditation could be explained by the placebo effect, which can only be ruled out with the inclusion of an active control group where participants receive a different treatment with the same expectation of success (Hróbjartsson & Gotzsche, 2001). The second limitation is that Albertson et al.'s (2015) did not investigate the mechanisms that underpin the relationship between trait self-compassion and body dissatisfaction. The authors suggest that self-kindness, common humanity, and mindfulness, which are the three components of self-compassion, are mechanism through which self-compassion lowered levels of body

dissatisfaction. However, such mechanisms were not tested in their study and further research is needed to confirm this supposition.

Toole and Craighead, (2016) replicated Albertson et al.'s (2015) method but reduced the time of the intervention from three weeks of meditation to one week of meditation and did not include a 3-month follow-up. The purpose of shortening the intervention to one week was because they wanted to improve engagement and avoid high rates of attrition. Although their study followed Albertson et al.'s (2015) study and adapted the time of the intervention, they did not include an active control group that presented high expectations of an effect and did not test any potential mechanisms that could explain the relationship between self-compassion and body dissatisfaction. Therefore, further research is needed to address these limitations.

Finally, Amy, Lane, and Mulgrew (2020) also replicated Albertson et al.'s (2015) study. Amy et al., used the same method and, like Toole and Craighead, (2016), they reduced the time of the intervention to one week. In contrast to Toole and Craighead (2016), however, Amy et al., included a guided imagery meditation that served as an active control group. Yet, they did not identify any mechanisms underpinning the relationship between self-compassion and body dissatisfaction. Therefore, this gap in the literature needs to be addressed by further research.

In summary, experimental studies have investigated the effects of self-compassion intervention programs targeting body dissatisfaction. However, further research is needed to address the two major limitations discussed above. First, it is necessary investigate the effects of a self-compassion meditation intervention when compared to an active control group. And second, investigating the mechanisms that underpin the relationship between self-compassion and body dissatisfaction will provide a better understanding of the causal link between these variables.

2.4.2.2. Potential mechanisms that underpin the relationship between self-compassion and body dissatisfaction.

This section introduces five potential sets of mechanisms that may explain the relationship between self-compassion and body dissatisfaction: (i) self-objectification, (ii) affective mechanisms (positive affect and negative affect), (iii) cognitive mechanisms (positive momentary-thought action repertoires and negative momentary-thought action repertoires), (iv) implicit associations (appearance schema activation and non-appearance schema activation) and (v) body image resilience. The sub-sections below present a brief introduction to each of these concepts and their links with body dissatisfaction. More detailed rationales for the mediation models are presented in the empirical chapters that test them (see Chapters 3, 4, and 5).

2.4.2.2.1. Self-objectification

Self-objectification – that is, seeing oneself as an object from a third person's perspective and focusing on physical appearance – has been identified as a risk factor for body dissatisfaction (Fredrickson & Roberts, 1997). Indeed, correlational research has found self-objectification to be positively associated with body dissatisfaction (Myers & Crowther, 2007). However, research has found that shifting women's attention from physical appearance (e.g., self-objectification) to body functionality appears to be a promising protective factor in reducing levels of self-objectification (Alleva et al., 2014; Alleva et al., 2015). Yet drawing women's attention to body functionality may not be as beneficial as the original evidence suggested. Alleva and Tiggeman (2021) warn that the body functionality ideal may have similar negative consequences as the thin-ideal and appearance ideas, as the body functionality ideal may activate comparative processes (e.g., following exposure to examples of 'ideal body functionality' in the media). Therefore, any potential benefits of

shifting women's attention from appearance to functionality may be undermined. This research question has not been investigated in able body women, but it is likely that the focus on functionality may have the same negative impact in the broader population that is considered in this thesis. Vinoski Thomas et al. (2019) examined how women with visible physical disabilities (e.g., amputations, spina bifida) defined body image and the role of body functionality. They noticed that the concept of body functionality did not include "what the body cannot do" and what the body might do differently than the norm. Participants reported upward comparisons to able-bodied women, and downward body comparison to others that they saw less able-bodied.

The evidence reviewed in this section shows that body functionality seems to generally lower levels of self-objectification. However, a sample of disabled people reported upward and downward body comparison. This evidence suggests that interventions do not reduce self-objectification consistently in all women. This thesis will thus explore the link between self-objectification and body dissatisfaction, and in particular the role of self-objectification as a potential explanation for the protective effects gratitude and self-compassion on body dissatisfaction.

2.4.2.2.2. Positive and negative momentary thought-action repertoires

Momentary thought-action repertoires were first introduced by Fredrickson (2001) in her broaden and build theory of positive emotions. She defined them as thoughts and behaviours that individuals have when they experience positive emotions. These Momentary thought-action repertoires help individuals to broad their thinking and build new resources that include psychological, physical, intellectual, and social resources.

Momentary thought-action repertoires can be either positive or negative. Positive momentary-thought action repertoires include actions and thoughts that can help individuals to broaden their mind and deal with a negative situation, for example, learning a new activity

or thinking of different ways to respond when dealing with body dissatisfaction. In contrast, negative thought-action repertoires include actions and thoughts that narrow the individual's mind and is not able to think of new resources to solve an issue, for example, a woman who feels dissatisfied with their body would only think of losing weight. This thesis measures positive and negative momentary thought-action repertoires separately in order to examine each one's associations with body dissatisfaction.

This thesis is the first empirical study to investigate the extent to which positive momentary-thought action repertoires and negative momentary-thought action repertoires explain the relationship between self-compassion and body dissatisfaction. Theory suggests that negative momentary thought-action repertoires should be associated with body dissatisfaction because they indicate that women have a narrow focus regarding the shortcomings of their appearance. In contrast, positive momentary thought-action repertoires should be associated with body dissatisfaction because they indicate that women can broaden their thinking regarding their body beyond its appearance.

2.4.2.2.3. Appearance schema activation and non-appearance schema activation

Appearance schema activation is an unconscious process whereby schemas about the body and physical appearance are activated automatically when individuals encounter stimuli relevant to the subject, such as fashion models in magazines (Altabe & Thompson, 1996). Appearance schema activation has its roots in the self-schema model (Markus, 1977). This model posits that people build a cognitive framework about themselves based on information that is relevant to themselves. These schemas define the way that each person processes self-relevant information, for example, body image (Markus, 1977).

Body image schema incorporate self-schema theory (Markus, 1977) and self-discrepancy theory (Higgins, 1987). Self-discrepancy theory posits that an individual's self-concept is integrated by several self-beliefs. These self-beliefs have been categorized in three

areas: 1) the actual self, 2) the ideal self, and 3) other selves. Each of these categories can be observed from different points of view within each person's perception. An example of this is when a woman uses an ideal-self perspective when judging her own body her own body.

Appearance schema activation has an important role in predicting women's body dissatisfaction. One meta-analysis found that women's body image is more negative after they are exposed to images reflecting the thin-ideal, and that this effect was especially strong among women vulnerable to thinness schema activation (Groesz et al., 2002). Another study found that women who have been exposed to appearance-related advertisements reported higher levels of body dissatisfaction than did women exposed to non-appearance related advertisements; this association was mediated by higher levels of appearance schema activation (Hargreaves & Tiggemann, 2002).

2.4.2.2.4. Positive and Negative Affect

Mental states involving evaluative feelings or emotions are known as affect (Watson & Clark, 1984; Parkinson et al., 1996). In other words, affect refers to the psychological conditions when the individual feels either good or bad and when the individual likes or dislikes what it is happening in the environment. Positive and negative affect are recognised as two independent dimensions. Positive affect includes the experience of various positive emotions such as joy, confidence, interest, gratitude. In contrast, negative affect includes the experience of negative emotional states such as anger, fear, guilt (Parkinson et al., 1996; Snyder & Lopez, 2002; Singh & Jha, 2008). Research on what has been termed "mood congruent attentional selectivity" has found that positive moods can direct people to focus on the positive aspects of their lives, omitting the negative aspects (e.g., Ellenbogen et al., 2002; MacLeod et al., 2002; Sanchez et al., 2014). Mood congruent attentional selectivity occurs when mood (positive or negative) can make people centre on characteristics of an event that

matches with their mood, so their perception of the situation is changed (Calvo & Nummenmaa, 2007; Chun & Turk-Browne, 2007; Sanchez, et al., 2014).

Researchers have found that some negative affect states, such as depression, anxiety and shame are positively linked with body dissatisfaction (Fredrickson & Roberts, 1997; Claes et al., 2012). For example, women tend to experience appearance anxiety when considering female objectification in the media (Fredrickson & Roberts, 1997), and this appearance anxiety is positively associated with body dissatisfaction (Claes et al., 2012).

Researchers have also found that positive affect can be evoked through self-compassion (Leary et al., 2007; Neff et al., 2007; Neff & Vonk, 2009). For example, Leary et al. (2007) found that self-compassion helps to buffer the psychological impact of negative events in people's lives, by encouraging them to express kindness and understanding towards themselves. Together these findings suggest that self-compassion is likely to predict higher levels of positive affect and lower levels of negative affect.

2.4.2.2.5. Body image resilience

Emotional resilience has been defined as the ability to recover emotionally from adversity and difficult situations (Carver, 1998; Tusaie & Dyer, 2004; Smith et al., 2008). Specifically, body image resilience has been defined as the ability that women have to emotionally recover when their body image and / or appearance has been compromised (Choate, 2005).

Although research linking body image resilience and body dissatisfaction is limited, Choate (2005) proposed a model of body image resilience that identified five protective factors: (i) family-of-origin support, (ii) satisfaction with gender roles, (iii) positive physical self-concept, (iv) effective coping strategies, and (v) sense of holistic balance and wellness.

Family-of-origin support. Research has found that women who have a positive body image have often received general family support in their childhood (Kearney-Cook, 2002).

In addition, it has been found that young women who have grown up where they received positive comments and feel approved by their family about the appearance are more likely to experience positive body image when they become young adults (McKinley, 1999). In addition, maternal modelling of eating attitudes and behaviours has been found to predict women's body image (Kichler & Crowther, 2001). This is because girls may observe how their mother copes with the social media pressures and the thin ideal. If mothers can cope well and reject the thin ideal, then the importance of achieving the thin-ideal will not be relevant for their daughters (Kichler & Crowther, 2001).

Gender role satisfaction. Gender roles refer to the belief that specific attributes differentiate men and women (Ashmore et al., 1981, Eisend, 2019). Research has found that women who are independent and assertive (masculine characteristics) have greater body satisfaction (e.g., Molloy & Herzberger, 1998). However, findings are not consistent. For example, Meyer, Blisset, and Oldfield (2001) found that lesbian women who are feminine gender role oriented were more likely to engage in disorder eating when compared to women who are masculine gender role oriented. Therefore, Choate (2005) proposes to examine how women cope with gender role problems and how finding a solution to such problems can help them to build resilience. According to Choate (2005), women who experience tension between masculine or feminine traits and are not able to find a balance in between, direct their attention and energy their body as they think they can control it. Resilience seems to appear in women when they are able to acknowledge the discrepancy between cultural expectations and reality rather than internalizing their emotions (Hensley, 2003).

Positive physical self-concept. Positive physical self-concept has been defined as a person's attitudes regarding their physical agility, fitness, general health (James, Phelps, & Bross, 2001). Research has found that women who practice physical activities for appearance-related reasons tend to change their reasons to exercise over time (Martin &

Lichtenberger, 2002). This may be because a long-term engagement in physical activities may re-focus women's attention from weight and shape towards a broader goal of mental health and physical health.

Effective coping strategies. Women who are not able to challenge and resist the cultural pressures for the thin ideal are not capable of separating their needs from those promoted by the media, family and peers (McKinley, 2002). However, research has found that women who identify and distinguish cultural standards show resilience to social pressures (Petersen, 2000). In addition, research has found that women who are aware of the social-cultural messages of weight and shape are more likely to buffer the negative effects of such messages (Henderson-King, Henderson-King, & Hoffman, 2001). For example, Levine and Piran (2001) successfully designed media literacy programs to teach young women to identify and resist unrealistic and harmful cultural stereotypes through critically evaluation of media content. Thus, awareness of the social-cultural messages and critical evaluation of media content are two coping strategies to deal with body image stressors.

Sense of holistic balance and wellness. Choate's model of body image resilience posits that support from family origin, gender role satisfaction, positive physical self-concept, and the development of effective coping strategies are associated to and crucial for the development a holistic life balance and wellness that contribute to a positive body image (Choate, 2005). Body image resilience results from balancing the spiritual, emotional, intellectual, and physical spheres of life. Research has found that women who determine their self-worth based on all aspects of their life are less likely to surrender to the sociocultural pressures and more likely to protect themselves from negative body image because they do not attribute immoderate importance to weight and shape (McFarlane, McCabe, Jarry, Olmsted, & Polivy, 2001).

2.4.2 Gratitude

The second protective factor that this thesis will focus on is gratitude. Like self-compassion, gratitude can be considered as a trait or a state. Gratitude as a "state" occurs when an individual feels thankful after benefitting from a specific act of kindness from another person (Wood et al., 2008). Gratitude as a trait has been defined as an individual's tendency to notice and appreciate the positive aspects of life across different times and contexts (Wood et al., 2010). In short, state gratitude is a momentary feeling that individuals experience after they benefit from an act of kindness. In contrast, trait gratitude allows individuals to notice and appreciate the bright side of the situations event when they are involves in negative events. For example, a person high in trait gratitude who had an accident where he/she was badly injured but managed to survive would appreciate the fact that. regardless of the injuries, he / she is alive. On the contrary, a person low in gratitude would likely focus on the negative side of the event and complain about the injuries caused by the accident and not notice or appreciate the fact that he / she is alive.

2.4.2.1 Research on Gratitude interventions to Reduce Body Dissatisfaction

Research on gratitude and body dissatisfaction is limited, but some studies have found that gratitude can lower levels of body dissatisfaction in women (Geraghty et al., 2010). Geraghty et al. (2019) used a two-week online gratitude self-directed intervention aimed to reduce body dissatisfaction. Participants were randomly allocated to one of the following conditions: 1) gratitude diaries (main experimental condition), 2) thought monitoring and restructuring (active control 1), 3) thought monitoring and restructuring waitlist (active control 2) and 4) gratitude waitlist (non-active control). Geraghty et al. (2010) found that participants allocated to either the gratitude diaries condition or the thought monitoring and restructuring condition showed lower levels of body dissatisfaction compared to waitlist control groups. Their findings showed that gratitude diaries can be as beneficial as cognitive

techniques such as, automatic thought monitoring and restructuring (Geraghty et al., 2010). However, while Geraghty et al.'s (2010) study demonstrated the causal link between gratitude and body dissatisfaction, they did not test any mechanisms that might explain this effect. Thus, the mechanisms through which gratitude operated to lower levels of body dissatisfaction remained unclear.

Wolfe and Patterson (2017) looked at the relationship between gratitude and body dissatisfaction. They replicated Geraghty et al.'s (2010) study with a sample composed by women only. Participants were allocated into one of three conditions: 1) gratitude condition, 2) cognitive restructuring condition and 3) control condition. Wolfe and Patterson found that women allocated in the gratitude diaries intervention showed less concerns about their body appearance compared to the thought monitoring and restructuring intervention. However, Wolfe and Patterson (2017) did not test any mechanism that may explain how gratitude lowered levels of body dissatisfaction, therefore, further research needs to be conducted.

Homan et al., (2014) looked at the relationship between gratitude and body dissatisfaction. Homan et al. tested whether a short gratitude intervention would lessen the effects of thin-ideal exposure in women. Participants were allocated to one of three experimental conditions: 1) focusing on hassles (i.e., life events that provoke anxiety, irritation, or frustration) while viewing neutral images, 2) focusing on hassles while viewing images of thin women, and 3) focus on gratitude while viewing images of thin women. Homan et al., found that women exposed to photographs showing women that meet the thin-ideal had an increase of body dissatisfaction. Importantly, this increase was attenuated when women were instructed to focus on gratitude rather than on life hassles.

Taken together the findings of these three studies provide evidence that gratitude can help women to lower levels of body dissatisfaction and that it can buffer the effects of exposure to the thin-ideal, which is one of the main risk factors that increase body

dissatisfaction. Importantly, these findings are the foundations of the reason why gratitude has been chosen to be studied in this research as protective factor in body dissatisfaction.

Although evidence shows that gratitude can lower levels of body dissatisfaction and lessens the effects of the thin ideal exposure in women, the mechanisms through which gratitude operate have not been directly investigated. The following section presents some possible mechanisms that might explain the effect between gratitude and body dissatisfaction.

2.4.2.2 Potential mechanisms that may explain the relationship between gratitude and body dissatisfaction.

No previous research has examined the mechanisms underpinning the relationship between gratitude and body dissatisfaction. However, research on gratitude and wellbeing and has identified four potential processes by which gratitude may operate (i.e., schematic hypothesis, coping hypothesis, positive affect hypothesis and the broaden-and-build hypothesis). This section briefly introduces each of these hypotheses before turning to possible mechanisms explaining the relationship between gratitude and body dissatisfaction.

Schematic hypothesis. This hypothesis posits that people have schemas (i.e., a pattern of thought) that determine the way that an act of gratitude is interpreted in their life (Wood et al., 2008). Wood et al. (2008) found that people high in gratitude have schemas biases which act as a 'lens' which make them interpret help in a positive way and thus feel more grateful for receiving it. For example, grateful people can see help as worthy, generous, and selfless acts whereas people low in gratitude will see the same help as unworthy, ungenerous and selfish acts. Within the context of body dissatisfaction, women high in gratitude would be able to appreciate their body for being healthy and functional, which in turn would lower levels of body dissatisfaction.

Coping hypothesis. The coping hypothesis proposes that gratitude is associated with three main categories of coping (Wood et al., 2007a). The first category is consistent with the

schema hypothesis where grateful people tend to look for emotional support. The second coping category involves addressing and managing a problem actively via planning and finding growth via positive reinterpretation of the challenging situation. Finally, the third coping category involves accepting that the problem exists, engaging with the problem using constructive behaviours, and handling the situation without the need of maladaptive substances (e.g., drugs and alcohol). To date, there is limited support for the coping hypothesis and further research is needed to build evidence on it. In the context of body dissatisfaction, high levels of gratitude would lead to use coping strategies that, in turn would lower levels of body dissatisfaction. In other words, women high in gratitude would be able to accept their body flaws and this would result in lower levels of body dissatisfaction.

Positive affect hypothesis. This hypothesis suggests that positive emotions are protective factors in several psychological disorders (Watson & Naragon-Gainey, 2010). In context of positive emotions, gratitude has been identified as a positive emotion that evokes positive affect (Fredrickson, 2001). The fact that gratitude is significantly associated with positive affect (Emmons & McCullough, 2003; Froh & Kashdan et al., 2009; Sheldon & Lyubomirsky, 2006) has drawn attention to its beneficial effect. Within the context of body dissatisfaction, women high in gratitude would experience high levels of positive affect which would, in turn, lower levels of body dissatisfaction.

The broaden-and-build hypothesis. The broaden-and-build theory of positive emotions (Fredrickson 1998, 2001) posits that all the positive emotions have a purpose in people's life while negative emotions have the unique purpose to help people to solve a problem (e.g., escape from danger situations). In this context, gratitude as a positive emotion broadens thinking and builds social, psychological, physical, and intellectual resources that can be used in the present and the future (Fredrickson, 2004). This hypothesis seems to explain how gratitude might benefit people, but further research is needed to explore this

hypothesis. Specific social, psychological, physical, and intellectual resources (e.g., social bonds) would mediate the relationship between gratitude and body dissatisfaction. In other words, women high in gratitude would have a broader scope about their body and would result in lower levels of body dissatisfaction.

The literature on the relationship between gratitude and body dissatisfaction is in its infancy. Further research is needed to determine to what extent gratitude predicts body dissatisfaction, as well as to determine the mechanism(s) by which gratitude lowers levels of body dissatisfaction in women. This thesis tests the potential role of self-objectification as a mechanism through which gratitude can lower levels of body dissatisfaction, drawing on the four processes identified in the previous section.

2.5. Conclusions

The evidence from the research reviewed in this chapter shows that gratitude and self-compassion are protective factors that can decrease levels of body dissatisfaction in women, but more research is needed to consolidate these results. Some mechanisms underpinning the effect of these two protective factors have been identified, but they have not been directly tested. Thus, the present thesis reports three empirical studies to address these two important questions in the literature.

The next three chapters present the three studies conducted for this thesis. The first study (Chapter 3) examined the association between self-compassion, gratitude, and body dissatisfaction. The results of Study 1 informed decisions to select the specific protective factor (gratitude or self-compassion) that would be examined in Study 2 (Chapter 4). The second study also examined the mediating roles of affective mechanisms (i.e., positive affect and negative affect), cognitive mechanisms (i.e., positive momentary-thought action repertoires and negative momentary-thought action repertoires), implicit associations (i.e., appearance schema activation and non-appearance schema activation). The third study

(Chapter 5) tested the experimental effect of a self-compassion meditation intervention on body dissatisfaction over time. In addition, Study 3 examined the mediating role of affective mechanisms (i.e., positive affect and negative affect) and body image resilience.

CHAPTER 3

STUDY 1: THE ROLE OF GRATITUDE AND SELF-COMPASSION IN WOMEN'S BODY DISSATISFACTION

Body image has been defined as the ensemble of perceptions, feelings, and thoughts regarding the body (Cash & Pruzinsky, 2002). Importantly, when women experience discomfort with one or more of these components (e.g., feelings, perceptions) of body image, they are at risk of experiencing body dissatisfaction. Specifically, body dissatisfaction is defined as the result of a negative self-assessment of one's body, for example, their shape, size, and body parts (Stice & Shaw, 2002). Such negative self-assessment has multifactorial roots such as internalization of the thin ideal for women's bodies that is perpetuated in popular culture around the world (Fredrickson & Roberts, 1997), social comparison to ideal others as a basis of self-evaluation (Festinger, 1994), and perfectionism in pursuing unrealistic high body standards (Wade & Tiggemann, 2013), among others.

Researchers have shown that, compared to men, women have a higher incidence of experiencing body dissatisfaction (Tiggemann & Pennington, 1990; Forbes et al., 2001; Esnaola et al., 2010). This is because the sociocultural thin-ideal in females has been pervasive across cultures around the world. In addition, compared to men, women's worth in society has been linked to their physical appearance (e.g., body size and weight) rather than other domains (e.g., academic, or professional achievements) (Esnaola et. al, 2010). Body dissatisfaction is a serious problem because research has linked it to physical health problems, such as restrictive eating, and psychological issues such as low self-esteem, anxiety, and shame that can negatively affect women's health and sense of well-being (Fredrickson & Roberts, 1997; Neff, 2011, Albertson et al., 2015).

To date, researchers have mainly focused on identifying the risk factors that increase women's levels of body dissatisfaction (Fredrickson & Roberts, 1997; Thompson & Stice,

2001; Wade & Tiggemann, 2013). This research is vital because it enables researchers to understand the processes that lead women to feel dissatisfied with their bodies. However, the focus on risk factors can provide a limited understanding of body dissatisfaction because it does not leave room for the investigation of protective factors that have a positive impact on women's body dissatisfaction. Protective factors help to prevent the origin, or reduce the impact, of a negative outcome (Levine & Smolak, 2016) or increase the chance of having a positive outcome (Smolak, 2012). The processes underpinning protective factors are typically independent of the processes driving risk factors; thus, it is essential for research to consider protective factors in their own right.

For example, Piran (2002, 2016, 2017) proposed the development theory of embodiment which include dimensions of positive embodiment and protective factors. Piran (2016) refers to positive embodiment as a positive body connection and comfort, love and passion for the body and self-care. In her theory of embodiment, she states that experiences of embodiment are linked to the quality of experiences in five domains, these are: a) body connection and comfort (e.g., I feel in tune with my body), b) agency and functionality (e.g., I believe in my ability to accomplish what I desire in the world), c) self-care (I prioritize on listening to my body and its needs), d) experience and expression of bodily needs (I express what I want and need sexually), and e) inhabiting the body as a subjective place (e.g., I care more about how my body feels than about how it looks), f) Freedom from the body as a disruptive place (e.g., my body reduces de sense of self-worth in the world). In line with the dimensions of theory of embodiment, there are three protective processes that shape experiences of embodiment through three core pathways, these are: the physical domain, the mental domain of social expectations and standards, and the social power and relational bonds.

In addition, research has investigated the protective factors (i.e., self-compassion and gratitude) that contribute to positive body image and have demonstrated to lower levels of body

dissatisfaction (e.g., Geraghty et al., 2010; Ferreira et al., 2013; Albertson et al., 2015; Amy et al., 2020). However, less is known about the processes that may explain the relationship between self-compassion and body dissatisfaction as well as gratitude and body dissatisfaction. The present study adds to this nascent literature by considering the processes that underpin the effect of two protective factors—self-compassion and gratitude—in reducing levels of body dissatisfaction (Geraghty et al., 2010; Albertson et al., 2014).

3.1. Protective factors of body dissatisfaction

This section introduces self-compassion and gratitude as protective factors of body dissatisfaction and further discuss research findings.

3.1.1. Self-compassion and body dissatisfaction

Self-compassion (Neff, 2003b) encompasses three components that are inter-related and equally important. The first component is self-kindness which enables people to treat themselves with care and understanding rather than harsh judgment. The second component is common humanity, which is a term used to refer to the fact that as human beings we all experience pain and failure jointly through our lives and that, by accepting it, people can have a sense of company when suffering. The third component is mindfulness. This component enables people to observe negative thoughts and emotions promoting awareness by being open when painful feelings or emotions arise.

Research has found that higher levels of self-compassion are associated with lower levels of body dissatisfaction (Wasylkiw et al., 2012; Ferreira et al., 2013; Braunet al., 2016; Turk, & Waller, 2020). Specifically, these findings suggest that women high in self-compassion have lower levels of body dissatisfaction and are less likely to engage in disordered eating pathologies. However, such findings were based on a cross-sectional design, and further experimental research is needed to establish causality.

Experimental research has developed self-compassion interventions that have been shown to have positive impact on a range of outcomes relevant to body image, including self-criticism (Gilbert & Irons, 2004), eating disorders (Kelly et al., 2017), positive body image (Ziemer et al., 2019) and body dissatisfaction (Albertson et al., 2015). Two specific self-compassion interventions have been developed in the academic literature: The Compassionate Image (Gilbert & Irons, 2004) and Compassionate Mind Training (Gilbert & Procter, 2006). Research shows that these interventions have positive effects on a range of outcomes, including high shame and self-criticism (Gilbert & Procter, 2006). However, only one intervention study has examined the impact of a self-compassion intervention on levels of body dissatisfaction.

Albertson, Neff, and Dill-Shackleford (2015) conducted an RCT of a brief meditation intervention. This brief intervention has its roots in Compassionate Mind Training (CMT, Gilbert & Procter, 2006). Albertson et al.'s (2015) brief intervention consisted of three meditation audios taken from the CMT. Participants were randomly allocated to either a self-compassion meditation group or a waitlist control group. For three weeks, a new meditation audio was released every week so that participants could listen to it. Each audio aimed to help women to build self-compassion. Their study included a 3-month follow-up to test whether any changes in the self-compassion group were maintained. Their outcome variables were self-compassion, body dissatisfaction, body appreciation, shame and contingent self-worth based on appearance. Albertson et al. found that women in the self-compassion intervention group reported lower levels of body dissatisfaction, shame, contingent self-worth based on appearance and higher levels of body appreciation and self-compassion. While these findings highlight the importance of self-compassion in shaping body dissatisfaction, Albertson et al. did not investigate the mechanisms by which a self-compassion training can improve body

dissatisfaction. Therefore, further research is needed to identify potential mediators that account for the effect of self-compassion on body dissatisfaction.

3.1.2. Gratitude and body dissatisfaction.

Gratitude is the second protective factor addressed in Study 1 of the present research. Trait gratitude has been defined as the ability to frequently notice and appreciate the positive aspects of life (Wood et al., 2010). People who are high in gratitude seem to have a set of adaptive skills that help them to maintain emotional equanimity (Wood et al., 2010). Additionally, gratitude has been associated with well-being (Kendler et al., 2003; Wood et al., 2010). These associations have motivated researchers to investigate the link between gratitude and body dissatisfaction.

Research suggests that gratitude can be a protective factor that reduces women's levels of body dissatisfaction (Geraghty et al., 2010; Homan et al., 2014; Wolfe & Patterson, 2017). For example, Geraghty et al. (2010) assessed the effectiveness of a gratitude diary intervention and a thought monitoring and restructuring intervention in lowering body dissatisfaction. They found that both interventions significantly lowered levels of body dissatisfaction when compared to the waitlist control condition. They propose that this happened because positive affect was increased and that frequent attention to grateful experiences may have helped to build positive schemas that may influence specific ideas such as body image. However, positive affect was not measured in their study, and thus there is no empirical evidence for this underlying process.

Wolfe and Patterson (2017) replicated Geraghty et al.'s (2010) study to compare the efficacy of a 2-week daily gratitude intervention and a 2-week daily cognitive restructuring intervention in lowering levels of body dissatisfaction. Their results demonstrated that, compared to women in the cognitive restructuring intervention condition and women in the control condition, women in the gratitude intervention condition reported lower levels of body

dissatisfaction, lower eating disordered behaviours and attitudes, lower depressive symptomatology, and higher body esteem. Wolfe and Patterson proposed that the cognitive restructuring intervention may not work for women who do not have clinical levels of body dissatisfaction. Importantly, their study found that the gratitude intervention was associated with lower levels of depressive symptomatology and higher levels of positive affect over time. Although their findings are important in the field of gratitude and body image, further research is needed to replicate and extend their findings by identifying potential mechanisms underpinning the effects of gratitude on body dissatisfaction.

In another study, Homan et al., (2014) examined whether a two-week gratitude intervention lessened the negative effect of exposure to the thin ideal on body dissatisfaction in women. Their results showed that, contrary to seeing neutral objects, looking at images of slim models increased body dissatisfaction in women. However, participants who practiced a 5-minute grateful contemplation task for two weeks did not have the same effect. Their findings are consistent with previous research that has demonstrated that gratitude interventions can increase levels of positive affect (Emmons & McCullough, 2003) and lower levels of symptoms related to depression (Lambert et al., 2012).

3.2. Self-objectification as a potential mediator

The previous section reviewed empirical studies that have investigated the role of two protective factors that lower levels of body dissatisfaction—self-compassion and gratitude—but noted that there is no empirical evidence for the processes underpinning these effects. This section considers the role of self-objectification as a possible mediator. Below is a definition of the construct, and a review of evidence demonstrating its link with body dissatisfaction.

3.2.1 Self-objectification and body dissatisfaction

The concept of self-objectification was first introduced in Objectification Theory (Fredrickson & Roberts, 1997), and refers to people evaluating their appearance from a third-

person perspective. This theory posits that women in Western culture are considered as "things" that are evaluated based on their body appearance rather than their body functionality[2] (e.g., dancing, digestion, sight) and their character strengths (e.g., kind, creative, innovative). Self-objectification can lead women to engage in maladaptive behaviours such as habitual body monitoring; making women vulnerable to shame and anxiety, potentially putting women at risk of developing body dissatisfaction (Fredrickson & Roberts, 1997; Moradi & Huang, 2008).

Correlational studies have found that self-objectification is positively associated with body dissatisfaction (e.g., Fredrickson & Roberts, 1997; McKinley, 1999; Tiggemann & Lynch, 2001; Grippo & Hill, 2008). To provide an important replication of the correlational findings, the present study will measure self-objectification beliefs and examine their association with body dissatisfaction.

However, findings regarding the impact of self-objectification interventions are inconsistent. On the one hand, some studies show that reducing self-objectification by shifting women's attention from body appearance to body functionality results in *higher* levels of body satisfaction when compared to a creativity training program used as a control condition (Alleva et al., 2014; Alleva et al., 2015). On the other hand, other studies show that lowering self-objectification by drawing women's attention to body functionality results in *lower* levels of satisfaction regarding either their own appearance or functionality (Mulgrew & Tiggemann, 2018). These results suggest that shifting focus to body functionality does not provide a protection against body dissatisfaction but rather may worsen the outcome.

Although the evidence regarding the impact of self-objectification interventions to lower levels of body dissatisfaction is mixed, correlational studies do find the expected positive association between self-objectification and body dissatisfaction. It is possible that

[2] This study uses Franzoi's (1995) definition of body functionality which entails functions of the body as process (e.g., muscular strength, physical stamina and agility).

the tested interventions do not successfully and consistently reduce self-objectification beliefs, which would account for the mixed results across studies. To provide an important replication of the correlational findings, the present study will measure self-objectification beliefs and examine its association with body dissatisfaction. Lowered self-objectification will be also considered as a possible explanation (i.e., mediator) for the protective effects of self-compassion and gratitude on body dissatisfaction.

3.2.2. Self-compassion and self-objectification

Research shows that women high in self-compassion have lower levels of body surveillance, body shame, depression, and negative eating attitudes, which are maladaptive behaviours associated with self-objectification (Liss & Erchull, 2015). Moreover, it has been found that, although women high in self-compassion observe and supervise their bodies, they are less likely to feel shame and adopt a negative attitude towards their body (Liss & Erchull, 2015). Researchers propose that adopting a self-compassionate attitude has this protective effect because it helps women to accept themselves, regardless of their flaws (Neff, 2011).

Wollast et al. (2020) found that women low in self-compassion had higher levels of body shame – and, thus, by extension that women high in self-compassion showed lower levels of body shame (as well as body surveillance). In other words, adopting a compassionate attitude towards themselves can help women to lower levels of shame originated by body surveillance.

Taken together, these findings provide evidence that self-compassion is associated with lower levels of maladaptive behaviours associated with self-objectification, yet to the researcher's knowledge no research has directly examined the relationship between self-compassion and self-objectification beliefs. The present study will examine this relationship before testing the role of self-objectification beliefs as a mediator. In other words, it may be

that women high in self-compassion have lower levels of body dissatisfaction via lower levels of self-objectification.

3.2.3. Gratitude and self-objectification

To date, the potential association between self-objectification and gratitude has not been addressed. However, theory suggests that these two concepts could be associated. As a personality trait, gratitude is defined as the ability to appreciate the positive aspects of life (Wood et al., 2010). Importantly, evidence shows that having a grateful mindset allows people to bring attention to 'little things' (Thomas & Watkins, 2003). Appreciating and being aware of little things can bring a sense of sufficiency rather than deficiency. In turn, this appreciation for positive aspects of life may be transmitted to other areas of life, including the body. Within this context, having the skill of appreciating the positive side may expand women's thinking regarding their body. Gratitude thus might serve to undermine narrow ways of thinking about the body, such as self-objectification. As such, lower levels of self-objectification may explain the relationship between gratitude and body dissatisfaction: women high in gratitude may have lower levels of body dissatisfaction via lower levels of self-objectification.

3.3. Overview of the Current Study

Research on body dissatisfaction has mainly focused on risk factors, whereas the potential protective factors that may help lessen women's levels of body dissatisfaction have received less attention. Recent research indicates that self-compassion and gratitude are potential protective factors that have been found to help women to lower levels of body dissatisfaction (e.g., Geraghty et al., 2010; Albertson et al., 2015). However, little is known about the processes that underpin these effects. As the first study of this thesis, Study 1 uses a correlational design to explore the relationships between the key variables of interest: self-compassion, gratitude, self-objectification and body dissatisfaction. In addition, the present

study examines the potential mediating role of self-objectification, which has not been previously addressed.

Based on previous findings in women with body dissatisfaction (Geraghty et al., 2010; Ferreira et al., 2013), it was hypothesized that self-compassion would be negatively associated with body dissatisfaction (H1) and gratitude would be negatively associated with body dissatisfaction (H2). To test the mediation role of self-objectification, it was hypothesized that self-objectification would mediate the relationship between self-compassion and body dissatisfaction (H3) and self-objectification would mediate the relationship between gratitude and body dissatisfaction (H4).

3.4. Method

3.4.1. Participants and procedure

Prior to data collection, ethical approval was obtained from the Department of Psychology Ethics Committee (application #014912). Adult women were recruited via email to the university's volunteers lists and posts on social media websites (i.e., Facebook, Twitter). The study notices invited women to complete an online questionnaire that was described as including self-report measures of personality and physical self-perceptions.

The inclusion criteria for this study were that women had never been diagnosed with an eating disorder. This was because the online questionnaire included questions about body image which may be more extreme and/or problematic for women who have (or have had) an eating disorder. A screening question was first shown to all prospective participants, asking if they had ever received a diagnosis of an eating disorder (e.g., anorexia, bulimia, binge disorder) by a medical professional. Only women who reported never having received a diagnosis were provided access to the full questionnaire. After completing the questionnaire, participants were given the option to enter a random draw to win a gift certificate to an online shop.

A total of 523 individuals commenced the study by clicking on the link to the online questionnaire. Participants who did not identify themselves as women (*N* = 24), or who had received a diagnosis of an eating disorder (*N* = 13), or who did not complete any of the measures (*N* = 143) were dropped from the sample. The final sample consisted of 342 women who ranged in age from 18 to 66 years (*M age* = 29.15, *SD* = 10.21). Participants' demographics are shown on Table 1.

Table 1. *Participants' demographics*

	n	%
Background		
European	294	86.1
Latin American	34	9.9
North American	10	2.9
Language		
English	218	63.8
Spanish	71	17.8
Greek	10	2.9
Chinese	5	1.5
Relationship Status		
Single	199	58.2
Married or living with a partner	130	38
Separated or divorced	11	3.2
Widow	2	0.6
Highest educational level		
Post-graduate level	136	39.8
University or College	188	55
High school	17	5
Employment		
Not employed	107	31.3
Employed part-time	95	27.8
Employed full-time	136	39.8
Retired or on sickness leave	2	0.9

3.4.2. Measures

The online questionnaire included four measures (self-compassion, gratitude, self-objectification, and body dissatisfaction) that were each assessed with multiple items. To assess each construct, reliable and valid measures were selected from published research. The measures were presented in the following order: demographic questions, self-compassion, gratitude, self-objectification, and body dissatisfaction.

Demographic questions: Participants were asked to report their age, gender, nationality, level of education, first language, ethnic background, and relationship status.

Self-compassion. Self-compassion was measured using the short (12-item) version of the Self-Compassion Scale (SCS-SF; Raes et al., 2011). The SCS-SF has been found to be highly correlated with the long form SCS (r = .97; as cited in Raes et al., 2011). This self-report scale evaluates the three core components of self-compassion and their counterparts: Self-kindness (Self-judgement), Common humanity (Isolation), Mindfulness (Over-identification). Example items include "I try to be understanding and patient towards those aspects of my personality I don't like" (self-kindness), "I'm disapproving and judgmental about my own flaws and inadequacies" (self-judgement), "I try to see failings as part of the human nature" (common humanity) and "when I fail at something that's important to me, I tend to feel alone in my failure" (isolation), "when something painful happens I try to take a balanced view of the situation" (mindfulness), and "when I fail at something important to me I become consumed by feelings of inadequacy" (over-identification). Participants responded to each item on a scale from 1 *(almost never)* to 5 *(almost always).* An overall score was calculated by reversing score negative subscale items (self-judgement, isolation and over-identification) and computing a total mean. In the current study, internal consistency as measured by Cronbach's alpha was .89.

Gratitude. Trait gratitude was measured using the 6-item Gratitude Questionnaire (McCullough et al., 2002). Participants indicated the extent to which they agreed with each item on a scale from 1 *(strongly disagree)* to 7 *(strongly agree).* Example items included "I have so much in life to be thankful for" and "I am grateful to a wide variety of people". An overall score was obtained by reversing scores for items 3 and 6 and summing the scores for all the six items, with the total values ranging between 6 and 42. Higher scores reflect higher trait gratitude. In the current study, internal consistency as measured by Cronbach's alpha was .79.

***Self-objectification*.** The Self-Objectification Questionnaire (SOQ; Noll & Fredrickson, 1998) was used to measure self-objectification. The SOQ assesses how people see their appearance and competence without considering their body satisfaction. The questions identify 12 different body attributes reflecting either appearance or competence. Participants were asked to rank order starting from those which has the greatest impact on their physical self-concept on a scale ranging from 12 *(most impact)* to 1 *(least impact).* Example items included "when considering your physical self-concept… what rank do you assign to health? "… what rank do you assign to weight" and "… what rank do you assign to physical attractiveness".

An overall score is obtained by first summing the ranks for appearance (items 3, 5, 6, 8, 10, 11) and then competence (items 1, 2, 4, 7, 9, 12) separately and subtracting the result of competence items (non-objectified) of the sum of the appearance items (objectified). Scores range from -36 to 36, higher scores indicate a greater appearance concern and are interpreted as higher trait self-objectification. Due to the ranking-order format and the scoring system of the SOQ it is not possible to estimate internal consistency using Cronbach's alpha. Therefore, internal consistency was determined by the correlation between the total sum of the competence-based attributes and the sum of the appearance-based attributes as proposed by

Hill and Fischer (2008). In the current study, a highly significant negative correlation between both sets of attributes was found (r = -1.00).

***Body Dissatisfaction*.** Body dissatisfaction was measured with the 34-item version of the Body Shape Questionnaire (BSQ; Cooper et al., 1987). Participants were asked to rate the frequency of each behaviour or feeling related to their body over the past four weeks on a scale from 1 (never) to 6 (always). Example items included: "has eating even a small amount of food made you feel fat?" and "have you avoided wearing clothes which make you particularly aware of the shape of your body?". An overall score was calculated by summing all responses of the 34 items with the total values ranging from 34 to 204, higher scores indicate greater body dissatisfaction. In the current study, internal consistency as measured by Cronbach's alpha was .94.

3.5. Results

All analyses were conducted using SPSS version 26. Prior conducting the main analyses, data were examined for missing values, and outliers. All variables were found to be normally distributed and no outliers or missing values were found. The analytic strategy for each analysis is described at the start of each relevant section.

3.5.1. Correlation analysis and descriptive statistics

Pearson correlation coefficients were planned to examine the first two hypotheses: H1) self-compassion will be negatively associated with body dissatisfaction and H2) Gratitude will be negatively associated with body dissatisfaction. Descriptive statistics for the measures used in the current study are reported in Table 2.

Table 2. *Descriptive statistics and internal consistency of the questionnaires for all measured variables (n = 342).*

Measure	Present study *M (SD)*	α	Previous studies M (SD)
Body dissatisfaction (BSQ -34)	92.18 (32.51)	0.94	72.50 (28.84) Neves et al. (2017)
Self-compassion (SCS)	2.88 (0.82)	0.89	2.99 (0.61) Neff & McGehee (2010)
Gratitude (G6)	5.66 (0.93)	0.79	5.71 (1.05) Chen et al. (2009)
Self-objectification (SOQ)	1.54 (13.66)	-1.00*	9.05 (13.53) Calogero et al., (2005)

BSQ Body Shape Questionnaire, *SCS* Self-Compassion Scale, *G6* 6-item Gratitude Questionnaire, *SOQ* Self-Objectification Questionnaire.

Note: Due to the ranking design of the self-objectification questionnaire, it is not possible to calculate Cronbach's alpha values, therefore a correlation score has been reported.

Bivariate correlations between all variables are reported in Table 3. As expected, both gratitude and self-compassion were negatively associated with body dissatisfaction. This suggests that women with high levels of gratitude and self-compassion are more satisfied with their body. Gratitude was positively associated with self-compassion. Self-objectification was not significantly associated with any of the other variables: self-compassion, gratitude, or body dissatisfaction[3].

Table 3. *Bivariate correlations for all measured variables (n = 342).*

Measure	*M*	*SD*	1	2	3	4
1. Body dissatisfaction	92.18	32.51	1.00			
2. Self-compassion	2.88	0.82	-.50**	1.00		
3. Gratitude	5.66	0.93	-.23**	.45**	1.00	
4. Self-objectification	-1.54	13.66	-.01	-.00	-.00	1.00

Note. ** $p < 0.01$ (2-tailed). * $p < 0.05$ (2-tailed). *M* = mean. *SD* = standard deviation.

3.5.2. Multiple Regression Analysis

An exploratory multiple regression analysis was conducted to examine the independent effects of self-compassion and gratitude on body dissatisfaction. Prior to the multiple regression analysis, data was checked to ensure that the assumptions of normality, linearity, homoscedasticity, independence of errors and multicollinearity required to conduct a multiple regression were met (Field, 2013). The analysis entered gratitude and self-compassion simultaneously as predictors of body dissatisfaction. Self-objectification was not included as a

[3] Self-objectification was not tested as a potential mediator in this study because the cross-sectional, correlational design does not provide a strong test of mediation. However, it will be considered further later in the thesis.

predictor because it was not significantly associated with any of the study variables (see Table 4).

Results of the multiple regression analysis can be found in Table 4. Self-compassion was a significant unique predictor of body dissatisfaction accounting for 25.4% of the variance (Adjusted $R^2 = .254$). However, gratitude was not a significant independent predictor of body dissatisfaction.

Table 4. *Summary of simple multiple regression analysis for gratitude and self-compassion predicting body dissatisfaction (N = 342).*

Variable	*B*	β	*SE B*	*t*	*p*
Constant	4.49		.286	15.74	.000
Gratitude	-4.17	.000	.055	-.001	.999
Self-compassion	-0.60	-.509	.063	-9.68	< .001***

3.6. Discussion

The present study aimed to examine the associations between gratitude, self-compassion, and women's body dissatisfaction.

3.6.1. The relationship between self-compassion, gratitude, and body dissatisfaction

Bivariate correlations supported H1 and H2: self-compassion and gratitude were negatively associated with body dissatisfaction. These findings are consistent with previous research, where gratitude and self-compassion have been found to be negatively associated with body dissatisfaction (Geraghty et al., 2010; Ferreira et al., 2013). Additionally, gratitude and self-compassion were positively related in this study. The current study also examined both gratitude and self-compassion as simultaneous predictors of body dissatisfaction; this is novel because previous research has investigated only one predictor at a time (e.g., Geraghty et al., 2010; Ferreira et al., 2013, Albertson et al., 2014; Homan et al., 2014; Wolfe & Patterson, 2017). Therefore, previous work could not have determined the independent associations between each predictor and body dissatisfaction. By investigating gratitude and self-compassion as simultaneous predictors, it was possible to address this question. The present results showed that gratitude did not account for significant variance in body dissatisfaction when controlling for self-compassion. This suggests that although gratitude has shown to be beneficial for women with body dissatisfaction (Geraghty et al., 2010; Homan et al., 2014; Wolfe & Patterson, 2017), it may not be relevant when also taking self-compassion into account.

Although the present research found that gratitude had a limited relationship with body dissatisfaction, it is likely that related constructs such as body appreciation might still be important. The gratitude model of body appreciation (Homan & Tylka, 2018) suggests that gratitude is linked with body appreciation because it helps individuals to see the positive aspects of life in themselves, by focusing on their positive non-physical attributes and

lessening the need to gain other people's approval or based their self-worth on their appearance. Body appreciation is defined as the love, respect, and acceptance of one's body (Tylka, 2011). Body appreciation is different from body dissatisfaction, as the latter focuses on people's negative perception, negative feelings and / or negative thoughts about their body (Stice & Shaw, 2002), whereas body appreciation refers to positive perceptions and feelings, that can be independent – or co-exist alongside – more negative feelings (Tylka, 2011). However, research has found that women low in body appreciation show increased levels of body dissatisfaction after being exposed to the thin ideal (Andrew et al., 2015). In addition, body appreciation has been positively associated with self-compassion (Cox, et. al., 2015).

Importantly, self-compassion was found to be negatively predict body dissatisfaction when controlling for gratitude. The second study of this thesis will use an experimental design to establish the causal link between these two variables more clearly.

3.6.2. Self-Objectification is unrelated to other constructs

Study 1 found that self-objectification was not associated with body dissatisfaction, self-compassion, or gratitude. These findings are not consistent with previous research, where self-objectification was positively associated with body dissatisfaction (Fredrickson & Roberts, 1997; McKinley, 1999; Tiggemann & Lynch, 2001; Grippo & Hill, 2008), and negatively associated with self-compassion (Liss & Erchull, 2015).

One explanation for these null results is the ranking design of the Self-Objectification Questionnaire (SOQ; Noll & Fredrickson, 1998) may have influenced participants' responses. The instructions for completing the SOQ direct participants to provide a distinct rank position to each attribute; this structure may pose unnecessary constraints on participants who wish to give the same rank to multiple body attributes. In addition, the SOQ separates observable attributes (e.g., weight, physical attractiveness) and non-observable attributes (e.g., physical coordination, health). The technical difference between these two categories of attributes may

not be clear for participants, and thus may lead to responses that do not accurately reflect their views. Another issue with the ranking system of the SOQ is that it does not allow researchers to calculate standard estimates of internal consistency (e.g., Cronbach's alpha). Therefore, the reliability of this scale can only be determined by documented the expected negative correlation between the two sets of body attributes. This approach is only an indirect measure of reliability, however, and thus does not provide clear evidence that this is a valid and reliable scale.

To address the issues with the SOQ, researchers have developed another measure of self-objectification, the Objectified Body Consciousness Scale (OBCS; McKinley & Hyde, 1996). The OBCS uses three subscales (eight items each) to evaluate the extent to which people agree with statements that indicate three aspects of self-objectification (response scale: 1 = *strongly disagree*, 7 = *strongly agree*): body surveillance (e.g., "I often worry about whether the clothes I am wearing make me look good"), body shame (e.g., "When I am not the size I think I should be, I feel ashamed"), and appearance control beliefs (e.g., "I think a person can look pretty much how they want to if they are willing to work at it") . Each subscale consists of eight items with a seven-point response scale (1 = *strongly disagree*, 7 = *strongly agree).* This measurement approach allows participants to evaluate each aspect of self-objectification separately rather than forcing them to rank order them. Thus, participants have more flexibility to provide responses that match their experiences.

However, there are still two issues with the OBCS measure (McKinley & Hyde, 1996), which have been documented in research studies (Calogero, 2011). First, the response scale includes a "not applicable" option (N/A), and these responses become missing data. McKinley and Hyde (1996) have determined that when 25% of any subscale's scores (i.e., two of eight items) are missing, it is not possible to calculate the scale score. This approach may result in relatively high amounts of missing data, as any participant who uses the N/A option for at least two items within a sub-scale would have their responses removed from the further analysis.

Second, the three subscales were validated separately and thus it is not possible to obtain a validation of the total score (McKinley & Hyde, 1996). Thus, like the SOQ (Noll & Fredrickson, 1998), the OBSC's validation and reliability is compromised. Although the OBCS aims to measure self-objectification, each of the subscales measures three different outcomes, for example, the control beliefs subscale measures behavioural intentions and actions related to one's appearance (Calogero, 2011). Even though each scale has demonstrated to have a high reliability, there is no evidence that, overall, the OBCS provides a reliable measure of self-objectification. Therefore, further research is needed to determine the general reliability of this scale.

Another way to measure self-objectification is the Self-Objectification Beliefs and Behaviours Scale (SOBBS; Lindner & Tantleff-Dunn, 2017). The SOBBS uses 14 items to assess two factors. The first factor corresponds to the internalization of the observer's perspective on the body (e.g., "I often think about how my body must look to others"). The second factor corresponds to the ability of the person to treat the body as if it is capable to represent the self, focusing on body appearance rather than body functionality or how the person thinks or feels (e.g., "My body is what gives me value to other people"). Participants are instructed to score each item on a scale from 1 *(strongly disagree)* to 5 *(strongly agree).* Greater scores indicate higher levels of self-objectification. In contrast to the SOQ (Noll & Fredrickson, 1998) and The OBCS (McKinley & Hyde, 1996) the Self-Objectification Beliefs and Behaviours Scale (SOBBS; Lindner & Tantleff-Dunn, 2017) may be a better instrument to measure self-objectification as it brings together two conceptual definitions of self-objectification into one instrument (e.g., internalization of third persons' perspective). Therefore, the SOBBS allows researchers assess and explore three aspects of self-objectification to better understand and predict related outcomes.

3.6.3. Theoretical implications

The study of protective factors facilitates researchers' understanding of body dissatisfaction in women. The current study tested two protective factors (i.e., gratitude, and self-compassion) to find out which of the two is a predictor of body dissatisfaction. Gratitude was not found to be a predictor of body dissatisfaction. From a theoretical perspective, it is possible that gratitude predicts body appreciation not body dissatisfaction (i.e., the two things are independent) may predict body dissatisfaction through body appreciation. Research has found that a positive association between gratitude and body appreciation (Homan & Tylka, 2018), therefore, a better construct to test in the present model could be body appreciation rather than gratitude.

In contrast to gratitude, self-compassion was found to be a negative unique predictor of body dissatisfaction. This may have occurred because the three components of self-compassion tackle three of the most common behaviours that women with body dissatisfaction encounter. For example, self-kindness helps women to lower levels of self-criticism and develop an accepting attitude towards their body (Albertson et al., 2014). Common humanity helps women to take a broader perspective about their body, reminding them that there is a wide variety of body shapes and sizes and comparing oneself standards of thinness and beauty are too narrowed (Albertson et al., 2014). Finally, mindfulness may help women to adopt a clear and balanced perspective about their body flaws rather than overemphasizing them (Albertson et al., 2014). The second study of this thesis will use a self-compassion induction to better understand the causal link between self-compassion and body dissatisfaction more clearly.

3.6.4. Clinical implications

The present study also has potential clinical implications. The current study found that self-compassion is a negative predictor of body dissatisfaction. This is consistent with recent research where self-compassion has been found to be associated with negative body image and eating pathology (Turk & Waller, 2020). However, further research is needed to test the effectiveness of self-compassion interventions compared to other kinds of therapies (e.g., cognitive therapies). This in turn would enable research to better understand body dissatisfaction in women which in turn could inform clinical practice.

3.6.3. Limitations and future directions.

Although this study provides evidence of an association between self-compassion and body dissatisfaction, four limitations should be considered. First, the findings are based on a correlational and cross-sectional design, and thus the results do not provide conclusive evidence of causality. For example, it may be that body dissatisfaction reduces people's ability to be self-compassionate (e.g., because both result from relatively high levels of perfectionism, Biskas, Sirois, & Webb, 2022). Future studies should employ experimental and longitudinal designs to provide more definitive tests of causality. Second, the measures were not randomized within the online questionnaire and so participant's responses may have been influenced by the order of the measures. Future studies should randomize measures and compare results with this study to find out whether there are any differences or not.

Third, the current study did not include the concept of body appreciation because the main theoretical framework was published after this study was completed. The methodology for Study 1 was planned between January 2017 and May 2017. Data was collected between June and August 2017. Thus, all conceptual and analytic work was completed before the gratitude model of body appreciation (Homan & Tylka, 2018) was published. However, further

research could potentially look at the association of body appreciation, self-compassion and body dissatisfaction.

Fourth, the cross-sectional nature of the present study precluded a robust of the process underpinning the independent association between self-compassion and body dissatisfaction – namely, a test of the mediating role of self-objectification. The current study did not explicitly test the mediation role of self-objectification. Therefore, further research is needed to test this and other potential mediators, such as positive affect. Research has shown self-compassion to be associated with higher levels of positive affect (Neff, 2003; Leary et al., 2007; Neff et al., 2007; Neff & Vonk, 2009). Therefore, it is possible that positive affect mediates the relationship between self-compassion and body dissatisfaction. The role of positive affect as a mediator is also supported by Broaden-and-Build Theory (Fredrickson 2001, 2004), which proposes that experiences of positive emotions help individuals to expand their habitual thinking and behaviours, which in turn serves to build new personal physical, intellectual, social and psychological resources. This model will be tested in the second study.

Finally, the current study has looked at self-compassion and gratitude separately. This is because theoretical and empirical work on how these two concepts may operate in tandem to influence body dissatisfaction. However, grateful people would be more likely to accept self-compassion because grateful people would be able to focus on the positive aspects of their body. As such, women would be able to be kind to themselves, accept that failure is part of a common shared experience and that they would accept their negative emotions as they appear without over-identifying. Therefore, self-compassionate people would be more likely to be grateful because they can focus on the positive aspects of their bodies – in other words, there is potential for a model that incorporates both self-compassion and gratitude. This is an interesting direction for future research, but first it is important to fully understand each model separately. Thus, the focus on self-compassion will be going forward in this thesis.

3.6.4. Conclusions

The results of the present study expand the existing literature on the relationships between body dissatisfaction and self-compassion and gratitude, suggesting that body dissatisfaction is a predictor of self-compassion (and not gratitude). Further research is needed to establish the causal link between these variables (i.e., that self-compassion lowers body dissatisfaction) and to identify the mechanisms that underpin this relationship.

CHAPTER 4

STUDY 2: POTENTIAL MECHANISMS OF THE RELATIONSHIP BETWEEN SELF-COMPASSION AND BODY DISSATISFACTION IN WOMEN

Study 1 of this thesis looked at the relationships between self-compassion and body dissatisfaction as well as gratitude and body dissatisfaction. Importantly, self-compassion was found to be uniquely associated with body dissatisfaction when controlling for gratitude. This finding was crucial in the development of Study 2 because it informed the choice of self-compassion as an intervention to reduce body dissatisfaction.

As previously outlined, research shows that self-compassion is useful in helping women lower their levels of body dissatisfaction (Albertson et al., 2014). However, little is known about the mechanisms through which self-compassion operates. Study 2 builds on Study 1 by examining the potential mediating role of positive affect, negative affect, activation of appearance schemas, non-activation of appearance schemas and both narrow breadth and broad breadth of cognition.

4.1. Self-compassion and its link with body dissatisfaction

Self-compassion (an understanding attitude towards oneself) has been found to be associated with body dissatisfaction. Correlational studies have found that self-compassion is negatively associated with body dissatisfaction, and that self-compassion is positively associated with body appreciation (Ferreira et al., 2013; Pinto-Gouveia et al., 2014).

Importantly, experimental research has found that teaching self-compassion skills helps individuals to increase their levels of self-compassion (Wasylkiw et al., 2012; Ferreira et al., 2013; Neff & Germer, 2013; Albertson et al., 2014). For example, Albertson et al. (2014) found that a three-week self-compassion guided meditation intervention can increase women's self-compassion levels and lower body dissatisfaction. Participants were randomly allocated to either complete the self-compassion meditation programme or to a waitlist

control group that would complete the programme at a later date. After completing the programme (i.e., post-test), women allocated to the self-compassion intervention group reported significantly lower levels of body dissatisfaction and body shame, and enhanced body appreciation, compared to women in the waitlist control group. These findings suggest that teaching self-compassion to women can lead them to experience less body dissatisfaction and body shame whereas they enhance their body appreciation.

Albertson et al. (2014) posit that body dissatisfaction may have been reduced because the meditation programme developed to the three aspects of self-compassion. First, the programme taught women to treat their bodies kindly rather than judgementally; therefore, levels of self-criticism were lower because women may have adopted an acceptance perspective towards their bodies. Second, the common humanity component of the self-compassion programme helped women to remember that the human experience involves having different body shapes and sizes, and that the societal standard of beauty is too narrow to include all different kinds of bodies. Third, the mindfulness component may have reduced body dissatisfaction because it allowed participants to take a balanced and clear perspective of their defects rather than exaggerating them. However, none of the specific components of self-compassion were directly tested in the Albertson et al. (2015) study. Arguably, the specific components of self-compassion are also not independent mechanisms by which interventions designed to promote self-compassion influence outcomes; but rather specify what it is about self-compassion that makes it an effective approach to tackling body dissatisfaction. Thus, further research is needed to identify the mechanisms that may explain the relationship between self-compassion and body dissatisfaction.

4.2. Mechanisms that may explain the relationship between self-compassion and body dissatisfaction

Theory and research suggests a range of factors and processes that might be influenced by self-compassion. Drawing on the Broaden and Build theory of positive emotions (Fredrickson 1998, 2001), the self-schema model (Markus, 1977), and the literature on positive and negative affect, this section introduces six mechanisms that may explain the relationship between self-compassion and body dissatisfaction: 1) broad momentary thought – action repertoire, 2) narrow momentary thought- action repertoire, 3) activation of appearance schemas, 4) activation of non-appearance schemas, 5) positive affect, and 6) negative affect. To the researcher's knowledge, no previous research has used these theories to explain the mechanisms that underpin the relationship between self-compassion and body dissatisfaction.

4.2.1. Positive Affect and Negative Affect

The first two potential mechanisms are affective responses. While self-compassion is not defined as an emotion, it has been shown to evoke affect (Leary et al., 2007; Neff, 2007; Neff & Vonk, 2009; López et al., 2018). Importantly, researchers have found that self-compassion is positively associated with positive affect and negatively associated with negative affect (Leary et al., 2007; Neff et al., 2007; Neff & Vonk, 2009; López et al., 2018).

Leary et al. (2007) investigated the cognitive and emotional processes by which people high in self-compassion deal with negative events in their daily life. They found that self-compassion was negatively associated with anxiety, sadness, and self-conscious emotions. Additionally, they found that self-compassionate individuals were more likely to express kindness to themselves and to be more understanding with their emotions after being involved in an event which they thought it was their fault. In addition, they found that self-compassion helped women to lessen the psychological impact of negative events. Taken together, then, there is a theoretical foundation for the association between self-compassion and affect.

Previous work also provides support for the relationship between affect and body dissatisfaction. First, there is evidence that negative affect is positively associated with body dissatisfaction: when women find a discrepancy between their actual body and the thin ideal promoted by the Western culture, they tend to experience negative emotions such as shame, anxiety, and sadness (Fredrickson & Roberts, 1997; Neff, 2003a; Neff et al., 2007a, Neff et al., 2007b) that have been linked with body dissatisfaction in women. Further evidence of the association between negative affect and body dissatisfaction has been found in several studies (Cole et al., 1998; Stice & Bearman, 2001; Stice & Shaw, 2002). For example, Stice and Shaw (2002) conducted a literature review to investigate the mediation role of negative affect between body dissatisfaction and eating pathology. They found that higher levels of body dissatisfaction are associated with eating pathology and this relationship is mediated by high levels of negative affect and dieting. Additionally, one intervention study targeting body dissatisfaction seemed to reduce negative affect, depressive symptoms, and bulimic symptoms (Bearman et al., 2003).

Second, positive affect is negatively associated with body dissatisfaction. This may occur because when women experience positive affect, they are less likely to feel discomfort with their body. LePage and Crowther (2010) investigated the effects of exercise on state body dissatisfaction and affect. They found that individuals who experienced more positive affect showed lower levels of body dissatisfaction after exercising. Additionally, they found that women who exercise for appearance / weight – related reasons experienced higher state body dissatisfaction.

Together these findings suggest that the relationship between self-compassion and body dissatisfaction could be potentially explained by negative affect and positive affect. However, to date, research has not determined whether positive affect or negative affect may play a role in the relationship of self-compassion and body dissatisfaction.

4.2.2. Broad momentary thought-action repertoires and narrow momentary thought-action repertoires.

The previous section outlined positive and negative affect as potential mechanisms underlying the relationship between self-compassion and body dissatisfaction. The next mechanisms to be considered are positive momentary thought action repertoires and narrow momentary thought action repertoires. These two mechanisms have their theoretical background in the Broaden-and-Build Theory of Positive Emotions proposed by Fredrickson (1998, 2001).

The Broaden-and-Build theory of positive emotions (Fredrickson 1998, 2001) has two hypotheses regarding the impact of positive emotions. First, the *broaden hypothesis* postulates that positive emotions widen the range of cognitions, behaviour, and attention, broadening momentary thought-action repertoires (Fredrickson 1998, 2001; Fredrickson & Branigan, 2005). Second, the *build hypothesis* states that the broadening function of positive emotions serves to construct resources ranging from intellectual, social, physiological to psychological giving individuals the opportunity to find growth (Fredrickson 1998, 2001; Fredrickson & Branigan, 2005).

Fredrickson (1998, 2001) posits that the function of positive emotions is to broaden the scope of individual's habitual thoughts and behaviours or *momentary thought-action repertoires*, to use her terminology. She posits that *momentary thought-action repertoires* help individuals to construct a wide variety of new resources such as: psychological, physical, intellectual and social (e.g., play, discover, learn, explore, create). In addition, such new resources have a long-lasting effect that allows individuals to use them in the future when facing danger or menace (Fredrickson, 1998).

Therefore, it is expected that women high in self-compassion have lower levels of body dissatisfaction because they broaden their thinking by experiencing positive momentary

thought action repertoires. In contrast, women low in self-compassion are expected to have higher levels of body dissatisfaction because they experience high levels of narrow momentary thought-action repertoires.

As it is expected that lower levels of self-compassion will be associated with more negative responses specifically, momentary thought-action repertoires will be separated into positive and narrow repertoires in Study 2. This way it will be possible to identify: 1) whether women low in self-compassion narrow their thinking via narrow momentary thought-action repertoire responses, and 2) whether women high in self-compassion broaden their thinking via positive momentary thought-action repertoire responses.

To date research has not looked at the relationship between momentary thought action repertoires and self-compassion or body dissatisfaction. Although one self-compassion intervention has been successful at lowering levels of body dissatisfaction (Albertson et al., 2014), the processes underlying this effect were not examined. The researchers propose that the three components of self-compassion may have helped women to think of their bodies in a different way (Albertson et al., 2014), which suggests that the participants may have broadened their thinking about their body. Study 2 of the present thesis will be the first to directly investigate the extent to which positive momentary thought-action repertoires and narrow momentary thought-action repertoires might mediate the relationship between self-compassion and body dissatisfaction.

4.2.3. Activation of appearance schemas and non-activation of appearance schemas

The last two potential mechanisms that warrant consideration are activation of appearance schemas and activation of activation of non-appearance schemas. The self-schema model (Markus, 1977) posits that individuals create a cognitive framework about themselves based on self-relevant information. These self-schemas arrange and define the way in which an individual processes self-relevant information, including body image (Markus, 1977).

Activation of appearance schemas is an unconscious process: schemas about body image are activated automatically when individuals are presented with schema-relevant information such as the societal thin ideal and fashion models in magazines (Altabe & Thompson, 1996).

The conceptualization of body image schema integrates self-schema theory and Higgins' (1987) self-discrepancy theory, which posits that a person's self-concept is composed by several self-beliefs. In turn, these self-beliefs are divided in three categories: 1) the actual self, 2) the ideal self and 3) other selves. These three categories can be seen from multiple points of view within the person's self-perception. For example, a woman can think of her own body from an ideal-self perspective and from her own perception of peer judgements about the self. Research has found that discrepancies between the two categories of the self are associated with negative emotions (Strauman & Higgins, 1987).

To date, no research has linked self-compassion with the activation of appearance schemas. However, Breines et al. (2014) examined the role of self-compassion in negative body image and disorder eating in women. They used an adapted the 26-item Self-Compassion Scale (SCS; Neff, 2003b) to create a 10-item scale where items were reworded to focus on appearance-related thinking. Example items included "Today, I was understanding towards myself about my appearance" and "I try to be understanding and patient towards those aspects of my personality I don't like." Breines et al., found that taking a self-compassionate approach to negative appearance-related cognitions and events was associated with lower levels of disordered eating. This result suggests that self-compassion may protect individuals against negative appearance-related cognitions and lower disorder eating. Thus, although Breines et al. (2014) did not investigate body dissatisfaction specifically, their findings suggest that self-compassion could help individuals to deal with negative thoughts regarding their appearance. Further research is needed to directly examine the relationship between self-compassion and appearance-schema activation.

Research shows that activation of appearance schemas predicts women's body dissatisfaction. For example, Groesz et al. (2002) found that women's body image was significantly more negative after being exposed to thin media images and this effect was stronger for females vulnerable to activation of a thinness schema. Hargreaves and Tiggemann (2002) found that women exposed to appearance-related advertisements had lower confidence and higher levels of anger and body dissatisfaction compared to women exposed to non-appearance related TV advertisements. Study 2 will add to this literature by considering whether activation of appearance schemas mediates the relationship between self-compassion and body dissatisfaction.

4.3. Overview of the current study

Study 2 explores the mechanisms that can potentially explain the relationship between self-compassion and body dissatisfaction. The current study was pre-registered on Aspredicted.com under the name, '*A short meditation trial study in women'* (22877).

All participants completed a measure of trait self-compassion to assess the extent to which they normally practiced self-compassion, this served as a control variable to account for individual differences in baseline levels of self-compassion. Participants were then randomly allocated to either a self-compassion condition (where they were systematically exposed to principles of self-compassion) or a control condition (with no exposure to principles of self-compassion).

Participants in the self-compassion condition were asked to write about an appearance-related event using the three components of self-compassion. Participants in the control condition were asked to write about an appearance-related event, with no specific instructions drawing attention to the components of self-compassion.

After completing the induction exercise, participants completed measures of state self-compassion (as a manipulation check), body dissatisfaction (main outcome variable), as well

as the six potential mediator variables: positive affect, negative affect, positive momentary thought-action repertoires, narrow momentary thought-action repertoires, activation of appearance schemas and activation of non-appearance schemas.

4.3.1. Hypotheses

Two hypotheses were tested in Study 2:

H1) Compared to the control group, women in the self-compassion group will have H1a) higher levels of positive affect, H1b) lower levels of negative affect, H1c) higher levels of positive momentary thought-action repertoires, H1d) lower levels of narrow momentary thought-action repertoires, H1e) lower levels of activation of appearance schemas, and H1f) higher levels of activation of non-appearance schemas and H1g) lower levels of body dissatisfaction.

H2) The relationship between state self-compassion and body dissatisfaction will be mediated by: H2a) high positive affect, H2b) low negative affect, H2c) high positive momentary thought-action repertoires, H2d) low narrow momentary thought-action repertoires, H2e) high activation of non-appearance schemas, and H2f) low activation of appearance schemas.

4.4. Method

4.4.1. Design and procedure

Study 2 used a between-participants experimental design with two conditions that systematically varied exposure to a self-compassion intervention: self-compassion condition versus control condition.

Prior to data collection, ethical approval was obtained from the University of Sheffield, Department of Psychology Ethics Committee, reference 022385. Women aged 18 and over were invited to take part in this study (Study 2) of this thesis, however, women who had received a diagnosis of an eating disorder (e.g., anorexia, bulimia, binge disorder) by a

medical professional were not eligible to take part in Study 2. An eating disorder diagnosis was used as an exclusion criterion because the current study asks participants to recall an event when they have felt uncomfortable with their body. This may trigger an unwanted response in some participants, which may be particularly likely and / or problematic for those who have or have had an eating disorder. Previous research has found that body dissatisfaction is a risk factor for relapse in therapy for eating disorders (Stice & Shaw, 2002; Keel et al., 2005; Freeman et al., 2013). A screening question was used to ensure that participants with eating disorders did not participate. Upon clicking the link to the study, participants were directed to the letter of information page for the study and the consent form. After providing informed consent, participants were then redirected to the study online in Qualtrics.

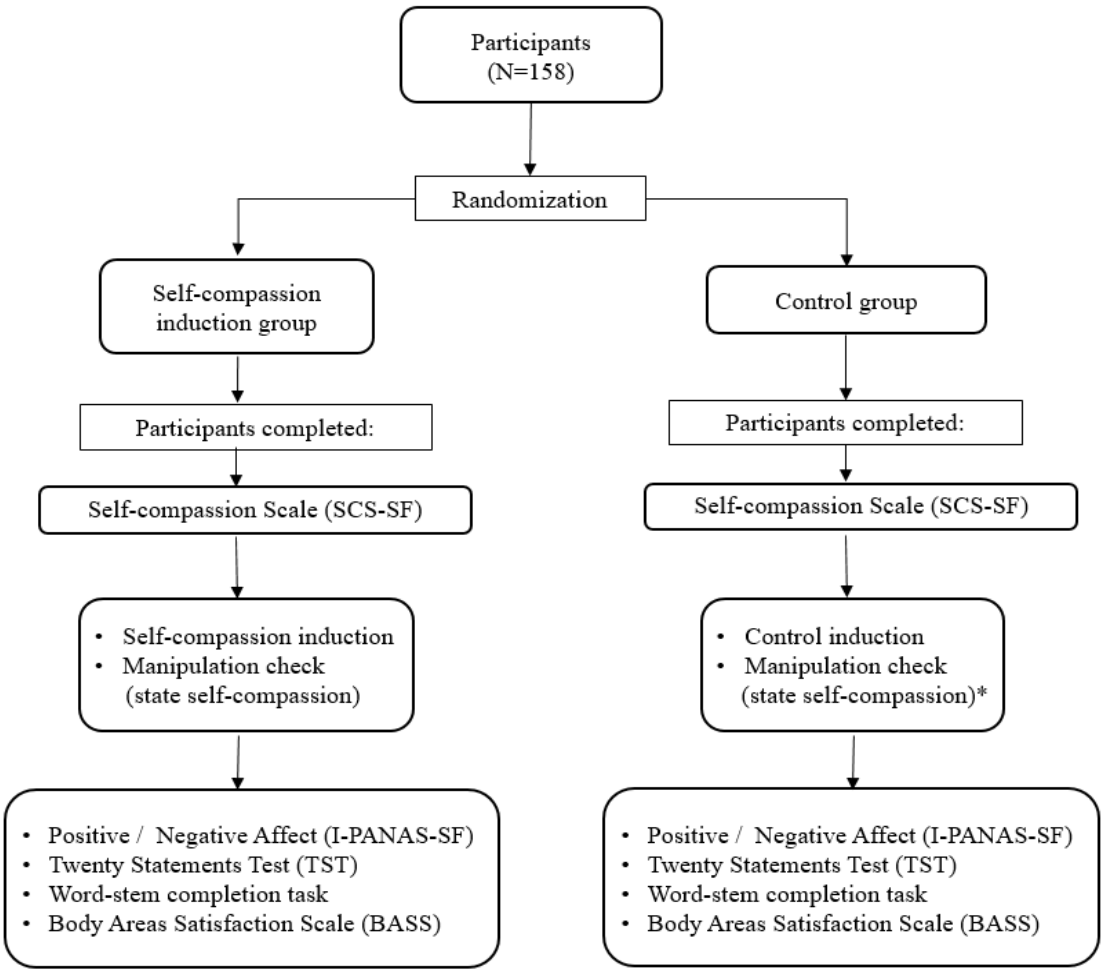
The experimental design and procedure is presented in Figure 1. The current study used a block randomization method (Suresh, 2011). This method randomly allocates participants into groups while keeping the group sizes equivalent across the design. This method was used because it ensured a balance in sample size across control and experimental group. Participants first completed a measure of trait self-compassion (SCS-SF), and then were randomly assigned to one of the two conditions (self-compassion or control) via the randomize command on the online survey tool used to set up the study (Qualtrics).

Once participants were allocated to their group, they were directed to the demographics questions. They then completed measures of self-compassion, the self-compassion induction, the manipulation check (state self-compassion), and the variables of interest: positive and negative affect (I-PANAS-SF), thought-action repertoire breadth (TST), appearance/weight schema activation (word stem task), and body dissatisfaction (BASS). Finally, participants in the control condition were given the option to complete the self-compassion induction as mood repair.

Due to an inadvertent error, participants in the control condition did not complete the manipulation check. To amend this error, a supplementary control group was recruited for the purposes of comparison: This group completed the state self-compassion measure to provide a baseline level against which to compare the level of state self-compassion reported by participants who completed the self-compassion induction. Participants in the supplementary group completed demographic measures, trait self-compassion scale, the control induction, and state self-compassion (manipulation check).

Figure 1

Experimental design



4.4.2. Participants

Data collection started on July 16th 2018, and finished on August 31st 2018. Participants were invited to participate in a study on personality and physical self-perceptions'. To recruit participants, the study's notice was emailed to the University of Sheffield's volunteers lists and posted on social media websites such as Facebook, LinkedIn, and Twitter. Participants who completed the questionnaires were not offered any money compensation for their answers.

To determine the sample size a power analysis was conducted with an effect size at f = 0.25 (small size effect; Cohen, 1988), an alpha of 0.05 and a power of 0.80 to detect differences

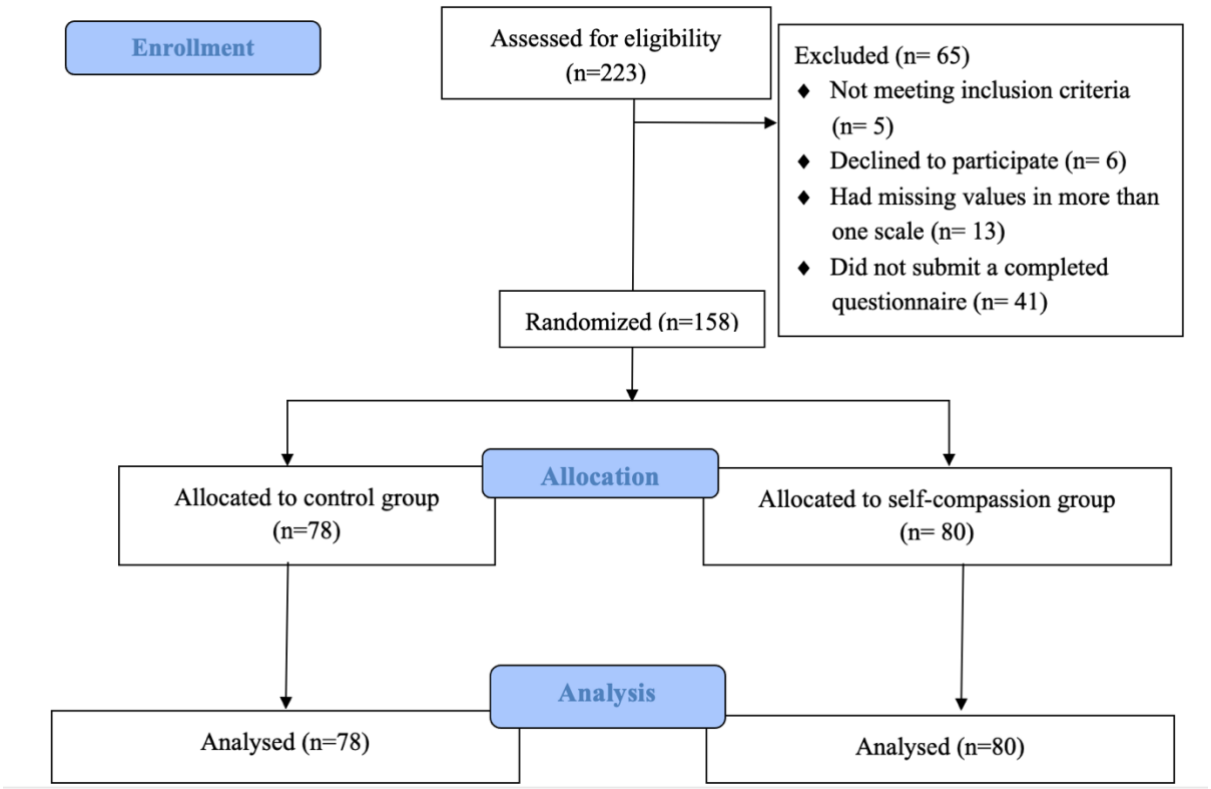
between two groups (self-compassion and control) with one covariate (trait self-compassion). This analysis indicated a minimum total sample size of 128 participants.

4.4.2.1. Main sample

A total of 223 individuals started the online study. After checking data, those participants who did not meet the inclusion criteria (n = 5), did not provide consent (n = 6), had missing values in more than one scale (n = 13), or who did not submit a completed questionnaire (n = 41) were not included in the analysis. Therefore, the final sample consisted of 158 female participants randomly allocated to either the control group (n = 78) or the self-compassion group (n = 80). Participants in the final sample ranged in age from 18 to 67 years (M = 33.21, SD = 10.82). Figure 2 illustrates the flow of participants across the study.

Figure 2

CONSORT diagram showing the flow of participants through the study



4.4.2.2. Supplementary sample

Due to the inadvertent error noted in the procedure section, participants in the control condition did not complete the manipulation check measure (state self-compassion) after their allocated induction. Thus, a supplementary control group was recruited to provide baseline state self-compassion scores against which the self-compassion intervention group scores would be compared.

Participants were recruited through social media websites. Women were invited to participate in a study investigating personality and physical self-perceptions. A total of 82 participants attempted to complete the study online. After checking data, those participants that did not meet the inclusion criteria (n = 6), did not provide consent (n = 11), did not submit a completed questionnaire (n = 5), or did not complete state self-compassion were not

included in the analysis (n = 12). The final sample consisted of 48 female participants. Participants ranged in age from 18 to 52 (M *age* = 31.79, *SD* = 9.07). The demographic characteristics of the main sample and supplementary sample are shown in Table 1.

Table 1. *Demographic characteristics of participants in the main and supplementary samples*

	Main sample *(n = 158)*		Supplementary sample (*n = 48*)	
	n	%	n	%
Background				
European	125	79.1	30	62.5
Hispanic	10	6.3	11	22.9
Other	23	14.5	7	14.7
Language				
English	88	55.9	31	64.6
Spanish	15	9.2	12	25.0
Others	55	34.9	5	10.4
Relationship Status				
Single	52	32.9	19	39.6
Married or living with a partner	97	61.4	28	58.3
Separated or divorced	9	5.7	1	2.1
Highest educational level				
Post-graduate level	48	30.4	13	27.1
University or College	81	51.3	20	41.7
High school	25	15.8	12	25.0
Basic Education	3	1.9	1	2.1
Other	1	0.6	2	4.2
Employment				
Student	42	26.6	12	25.0
Employed part-time	31	19.6	14	29.2
Employed full-time	80	50.6	20	41.7
Sickness leave	5	3.2	2	4.2

4.4.3. Materials

*Self-compassion induction. S*elf-compassion was manipulated through an induction adapted from that used by Leary et al. (2007). Participants were asked to think of a recent negative event or experience when they had felt dissatisfied with their body and felt badly

about themselves. Participants were then instructed to describe the event in detail in the text box provided, trying to recall as much information as possible including what happened (e.g., who they were with, how they felt and what they did at the time).

Once participants had finished writing about the event, they were asked to write about the event in response to three cues designed to induce a self-compassionate perspective, based on the three core components of self-compassion (Neff, 2003a). The first cue was based on the common humanity component of self-compassion and instructed participants to list different manners in which other people also experience similar events. The second cue was based on the self-kindness component of self-compassion and instructed participants to write a paragraph expressing kindness, understanding and concern to themselves as they might express concern to a friend who has been through the same experience. The third cue was based on the mindfulness component of self-compassion and instructed participants to describe their feelings about the event from a balanced and unemotional perspective.

Control induction. Participants allocated to the control induction were only asked to think of a recent negative event or experience when they had felt dissatisfied with their body that made them feel badly about themselves. The aim was to elicit a neutral summary of the event, and thus the instructions did not mention any components of self-compassion. Participants were then instructed to describe the event in detail in the text box provided, trying to recall as much information as possible including what happened, who they were with, how they felt and what they did at the time. Once they finished writing about the event, participants were then asked to read the text they had written and take some time to reflect on the event.

4.4.4. Measures

Measures were presented in the following order: demographic questions and trait self-compassion prior to the manipulation, and then the following measures after the

manipulation: state self-compassion (manipulation check), positive and negative affect, appearance / activation of non-appearance schemas, positive / narrow momentary thought-action repertoires and body dissatisfaction.

Demographic measures: Participants were asked report their age, gender, nationality, level of education, first language, ethnic background, and relationship status.

Trait self-compassion. Trait self-compassion was measured by using the 12-item version of the Self-Compassion Scale (SCS-SF; Raes et al., 2011). The SCS-SF has demonstrated a high association with the long form SCS (r = .97; Raes et al., 2011). This self-report scale evaluates the three core components of self-compassion and their counterparts: Self-kindness (self-judgement), common humanity (isolation), and mindfulness (over-identification). Items include “I try to be understanding and patient towards those aspects of my personality I don’t like” (self-kindness), “I’m disapproving and judgmental about my own flaws and inadequacies” (self-judgment), “I try to see failings as part of the human nature” (common humanity) “when I fail at something that’s important to me, I tend to feel alone in my failure” (isolation), “when something painful happens I try to take a balanced view of the situation” (mindfulness), and “when I fail at something important to me I become consumed by feelings of inadequacy” (over-identification). Participants responded to each item on a scale from 1 (almost never) to 5 (almost always). An overall score was calculated by reverse scoring negative subscale items (self-judgment, isolation, and over-identification) and computing a mean across all items. In the current sample, internal reliability as measured by Cronbach’s alpha was .87.

State self-compassion. To test whether the manipulation effected self-compassion as intended, participants answered a series of questions adapted from the manipulation check developed by Leary et al. (2007). These questions focused on the three core components of self-compassion: a) kindness: "Overall, how kind do you feel towards yourself regarding your

body?" 1 (Not at all) to 5 (Very much), b) common humanity: “Overall, how different is your body from most other people's body?” ranging from 1 (Not at all) to 5 (Very much), and 3) mindfulness: "Overall, how balanced and unemotional do you feel towards your body?" 1 (Not at all) to 5 (Very much). In the current sample, internal consistency reliability as measured by Cronbach’s alpha was .70.

Positive and Negative Affect. To measure positive and negative affect, the Positive and Negative Affect Schedule (PANAS) Short Form (I-PANAS-SF; Thompson, 2007) was used. The I-PANAS-SF is a scale composed of two subscales, one for positive affect (PA; 5 items) and one for negative affect (NA; 5-items). The PANAS consists of 10 items that describe feelings and emotions (e.g., NA: upset, PA: inspired). Participants were asked to read the items and score each item on a scale from 1 (very slightly or not at all) to 5 (extremely) to indicate the extent they feel “this way” at the present moment. Scoring was obtained by adding up the scores of PA and NA, ranging from 5 to 25. Higher scores on the PA scale are interpreted as higher levels of positive affect. Higher scores on the NA scale are interpreted as higher levels of negative affect. In the current sample, internal consistency as measured by Cronbach’s alpha was .81 for negative affect and.78 for positive affect.

Activation of appearance / non-appearance schemas. Due to the fact that activation of appearance schemas is considered an automatic process that is unconscious, a word-stem completion task (Tiggemann et al., 2004) was used as an implicit measure. The word-stem completion task assesses activation of appearance and weight-schema. Participants were asked to complete a series of 20 word-stems with the first word that comes to their mind (e.g., “THI___” that can be completed as “THIN” or “THIS”, etc.). To calculate the score, two independent coders classified each word as either related to appearance or non-appearance. Using the first rater’s coding, a score reflecting activation of appearance schema was calculated by adding up all appearance-related words given by each participant. A score

reflecting non-appearance schema was calculated by adding up all non-appearance-related words given by each participant. Scores on the word-stem completion task have been found to be significantly associated with measures of body dissatisfaction, social comparison and general appearance dissatisfaction (Hargreaves & Tiggemann, 2002; Tiggemann & Slater, 2004). Interrater reliability was found to be Cohen's kappa = 0.95 which is interpreted as almost perfect agreement according to McHugh (2012).

Broad / narrow momentary thought-action repertoires. To measure both broad and narrow momentary thought-action repertoires, a modified version of the TST has been previously utilized to measure breadth of temporary thought-action repertoires (Fredrickson & Branigan, 2005); such modification consisted of changing the statement of "*I am*" to "*I would like to*". For the purpose of Study 2, the TST was adapted, this adaptation consisted of changing the statement of "*I am*" to "*When you think about your body, what would you like to do?"*. Participants were then asked to list all the things they would like to do after completing their allocated induction (self-compassion or control) when they think about their body.

As previously noted, we expected women high in self-compassion to have more positive momentary thought-action repertoires and women low in self-compassion to have more narrow momentary thought-action repertoires. Thus, the current study separated participants' responses into distinct measures of broad momentary-thought action repertoires and narrow momentary thought-action repertoires. To allocate responses into broad momentary-though action repertoires and narrow momentary thought-action repertoires, the following process was followed. First, five categories to allocate participants' responses were created. The first two categories focused on body functionality (see Alleva et al., 2015) and focused on thoughts and activities related to: 1) changing or enhancing body health /functionality (e.g., eating, strength, healing from an illness) and 2) appreciating one's body (e.g., love my body, appreciate my body, hug my body). The next two categories focused on

3) changing or enhancing body appearance (e.g., cosmetic surgery, to feel pretty, diet), and 4) denigrating the body (e.g., fat, ugly, shout, cry, stupid). The fifth category was created to allocate ambiguous thoughts and activities (e.g., exercise, work out, to be fit). To calculate a score for the two sets of thought-action repertoires, two independent coders classified the statements generated by the participants into the five categories. Using the first rater's coding, sum scores were calculated for categories 1 and 2 collapsed together to obtain a score reflecting broad momentary thought-action repertoires, and categories 3 and 4 were collapsed together to obtain a score reflecting narrow momentary thought-action repertoires. Interrater reliability was found to be Cohen's kappa = 0.91 which is interpreted as almost perfect agreement according to McHugh (2012).

Body dissatisfaction. Body dissatisfaction was measured using the Body Areas Satisfaction Subscale (BASS; Cash, 2002b) of the Multidimensional Body-Self Relations Questionnaire (MBSRQ; Cash, 2000) that consists of 9 items. This self-report subscale assesses eight different body areas and attributes including overall appearance. Participants evaluated body parts such as: face, chest or breasts (upper torso), waist or stomach (mid torso), muscle tone, height, and weight. Participants scored each item on a scale from 1 (*extremely dissatisfied*) to 5 (*extremely satisfied*). High scores are interpreted as body satisfaction. In the current sample, internal consistency reliability as measured by Cronbach's alpha was .85.

4.5. Results

All analyses were performed using SPSS version 24. The analytic strategy for each analysis is described at the start of each relevant section.

4.5.1. Randomization check

To assess whether the random assignment resulted in equivalent groups of participants in the two conditions, a series of analyses were conducted to compare the

demographic characteristics of the participants. First, an independent samples t-test was performed to examine whether there was a difference in age between the main sample group and the supplementary sample group. There was no significant difference in scores between the main sample group (M = 33.21, SD = 10.82) and the supplementary sample group (M = 31.79, SD = 9.07); t(204) = 0.82, p = .41. Next, a series of chi-square tests was performed to compare differences in other relevant demographic variables between the main sample group and the supplementary sample group. There was no significant difference between the highest level of education, χ^2 (4, n = 206) = 5.71, p = .221, relationship status, χ^2 (3, n = 206) = 1.66, p = .645, and employment status, χ^2 (4, n = 206) = 4.68, p = .321. However, there was a significant difference in ethnic/cultural background, χ^2 (5, n = 206) = 12.54, p = .028: there were more Hispanic participants in the supplementary group compared to the main sample group.

4.5.2. Test of assumptions

The data was then checked for missing values, but none were found. Next, assumptions of normality, linearity, homogeneity of variances, homogeneity of regression slopes, and reliable measurement of the covariate were checked and were generally found to be met. Two outliers were identified by histograms and box plots. A normal distribution was found in most of the variables except for broad momentary thought-action repertoire and narrow momentary thought-action repertoire. To remove the skew in both variables data was transformed using a log transformation and square root. However, neither transformation made an appreciable difference to the outcomes, and thus the untransformed data was used to conduct the analyses. The main analyses were conducted twice, first with outliers (n = 2) unchanged and secondly with the outliers windsorized to be equal to the next highest score (Lien & Balakrishnan, 2005). The results showed that the main analysis was not significantly affected by the outliers; therefore, the current analyses included outliers to maximize all the data that was collected.

4.5.3. Correlation analyses and descriptive statistics

The data for broad momentary thought-action repertoires and narrow momentary thought-action repertoires were found to be positively skewed. Logarithm and square root transformations did not make a substantial difference to the outcomes. Therefore, Spearman's Rho (non-parametric test) was used to investigate the associations between broad momentary thought-action repertoire, narrow thought-action repertoire, and the other variables. Pearson's correlation coefficient (the parametric test) was used to examine the associations between all the measures with normally distributed data: trait self-compassion, state self-compassion, body dissatisfaction, negative affect, positive affect, activation of appearance schemas, and activation of non-appearance schemas.

Table 2 shows the descriptive statistics and internal consistency of the measures. Table 3 shows the bivariate correlations between all of the variables, with a note indicating the use of Spearman's Rho correlation analyses. As expected, state self-compassion (the manipulation check) was significantly negatively associated with negative affect and body dissatisfaction. There was no association between state self-compassion and narrow momentary thought action repertoires and activation of appearance schemas. State self-compassion was, however, positively associated with positive affect and trait self-compassion. There was no significant association between state self-compassion and broad momentary thought action repertoires, and activation of non-appearance schemas.

In addition, body dissatisfaction was negatively associated with trait self-compassion, state self-compassion, positive affect, positive momentary thought action repertoires of cognition and positively associated with negative affect and narrow momentary thought action repertoires. There was no significant association between body dissatisfaction and activation of appearance schemas.

These findings suggest that women who had higher body dissatisfaction typically have lower broad momentary thought-action repertoires and higher narrow momentary thought-action repertories.

Table 2. *Descriptive statistics for control group and self-compassion group.*

	Total (*N= 158*)		Control group (*n=78*)	Self-compassion group (*n= 80*)	Self-compassion supplementary group (*n= 48*)		
	M *(SD)*	α	M *(SD)*	M *(SD)*	M *(SD)*	t	*p*
Age	33.21 (10.82)	N/A	32.37 *(10.32)*	34.05 *(11.31)*	31.79 *(9.07)*	-0.97	0.279
Trait self-compassion	3.01 *(0.75)*	0.87	3.00 *(0.76)*	3.02 *(0.74)*	2.81 *(0.80)*	-0.17	0.811
State self-compassion	*3.03 (0.86)*	0.7	3.02 *(0.73)*	3.06 *(0.81)*	2.85 *(0.94)*	1.45	0.628
Body dissatisfaction	3.04 *(0.77)*	0.85	3.02 *(0.73)*	3.06 *(0.81)*	N/A	-0.34	0.445
Positive affect	2.96 *(0.89)*	0.78	2.85 *(0.90)*	3.08 *(0.88)*	N/A	1.68	0.986
Negative affect	2.13 *(0.85)*	0.81	2.16 *(0.83)*	2.10 *(0.87)*	N/A	0.46	0.865
Appearance schema activation	4.67 *(2.58)*	0.95	4.92 *(2.62)*	4.41 *(2.53)*	N/A	1.23	0.689
Non-appearance schema activation	14.58 *(2.70)*	0.95	14.25 *(2.77)*	14.92 *(2.60)*	N/A	-1.57	0.365
Broad breadth of cognition	3.31 *(4.13)*	N/A	3.31 *(4.42)*	3.34 *(3.99)*	N/A	0.04	0.377
Narrow breadth of cognition	1.82 *(2.16)*	N/A	1.89 *(2.01)*	1.78 *(2.42)*	N/A	0.32	0.736

Note. T- values comparing self-compassion group and control group. N/A: Not Applicable

Table 3. *Pearson's correlations among variables.*

Measure	1	2	3	4	5	6	7	8	9
1. Body dissatisfaction	1								
2. Trait self-compassion	-.47**	1							
3. State Self-compassion	-.65**	.53**	1						
4. Positive Affect	-.34**	.36**	.29*	1					
5. Negative Affect	.34**	-.36**	-.53**	-.15*	1				
6.Appearance Schema Activation	.13	-.20*	-.14	-.08	.08	1			
7. Non-appearance Schema activation	-.07	.07	-.03	.08	-.05	-.91**	1		
8. Broad momentary thought-action repertoires	-.19*	.13	.18	.07	-.08	-.16*	.13	1	
9. Narrow momentary thought-action repertoires	.18*	-.12	-.12	-.10	-.01	.19*	-.14	.05	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Note. $N = 158$ for all except for state self-compassion ($n = 78$).

4.5.4. Manipulation Check

State self-compassion was measured as check on the effectiveness of the self-compassion manipulation. Due to the lack of state self-compassion scores in the control group, a supplementary control group was recruited to provide scores for state self-compassion to compare against the experimental group. An independent t-test was conducted to determine whether there were significant differences between state self-compassion in the self-compassion manipulation group and the control group. No significant difference in scores was found between the self-compassion manipulation group (M = 3.03, SD = 0.86) and the supplementary control group (M = 2.85, SD = 0.94); $t(125) = 1.126$, $p = .263$. Thus, contrary to expectations, there was no evidence that the self-compassion manipulation influenced participants' state self-compassion.

4.5.5. Test of Hypothesis 1: Analysis of Covariance

An ANCOVA with self-compassion manipulation as the between-subjects factor and trait self-compassion as the covariate was planned to test Hypothesis 1. To reduce the likelihood of finding a difference by chance (Type 1 error), Bonferroni corrections were used. The ANCOVA revealed that there was no significant difference between the experimental group and the control group on any of the outcome measures: body dissatisfaction, positive affect, negative affect, activation of appearance schemas, activation of non-appearance schemas, broad momentary thought-action repertoires, narrow momentary thought-action repertoires. Table 4 shows the main effect of the group (self-compassion vs control).

Table 4. *Results for the main effect of group controlling for trait self-compassion (N = 158).*

		Estimated Marginal Means			
		Control Group		Self-compassion manipulation group	
Measure	Test statistics + Effect size	*M*	*SD*	*M*	*SD*
Body Dissatisfaction	$F(1,155) = 0.22$, $p = 0.636$ [b] $\eta_p^2 = .001$	3.02[a]	0.07	3.07[a]	0.07
Positive affect	$F(1,155) = 2.99$, $p = 0.086$ [b] $\eta_p^2 = .019$	2.85[a]	0.09	3.08[a]	0.09
Negative affect	$F(1,155) = 0.18$, $p = 0.667$ [b] $\eta_p^2 = .001$	2.16[a]	0.09	2.10[a]	0.90
Appearance schema activation	$F(1,155) = 1.49$, $p = 0.224$ [b] $\eta_p^2 = .010$	4.91[a]	0.28	4.42[a]	0.28
Non-appearance schema activation	$F(1,155) = 2.41$, $p = 0.122$ [b] $\eta_p^2 = .015$	14.25[a]	0.30	14.92[a]	0.30
Broad momentary thought-action repertoires	$F(1,155) = 0.00$, $p = 0.991$ [b] $\eta_p^2 = .000$	3.32[a]	0.47	3.33[a]	0.47
Narrow momentary thought-action repertoires	$F(1,155) = 0.09$, $p = 0.762$ [b] $\eta_p^2 = .001$	1.89[a]	0.25	1.78[a]	0.25

a. Covariates appearing in the model are evaluated at the following values: Trait self-compassion Mean = 3.0100.
b. Adjustment for multiple comparisons: Bonferroni

4.5.6. Test of Hypotheses 2a-2f: Mediation analyses

A mediation analyses was planned to test hypotheses H2a to H2f using Model 4 of PROCESSS macro (Hayes, 2013) to examine the direct and indirect pathways through which baseline state self-compassion might have an effect on post-test body dissatisfaction through one of the mediator variables. The planned mediator variables are: M1) positive affect, M2) negative affect, M3) activation of appearance schemas, M4) activation of non-appearance schemas, M5) broad momentary thought-action repertoires and M6) narrow momentary thought-action repertoires. The mediation model was not possible to test because there were no differences between groups in body dissatisfaction. However, there was a relationship between trait self-compassion and body dissatisfaction. Therefore, trait self-compassion was used: this strategy allowed to examine how individual differences in trait self-compassion influenced body dissatisfaction via the mediator variables. Figure 3 presents each of the six mediation models separately, displaying the direct effects between each pair of variables.

Figure 3

Mediation models for the relationship between trait self-compassion and body dissatisfaction.

Note. Total effect is shown in parenthesis. * $p < .05$ ** $p < .01$, *** $p < .001$

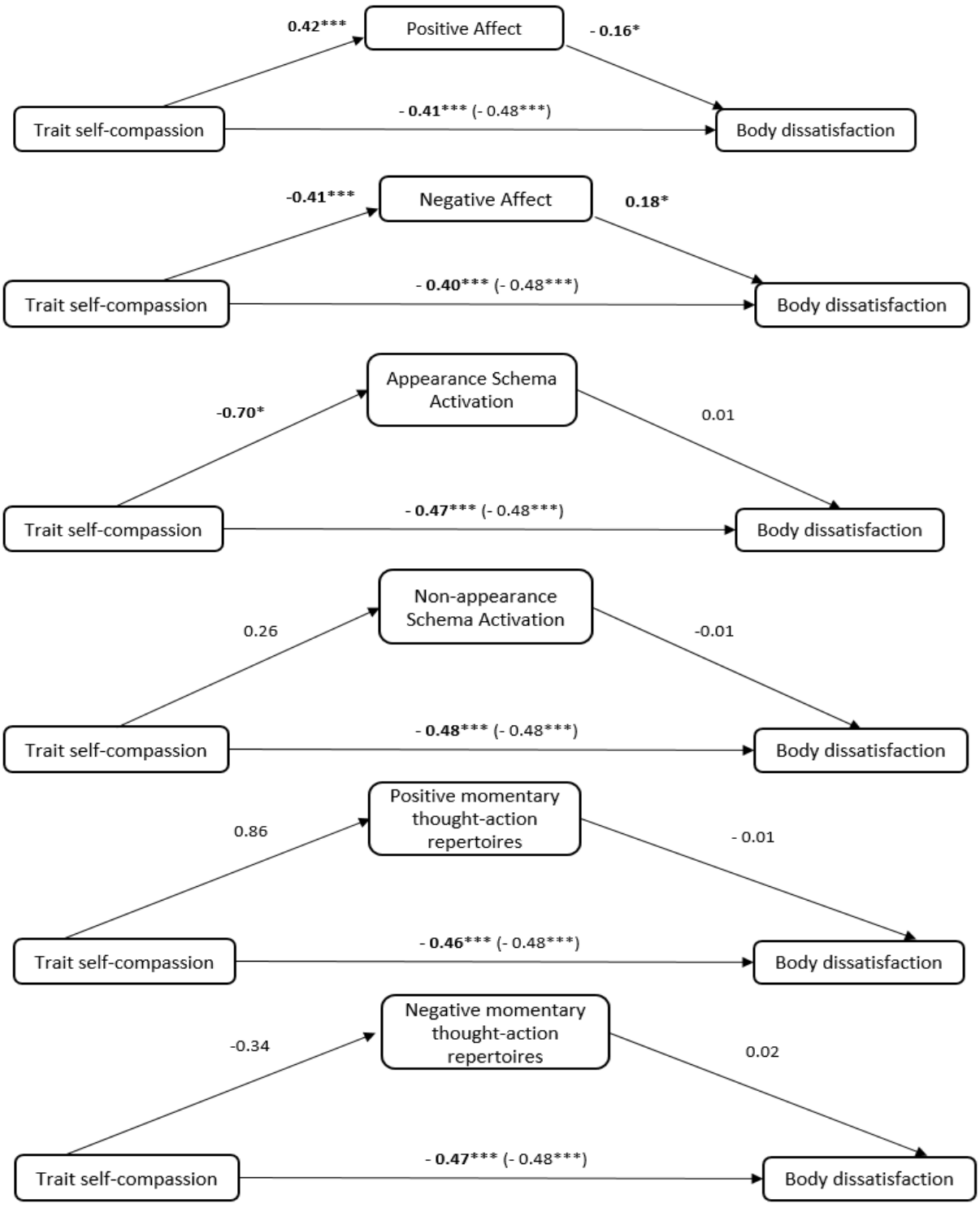


Table 5 shows the indirect effects tested in each mediation model, between trait self-compassion and body dissatisfaction via each mediator variable. A significant indirect effect was observed only for positive affect, 95% CI [-0.1504 to -0.0037] and negative affect, 95% CI [-0.1455 to -0.0185]. Activation of appearance schemas, activation of non-appearance schemas, broad momentary thought-action repertoires and narrow momentary thought-action repertoires did not mediate the relationship between trait self-compassion and body dissatisfaction. These findings suggest that only positive affect and negative affect may account for the relationship between trait self-compassion and body dissatisfaction. Importantly, these findings provide support for hypothesis H2a and H3a.

Table 5. *Unstandardized pathway coefficients for all indirect effects in the six mediation models (n = 158)*

	Indirect effect path	Effect	*SE*	Lower 95% CI	Upper 95% CI
1.	**Trait self-compassion → Positive affect → Body dissatisfaction**	-0.07	-0.03	**-0.1504**	**-0.0037**
2.	**Trait self-compassion → Negative affect → Body dissatisfaction**	-0.07	0.03	**-0.1455**	**-0.0185**
3.	Trait self-compassion → Appearance schema activation → Body dissatisfaction	-0.00	0.01	-0.0426	0.0209
4.	Trait self-compassion → Non-appearance schema activation → Body dissatisfaction	0.00	0.00	-0.0218	0.0115
5.	Trait self-compassion → Broad momentary thought-action repertoires → Body dissatisfaction	-0.01	0.01	-0.0659	0.0125
6.	Trait self-compassion → Narrow momentary thought-action repertoires → Body dissatisfaction	-0.00	0.01	-0.0372	0.0174

4.6. Discussion

Study 2 aimed to investigate (i) whether a self-compassion manipulation would lower levels of body dissatisfaction and (ii) whether this effect would be mediated by: 1) increased positive affect, 2) lowered negative affect, 3) increased activation of non-appearance schemas, 4) lowered activation of appearance schemas, 4) increased broad momentary thought-action repertoires, and 5) lowered narrow momentary thought-action repertoires. However, Study 2 found no significant differences in state self-compassion between the intervention group and the control group. This suggests that the self-compassion induction may not have had any effect on the participants allocated to that group. These results are not consistent with Leary et al., (2007) as they have used a similar induction successfully to increase self-compassion compared to a control condition that induced self-esteem. Additionally, Study 2 found no differences between participants in the self-compassion group and participants in the control group on any of the six main variables: body dissatisfaction, positive affect, negative affect, activation of appearance schemas, activation of non-appearance schemas, broad momentary thought-action repertoires, and narrow momentary thought-action repertoires.

One potential explanation for not finding any significant differences between groups is that participants chose their own negative event when completing the writing task in the two conditions. A range of events may have been chosen which may have introduced additional unexplained variance. For example, some events may not have been very significant or impactful in relation to body image (e.g., I was trying on some clothes and struggling to find anything that I liked that fit), whereas other events may have been much more significant and relevant (e.g., “I had a miscarriage … and I felt as if my body had failed me”). Therefore, it is possible that participants did not consistently reflect on the negative implications of the chosen event for body image.

Another explanation for this finding is that the self-compassion induction did not have the intended effect because participants did not understand the instructions or / and were not able to respond to one or all self-compassion cues. For example, the cue based on common humanity instructed participants to list different ways in which other people experience similar events. However, results indicated that some people were not able to make this list. One participant answered, "in all honesty I cannot think of anyone at the top of my mind that I believe feels the way that I feel about my body…". Other participants answered, "What do you mean with different ways?", "I am not sure, I do not talk about it", "no idea" and "I don't know". It is likely that the lack of understanding did not allow the participant to broad their scope of thinking to consider that their experience may reflect part of the shared human experience and so kept a narrow thinking regarding their body.

4.6.1 Understanding the relationship between trait self-compassion and body dissatisfaction

Given that the self-compassion manipulation did not seem to increase state self-compassion as intended, Study 2 focused on the mechanisms that potentially explain the relationship between trait self-compassion and body dissatisfaction (Wasylkiw et al., 2012; Albertson et al., 2015). Specifically, six mechanisms were proposed based on previous research: positive affect, negative affect, broad thought-action repertoires, narrow thought-action repertoires, and activation of appearance and non-appearance schemas. The sections below review the results for each proposed mediator.

4.6.1. Positive and negative affect

Study 2 found that women who have greater trait self-compassion experience greater positive affect, less negative affect, and lower levels of body dissatisfaction. These results are consistent with previous findings (Leary et al., 2007; Neff et al., 2007; Neff & Vonk, 2009; Wasylkiw et al., 2012; Ferreira et al., 2013; Albertson et al., 2015). The mediation model

revealed that only positive affect and negative affect mediate the relationship between trait self-compassion and body dissatisfaction. These findings contribute to existing knowledge (Albertson et al., 2015; Ferreira et al., 2013; Pinto-Gouveia et al., 2014) by providing the first direct evidence that positive and negative affect are two mechanisms that can explain the relationship between trait self-compassion and body dissatisfaction in women.

4.6.2. Broad momentary thought-action repertoires and narrow momentary thought action repertoires.

Study 2 found that broad momentary thought-action repertoires and narrow momentary thought-action repertoires were not associated with trait self-compassion. This may have occurred because momentary thought-action repertoire is a cognitive process that focuses on thought and behaviour (Fredrickson, 1998), whereas self-compassion is directly associated with feelings of compassion for others and oneself (Neff, 2003a). However, body dissatisfaction was negatively associated with broad momentary thought-action repertoires and positively associated with narrow momentary thought-action repertoires. These results are consistent with the broaden hypothesis of the theory of positive emotions (Fredrickson, 1998). Broad momentary thought-action repertoires can be considered as ways of broadening women's thinking regarding their body image, whereas narrow momentary thought-action repertoires could narrow women's thinking regarding their body image. Further research is needed to determine causality.

4.6.3. Activation of appearance schemas and activation of non-appearance schemas

Study 2 found that activation of appearance schemas and activation of non-appearance schemas were not associated with body dissatisfaction in this study. This finding contradicts results from previous research, which has shown a positive association between activation of appearance schemas and body dissatisfaction (Altabe & Thompson, 1996; Hargreaves & Tiggemann, 2002). For example, Hargreaves and Tiggemann (2002) found that

women exposed to media commercials where the thin ideal was portrayed increased anger and body dissatisfaction compared to women in the control group. Their research showed that appearance schema activates when women are exposed to media commercials.

4.6.4. Theoretical implications

The findings of Study 2 offer a novel insight into the mechanisms that explain how trait self-compassion can lower body dissatisfaction in women. Previous research has documented the effectiveness of self-compassion interventions to lower levels of body dissatisfaction in women (Albertson et al., 2015, Amy et al., 2020). However, less is known about factors and processes that would be influenced by self-compassion. Study 2 is the first to demonstrate that positive affect and negative affect are mechanisms through which trait self-compassion operates.

One potential explanation for these findings draws on the concept of mood congruent attentional selectivity, which posits that mood can cause people to focus on features of their situation that are congruent with their mood and filter out features that are incongruent, so that their perception of sensory information is changed (Calvo & Nummenmaa, 2007; Chun & Turk-Browne, 2007; Sanchez, et al., 2014). For example, pleasant moods can lead people to pick out the positive aspects of their surroundings and interactions and ignore the negative aspects. These effects occur through a number of mechanisms such as priming associated memories, altering processing, and providing information (e.g., Ellenbogen et al., 2002; MacLeod et al., 2002; Sanchez et al., 2014). Therefore, it is possible that negative affect makes people more likely to retrieve negative associations from memory and direct attention towards the self (e.g., “I am not good enough), and can inform women that something is wrong, which they may misattribute to their body dissatisfaction. On the contrary, positive affect could make women more likely to retrieve positive associations from memory and direct attention towards themselves (e.g., “I am overweight, but we all have different sizes

and shapes) and inform women that they can adopt a self-compassionate attitude when they feel dissatisfied with their body.

In addition, research has found that self-compassion is associated with more positive emotions, less negative emotions and lower levels of depressive symptoms in healthy and clinical samples (Neff et al., 2007; Neff & McGeehee, 2010). Practicing self-compassion has been found to result in increases happiness and decrease levels of depression (Shapira & Mongrain, 2010). These findings suggest that self-compassion can help individuals to regulate their emotions.

The central role of affect means that Study 2 provides a new potential line of research for understanding body dissatisfaction from a positive psychology perspective. To the knowledge of the researcher no previous study has used the broaden and build theory of positive emotions (Fredrickson, 2001) to explain body dissatisfaction. Study 2 used the theory to test the mediation role of broad momentary thought action repertoires and narrow momentary action repertoires. Although these mediators were not significant, results indicated a link between both momentary thought-action repertoires and body dissatisfaction. Further research could investigate the association between body dissatisfaction and broad momentary thought-action repertoires and narrow momentary thought-action repertoires. Specifically, it would be beneficial to focus on causality and find out whether body dissatisfaction leads to narrow momentary thought-action repertoires or vice versa. This would then help researchers to conduct longitudinal studies and test interventions focused on the cognitive aspect of body dissatisfaction from a positive psychology perspective (e.g., protective factors). In addition, understanding the role of broad momentary thought-action repertoires could help researchers to improve interventions focused on positive body image, body appreciation, and body compassion. Researchers will then need to test such

interventions and variables in both cross-sectional and longitudinal studies to determine the role of broad momentary thought-action repertoires.

4.6.5. Limitations and future directions

The specific focus of this research provides some opportunities for future research. First, replication of Study 2 is required. Due to an error, participants in the control condition did not complete the state self-compassion measure (which was intended as a manipulation check) after their allocated induction. To amend this, a supplementary control sample was recruited to provide normative scores. This way, it was possible to determine whether there was a difference in state self-compassion (manipulation check) between the control and experimental condition. However, a significant difference was not found. One explanation of this result is that the self-compassion manipulation did not work as intended. This may be because the self-compassion induction was completed by the participants only once; this brief and one-time intervention may not have been sufficient to help women overcome the negative portrayal of women's bodies they constantly encounter in society, such as media messages that reinforce the thin ideal internalization (Thompson & Stice, 2001). This suggests that a more intensive and longer-term intervention is needed to help women to respond with self-compassion and to test whether such responses influence women's views about the body and body image. This issue is addressed in the third and final study of this thesis.

Second, there is scope to develop a validated and reliable scale to measure momentary thought-action repertoires. Study 2 used an adapted version of the Twenty Statements Test (TST; Kuhn & McPartland, 1954) that Fredrickson (2001; Fredrickson & Branigan, 2005) employed to assess momentary thought-action repertoires. However, to date, a validated and reliable scale has not been introduced yet. Therefore, the results of Study 2 need to be interpreted carefully. Future research should focus on finding ways to better test momentary

thought-action repertoires. For example, researchers could use the adapted version of the TST (Kuhn & McPartland, 1954) to pilot the question "*When you think about your body, what would you like to do?"* and find out whether this question really measures momentary thought-action repertoires.

Third, the presentation of measures was not randomized in the online questionnaire. The choice to present the measures in a fixed order was made based on the format of questionnaires used in previous research (e.g., Ferreira et al., 2013). Therefore, in all these studies, it is possible that participants' responses were influenced by the order in which the measures were presented. One way to confirm the role of order effects on responses is to replicate the study with the order of all post-manipulation measures randomized in the questionnaire.

Fourth, the items used to measure state self-compassion may not have been the best way to measure the extent to which people treat themselves with kindness, connectedness, and balance when experiencing body dissatisfaction. The current study used a version of the state self-compassion scale developed by Leary et al. (2007) tailored to make it body related. However, the items may have been difficult for the participant to understand (e.g., "Overall, how different is your body from most other people's body?"). To address this issue, the three items used from Leary et al., (2007) could be replaced by three items from the body compassion scale (Altman et al., 2020). The three items mentioned above may provide a better way to measure state self-compassion because they include the multidimensional construct of body image and the three core concepts of self-compassion (i.e., self-kindness, common humanity and mindfulness). For example, the item "when I wish some aspect of my body looked different, it feels like no one else understands my struggle" captures the appearance component of body image and the common humanity subscale of self-compassion. The item "I am accepting of the way I look without my clothes on" focuses on

the appearance component of body image and the kindness component of self-compassion. The item “when I am feeling physically uncomfortable, I tend to obsess and fixate on everything that is wrong” captures the cognitive component of body image and the overthinking subscale of self-compassion. Further research is needed to confirm whether these items are appropriate to measure state self-compassion.

Finally, because the manipulation of self-compassion did not influence outcomes, regardless of having tried to avoid it, Study 2 focused on trait self-compassion and so the associations found between all variables in this study were based on cross-sectional data and a correlational design. This is a problem because it is not possible to determine the causal direction of the significant associations that were documented between the variables. To address this limitation, further experimental and longitudinal research is needed to investigate and confirm causality of the relationships found.

4.6.6. Conclusions

Study 2 aimed to expand research on self-compassion and body dissatisfaction by identifying potential mediators that may explain their relationship. Results demonstrated that positive affect and negative affect were significant mediators of the relationship between trait self-compassion and body dissatisfaction. Future experimental research should expand the current findings by (i) strengthening the manipulation of self-compassion, (ii) using a different manipulation of self-compassion, and (iii) examining potential mechanisms in a longitudinal study.

CHAPTER 5

STUDY 3: EXAMINING THE EFFECTS OF A LONGITUDINAL SELF-COMPASSION INTERVENTION ON BODY DISSATISFACTION IN WOMEN OVER TIME

The first general aim of this thesis is to identify the predictors of body dissatisfaction among women. Study 1 identified self-compassion as an independent predictor of body dissatisfaction. Study 2 then used an experimental design to investigate the effects of manipulating self-compassion (using a brief written task) on body dissatisfaction. Study 3 builds on Study 1 by focusing on self-compassion as a predictor of body dissatisfaction and builds on Study 2 by testing the impact of a 3-week self-compassion meditation intervention on body dissatisfaction over time.

The second general aim of this thesis is to identify mechanisms underpinning the effects of self-compassion on body dissatisfaction. Study 2 identified positive affect and negative affect as potential mediators of the relationship between self-compassion and body dissatisfaction. Study 3 builds on these findings by testing whether positive and negative affect mediate the relationship between self-compassion and body dissatisfaction in a longitudinal experimental design. Furthermore, Study 3 tests, for the first time, whether body image resilience also mediates the relationship between self-compassion and body dissatisfaction. Identifying the mechanisms that underpin the relationship between self-compassion and body dissatisfaction will help researchers to understand the process by which self-compassion influences body dissatisfaction.

Research has shown that self-compassion, a positive attitude towards oneself, has a negative relationship with body dissatisfaction (e.g., Pinto-Gouveia et al., 2014). In addition, experimental studies have shown a causal link between self-compassion and body dissatisfaction (e.g., Albertson et al., 2014). Some researchers have developed interventions to

increase self-compassion and, in turn, decrease body dissatisfaction (e.g., Albertson et al., 2014). However, few studies have conducted rigorous experimental tests of these interventions and almost none use longitudinal designs to look at the effect of interventions on outcomes over time. Furthermore, little is known about the potential mechanisms that may explain the relationship between self-compassion and body dissatisfaction.

Study 3 addresses these gaps in two ways: (1) by testing the effects of a self-compassion intervention on body dissatisfaction over time, and (2) by exploring the mechanisms underpinning the effects of trait self-compassion on body dissatisfaction over time. To develop the hypotheses, the sections below review the current research on self-compassion and body dissatisfaction and introduce three potential mediators that may explain the relationship between self-compassion and body dissatisfaction (i.e., positive and negative affect, along with resilience).

5.1 Self-compassion and body dissatisfaction

Research has found that women low in self-compassion are more likely to experience external shame and body dissatisfaction predicted by drive for thinness (Ferreira et al., 2013). Another study has shown that higher levels of self-compassion are associated with lower levels of body dissatisfaction, self-criticism and drive for thinness (e.g., Pinto-Gouveia et al., 2014). Additionally, research has found that high self-compassion predicts lower body concerns (e.g., Wasylkiw et al., 2012). Importantly, research has found that trait self-compassion mediates the relationship between body image disturbance and psychological distress in women survivors of breast cancer (Przezdziecki et al., 2013). However, such research used cross-sectional correlational designs, and thus does not provide definitive evidence of causality.

Intervention studies provide a more rigorous method of determining the effectiveness of self-compassion interventions in lowering levels of body dissatisfaction, due to their use of experimental designs, control conditions, and longitudinal designs to test effects over time.

The most recent example—at the time that the present study was designed—was Albertson et al., (2014) who tested a 3-week version of the 8-week "Mindful Self-compassion" meditation program (MSC; Neff & Germer, 2013) on levels of self-compassion and body dissatisfaction in women. Participants were randomly assigned to either a self-compassion meditation group or waitlist. Participants in the self-compassion meditation group were then asked to meditate once a day over 3 weeks. The average time that participants meditated during the week was 3.6 days (range 1-7). Albertson et al. found that participants assigned to the self-compassion meditation group reported a significant increase in trait self-compassion over time, compared to participants assigned to the waitlist group. In addition, trait self-compassion was positively associated with body appreciation and negatively associated with body dissatisfaction, body shame, and contingent self-worth based on appearance. Finally, a three-month follow-up of participants in the self-compassion meditation group revealed that levels of trait self-compassion, body appreciation, body dissatisfaction, body shame and contingent self-worth based on appearance were maintained after the intervention.

Although Albertson et al.'s (2014) findings are important in the field of self-compassion and body dissatisfaction, there are two aspects of their methodology that limit the interpretation of their results. First, the control group was made up of participants who were put on the waitlist to complete the meditation intervention. Albertson et al., recognize that having a waitlist group is an issue because participants in that both groups were not blind to the group to which they had been allocated: they knew that they were either part of an intervention that would deliver positive outcomes. This knowledge may have created a placebo effect, which refers to the positive outcome a participant experiences after receiving any medication or treatment that claims to have a certain therapeutic outcome (Hróbjartsson & Gotzsche, 2001). Measuring the effectiveness of the self-compassion meditation by comparing it with a no-treatment (waitlist) group is thus inadequate because the design meant that participants in the intervention

condition were not blind to condition and so outcomes may have improved due to placebo effects.

The second limitation of Albertson et al.'s (2014) study is that they did not test mechanisms that might underpin the relationship between trait self-compassion and body dissatisfaction. Albertson et al. (2014) speculate that the three components of self-compassion (self-kindness, common humanity and mindfulness) were the mechanisms through which the self-compassion intervention lowered levels of body dissatisfaction. However, these suggestions were not tested in their study. Thus, further research is needed to investigate potential mechanisms through which trait self-compassion helps women to lower levels of body dissatisfaction. By investigating the mechanisms that underpin the relationship between trait self-compassion and body dissatisfaction, it would be possible to better understand why there is a causal link between trait self-compassion and body dissatisfaction.

Study 3 aims to address these two limitations by replicating and extending Albertson et al.'s (2014) findings. To address the first limitation regarding the placebo effect, the present study used a relaxation meditation as an active control against which to compare the self-compassion meditation. A relaxation meditation was chosen because this kind of meditation does not overlap with any component of self-compassion, but yet participants receive an intervention and so might be as likely to expect positive effects as participants in the self-compassion meditation condition. In other words, placebo effects might be just as likely in both conditions. Relaxation meditation aims to induce an enjoyable deep state of body and mind (Hussain & Bhushan, 2010). In contrast, a self-compassion meditation aims to cultivate an attitude of kindness, compassion for oneself and unconditional love; it involves being open to negative feelings as they appear, without over-identifying with them (Neff, 2009b). In addition, to address the second limitation, Study 3 tests three mechanisms that potentially underpin the relationship between trait self-compassion and body dissatisfaction: 1) positive affect, 2)

negative affect, and 3) body image resilience. The first two variables were chosen based on Study 2 where positive affect and negative affect were found to mediate the association between trait self-compassion and body dissatisfaction. The reason for choosing resilience is because previous research has shown that self-compassion can help people to build emotional resilience (Neff & McGehee, 2010; Kemper et al., 2015) but to date, there is no experimental research to support such a claim. In the sections below a more in-depth review of the work on these mediators is provided.

5.2. Potential mediators of the relationship between self-compassion and body dissatisfaction

5.2.1. Positive and negative affect

Cross-sectional research has found that self-compassion is positively associated with positive affect and negatively associated with negative affect (Leary et al., 2007; Neff et al., 2007; Neff & Vonk, 2009). Researchers have found that self-compassionate individuals use kindness, human connectedness and a balanced perspective to find growth and meaning when they face difficulties in life (Neff et al., 2007). Additionally, it has been found that having a self-compassionate perspective about painful negative feelings is associated with a happier and optimistic mindset (Neff et al., 2007). In addition, self-compassion has been found to help individuals to find growth, explore and understand oneself and others in a more sensible way (Neff et al., 2007). Leary et al. (2007) found that self-compassion was negatively associated with imagined events that conveyed negative affect. In addition, they found that participants high in self-compassion had more positive emotions and less negative emotions than participants low self-compassion. Importantly, they found that self-compassion helps individuals to lessen the psychological impact of negative events. Together these findings are important because they provide evidence of the association between self-compassion and positive and negative affect.

Evidence of the causal link between self-compassion and affect has also been shown in experimental studies. For example, Leary et al. (2007) showed that participants allocated to a self-compassion induction condition reported lower levels of negative affect when facing a negative life event, compared to self-esteem induction and control condition. Additionally, Leary et al. found that participants high in self-compassion were more likely to express kindness to themselves and be more understanding with their emotions after being involved in an event which they thought was their fault. These findings are relevant because they demonstrate that self-compassion help individuals to buffer negative affect.

Previous research has also found evidence of a link between affect and body dissatisfaction (e.g., LePage & Crowther, 2010; Colautti et al., 2011). On the one hand, negative effect has been found to be positively associated with body dissatisfaction in clinical and non-clinical female samples (e.g., Johnson & Wardle, 2005; Dunkley et al., 2010). In addition, researchers have proposed models where negative affect is expected to increase body dissatisfaction (Keel et al., 2001; Tylka & Subich, 2004). For example, Tylka and Subich (2004) state that women who experience negative affect are more prone to internalize the thin ideal and allow negative feelings contaminate their body image. In addition, experimental research has found that a negative affect induction contributed to higher levels of negative affect and higher levels of body dissatisfaction (Haedt-Matt et al., 2012).Additionally, research has found that people high in positive affect are less likely to experience body dissatisfaction (Colautti et al., 2011). Importantly, experimental research has found that self-compassion and gratitude, both associated with positive affect, can lower levels of body dissatisfaction in women (Geraghty et al., 2010; Albertson et al., 2014). Together these findings suggest that positive and negative affect may be mechanisms underpinning the relationship between self-compassion and body dissatisfaction. However, further experimental research is needed to confirm this model.

5.2.2. Emotional resilience and body image resilience.

Emotional resilience refers to the ability to recover emotionally from difficulties or adversity (Carver, 1998; Tusaie & Dyer, 2004; Smith et al., 2008). For the purpose of this study, body image resilience is defined as the ability women have to emotionally recover when their body image and/or appearance has been compromised.

To date, the only published model of body image resilience (Choate, 2005) describes the social, structural, and psychological protective factors that improve body image, for example, support from family of origin and rejection of the superwoman ideal. However, this model does not define body image resilience as a concept and does not measure it directly. Additionally, research on this model has only considered how the protective factors predict more positive body image (Snapp et al., 2012).

Qualitative research has found that protective filtering and body image flexibility are two aspects that constitute positive body image that may help women to build resilience (Linardon et al., 2021; Evens, Stutterheim & Alleva, 2021). Positive body image has been defined as a multi-aspect construct that involves an overall sense of self-love, self-respect, and self-acceptance for one's body regardless of what the body should look like or should function according to society (Tylka & Wood-Barcalow, 2015; Wood-Barcalow et al., 2010). Protective filtering has been defined as a way of accepting information that is consistent with positive body image and that serves as a kind of shield to reject any message that could put positive body image at risk (Tylka & Wood-Barcalow, 2015). For example, women have reported to be aware of the unrealistic nature of the thin-ideal. In turn, such awareness has been found to help women to impede negative appearance-related messages that could potentially damage their positive body image (Wood-Barcalow et al., 2010). Therefore, protective filtering could be used as an active strategy which serves as a shield to reject negative body-related information.

Another component of positive body image is body image flexibility, which has been defined as the ability to experience thoughts or feelings about the body without reacting, avoiding, or changing them (Sandoz et al., 2013). A meta-analysis of the correlates of body image flexibility found that women high in body image flexibility are less likely to pursue societal appearance ideals, report concerns about their body, and show maladaptive attitudes and behaviours related to eating (Linardon et al., 2021). It is likely that body image flexibility offers a protective "coat" against body dissatisfaction and eating disturbances (e.g., bulimia and anorexia), through adaptive affect regulation (Webb et al., 2014).

To the researcher's knowledge, no research has looked at the relationship between body image resilience, trait self-compassion and body dissatisfaction; although there are indications that such relationships may exist. For example, research suggests that self-compassion can help people to build emotional resilience (Neff & McGehee, 2010; Kemper et al., 2015), because when people accept their flaws, acknowledge that they are part of a common shared experience, and accept negative thoughts and emotions when they arise (Aspinwall, 1998; Neff, 2003b) they are able to change negative affect to positive affect. It is expected that the same processes could mean that self-compassion also influences body image resilience. Since no previous research has focused on this question, however, it needs to be tested in the present study.

To date two sets of researchers have attempted to replicate Albertson et al.'s (2014) study. In 2016, Toole and Craighead conducted a study based on Albertson et al.'s method but they aimed to improve engagement and reduce attrition by reducing the time frame of the intervention from three weeks to one week. However, their results showed that reducing the time frame of the intervention did not increase participants' desire to meditate by themselves. In addition, their results did not show evidence of a significant improvement on self-compassion levels after the intervention. This finding is not consistent with Albertson et al.

(2014) who found that women in the self-compassion group had higher levels of self-compassion when compared to the waiting list group. Toole and Craighead (2016) believe that the discrepancy in results may be due to the small sample size in their study (where each group had 40 participants) compared to Albertson et al., where the control group had 130 participants and the intervention group had 90 participants. Although Toole and Craighead (2016) largely followed Albertson et al.'s method—with the exception of reducing the time frame of the intervention—they did not attempt to address the two limitations of Albertson et al.'s (2014) study that have previously been mentioned: namely, the lack of an active control group and no attempt to investigate mechanisms that may explain the relationship between self-compassion and body dissatisfaction.

In 2020, Amy et al. (2020) conducted a study based on Albertson et al.'s (2014) study. Similar to Toole and Craighead (2016), their study was conducted over a period of one week. However, Amy et al. (2020) addressed the first limitation of Albertson et al.'s (2014) study by including a guided imaginary meditation as an active control group. Amy et al., found that both groups showed higher levels of self-compassion and body appreciation, and lower levels of body shame. There was no effect on appearance contingent self-worth. Importantly, no interaction or main effect for group were found. In other words, regardless of the meditation group participants had an increase of self-compassion and body appreciation, and a decrease of body shame. Although Amy et al. (2020) included an active control group which addressed one of the major Albertson's study limitations, this study omitted the three-month follow-up and did not measure any potential mediators that might explain the relationship between self-compassion and body dissatisfaction. Therefore, further research is needed to fully address the two major limitations of the Albertson et al.'s (2014) study.

5.3. Overview of the current study

This study is a conceptual replication of Albertson et al. (2014) that also sought to extend this work in two ways. First, the self-compassion meditation was compared with a relaxation meditation, which served as an active control condition. The comparison to an active control is necessary to rule out the possibility that a placebo effect could explain Albertson et al.'s (2014) findings. The use of an active control also enables examination of whether a self-compassion meditation in particular influences trait self-compassion and body dissatisfaction, over and above more a general relaxation meditation. Study 3 also aimed to investigate whether positive affect, negative affect and body image resilience mediate the relationship between trait self-compassion and body dissatisfaction. This study aims to contribute to the research knowledge by identifying potential mechanisms that underpin the effects of trait self-compassion on body dissatisfaction over time.

Following Albertson et al.'s (2014) methodology, Study 3 used trait self-compassion and body dissatisfaction as the main outcome variables. In addition, an exploratory aim was to find out whether the effects found by Albertson et al.'s are specific to body dissatisfaction or might generalize to appearance concerns more broadly. Therefore, three additional outcome variables—body appreciation, body shame, and contingent self-worth based on appearance—were also included, because they are related to body appearance concerns.

Body shame is defined as the belief that one is a bad person because one's body does not achieve the societal body standards (McKinley & Hyde, 1996). Research has found body shame to be a significant predictor of self-criticism, which in turn has been associated with body dissatisfaction (Duarte et al, 2014).

Appearance contingency self-worth occurs when women evaluate themselves based on their physical appearance (Crocker et al., 2003). Research has found that a self-

compassion intervention targeting body dissatisfaction in women lowered levels of appearance contingent self-worth at a small effect (Albertson et al., 2014).

Body appreciation can be defined as the result of a positive view, acceptance, love, and respect of the body regardless its shape, flaws, physical appearance and weight (Avalos et al. 2005). Research has found that a self-compassion meditation can boost body appreciation (Albertson et al. 2015).

The current study was pre-registered in Aspredicted.com under the name of *A short meditation trial study in women* (22885).

4.3.1. Hypotheses

The four main hypotheses are set out below. For the first three hypotheses, age and prior meditation experience were added as control variables in all analyses, following the analytic strategy set out by Albertson et al. (2014).

H1) Compared to women in the relaxation meditation group, women in the self-compassion meditation group will experience greater changes between baseline and post-test in the following ways: H1a) higher levels of trait self-compassion, H1b) higher levels of body appreciation, H1c) lower levels of body dissatisfaction, H1d) lower levels of body shame, and H1e) lower levels of contingent self-worth based on appearance. H1f) lower levels of negative affect, H1g) higher levels of positive affect, H1h) higher levels of body image resilience.

H2) Compared to women in the relaxation meditation group, women in the self-compassion meditation group will experience greater changes between baseline and three month follow-up in the following ways: H2a) higher levels of trait self-compassion, H2b) higher levels of body appreciation, H2c) lower levels of body dissatisfaction, H2d) lower levels of body shame, H2e) lower levels of contingent self-worth based on appearance, H2f)

lower levels of negative affect, H2g) higher levels of positive affect, and H2h) higher levels of body image resilience

H3) Compared to women in the relaxation meditation group, women in the self-compassion meditation group will experience greater changes between post-test and three month follow-up in the following ways: H3a) higher levels of trait self-compassion, H3b) higher levels of body appreciation, H3c) lower levels of body dissatisfaction, H3d) lower levels of body shame, H3e) lower levels of contingent self-worth based on appearance, H3f) lower levels of negative affect, H3g) higher levels of positive affect, and H3h) higher levels of body image resilience.

H4) Changes in body dissatisfaction at baseline and post-test in the self-compassion meditation group will be mediated by: H4a) higher levels of positive affect, H4b) higher levels of body image resilience and H4c) lower levels of negative affect.

5.4. Method

5.4.1. Design

The current study used a 2 between-participants (meditation group: self-compassion vs. relaxation) x 6 within-participants (Time: baseline, Week 1, Week 2, Week 3, post-test, and three-month follow-up) randomized experimental mixed design.

5.4.2. Participants

A post-hoc power analysis showed that this sample of 117 participants would provide 49% power to detect a medium effect size ($f = 0.25$) using independent groups ANCOVA with a significance level of $p = 0.05$ (Cohen, 1992). There were two inclusion criteria for participants. First, only women aged 18 or over were invited to participate in this study. Second, only women who had never received a medical diagnosis of an eating disorder (e.g., anorexia, bulimia, binge disorder) were eligible to take part. People who have, or have had, an eating disorder diagnosis were excluded because Study 3 asks participants to recall an event when

they have felt uncomfortable with their body and this may have triggered an unwanted response in some participants, particularly those prone to eating disorders. Previous research has found that body dissatisfaction is a risk factor of eating disorders therapy relapse (Stice & Shaw, 2002; Keel et al., 2005; Freeman et al., 2013).

Data collection started on September 29th, 2019 and finished on July 27th, 2020. Participants were initially recruited through an online advertisement inviting women to participate in a study investigating personality and physical self-perceptions, which involved meditation for 3 weeks. The advertisement was emailed to the University of Sheffield volunteers lists and posted on the researcher's Facebook account with a potential reach of 721 people, LinkedIn account with a potential reach of 78 people, and Twitter account with a potential reach of 116 people. Participants who completed the three-week meditation and follow-up questionnaires were entered into a prize draw. Five gift Amazon vouchers (one £5, one £10, one £15, one £25 and one £50) were awarded to five different winners of the prize draw. A total of 87 participants were recruited through this strategy.

Unfortunately, data collection via this strategy was undermined by the COVID-19 pandemic. On March 12th, 2020 the World Health Organization classified the COVID-19 outbreak as a pandemic (World Health Organization, 2020) and by the 23rd of March, the UK's Prime Minister Boris Johnson announced the first national lockdown and put in place several restrictions such as self-isolation, shopping solely for basic necessities, closing non-essential businesses, and closing all schools (Johnson, 2020). Many volunteer participants dropped out, often reporting that they had to cope with new constraints and hardships due to the pandemic. To address this issue, funding was obtained to pay a new set of participants to complete the study. The Prolific website was used to recruit 198 female participants. Participants who completed the three-week meditation and follow-up questionnaires were paid £20 for their time.

Across all recruitment strategies, 285 women started the study by completing the questionnaire with the baseline measures. The majority of these participants had access to the study through Prolific (69.47%) followed by the University of Sheffield volunteers lists (30.53%). Participants were dropped from the study at this stage for the following reasons: did not give consent (n = 11), had a diagnosis of eating disorder (n = 20), dropped out after giving consent (n = 11), did not provide any contact details (n = 5), were not females (n = 9), did not complete any measures (n = 7). The remaining 222 participants proceeded to start the meditation programme and then completed the follow-up questionnaires. Figure 1 summarizes the flow of the participants across the study. The final sample consisted of 117 female participants, allocated to either the self-compassion meditation group (n = 63) or the relaxation meditation group (n = 64).

Table 1 summarizes baseline demographics for each group. Participants ranged in age from 18 to 74 years (M = 28.46, SD = 12.02). Participants reported not having meditation experience before participating in this study (48.8%), meditated occasionally (49.6%), and reported themselves as regular meditators (1.6%). Participants reported listening to the meditation audios an average of 4.46 times each week (range 1-7; SD = 1.18).

Figure 1.

CONSORT diagram showing the flow of participants through Study 3.

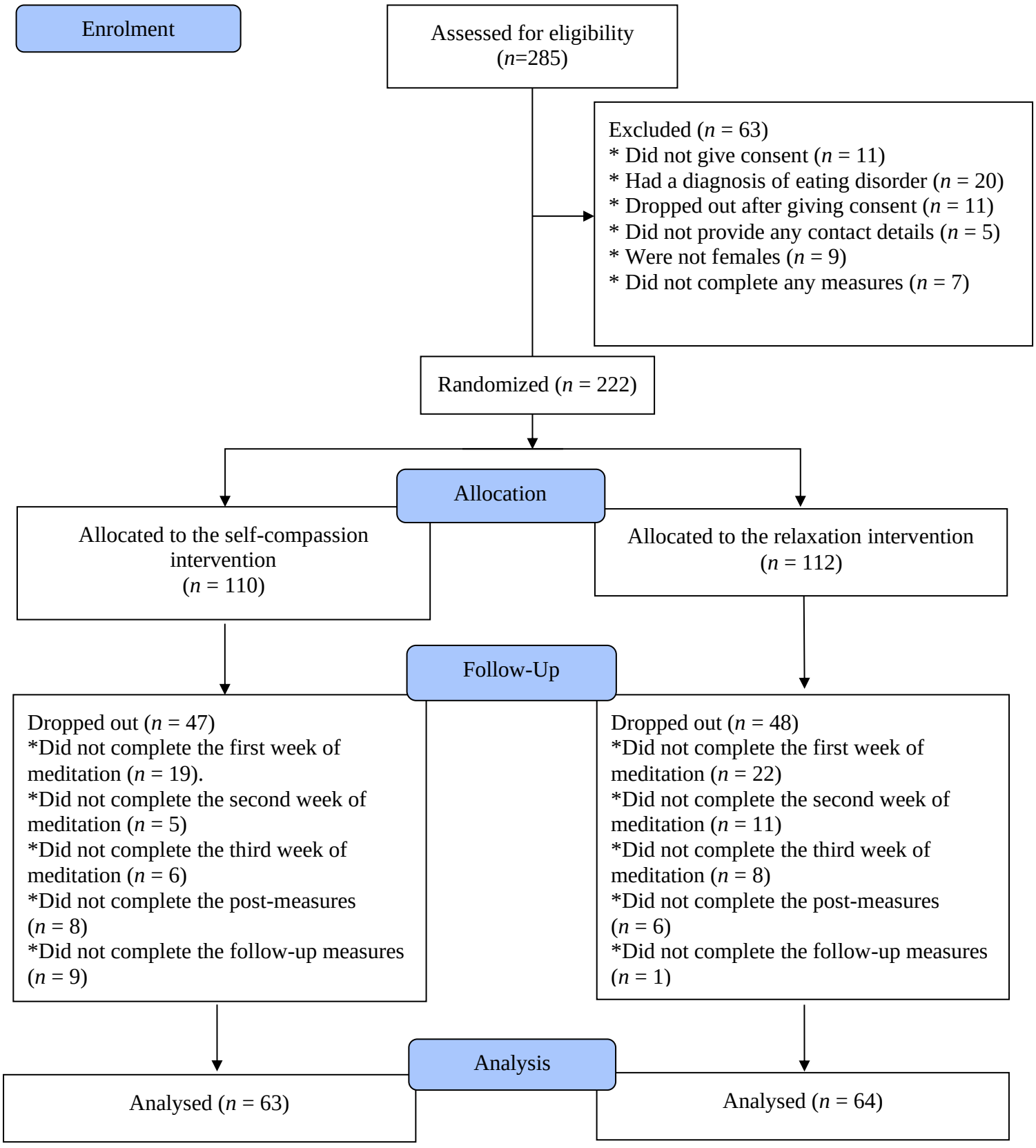


Table 1

Baseline demographics for each group

	Self-compassion condition group (n = 63)		Relaxation condition group (n = 64)	
	n	%	*n*	%
Background				
European	46	73.0	56	87.5
Hispanic	5	7.9	4	6.3
Others	12	19.1	4	6.3
Language				
English	29	46.0	27	42.2
Portuguese	10	15.9	7	11
Spanish	6	9.5	7	11
Others	18	28.6	23	35.8
Marital Status				
Single	18	28.6	23	35.9
In a relationship	20	31.7	23	35.9
Married or living with a partner	25	39.7	14	21.9
Separated or divorced	0	0	3	4.7
Widow	0	0	1	1.6
Highest educational level				
Post-graduate level	15	23.8	9	14.1
University or College	25	39.7	18	28.1
High school	21	33.3	33	51.6
Basic education	1	1.6	3	4.7
Other	1	1.6	1	1.6
Employment				
Student	23	36.5	26	40.6
Employed part-time	12	19	16	25
Employed full-time	27	42.9	19	29.7
Retired or on sickness leave	1	1.6	3	4.7

5.4.3 Materials

5.4.3.1. Self-compassion meditation audio files

The three audio files selected for Study 3 were those used by Albertson et al. (2014) to create a brief meditation intervention targeting body dissatisfaction in women. Self-compassion meditation audio files are part of the Mindful Self-Compassion program (MSC; Neff & Germer, 2013). The MSC aims to primary help individuals to cultivate and acquire self-compassion whereas mindfulness is taught as a secondary aim (Neff & Germer, 2013); therefore each audio file aims to teach and build these skills in individuals. All self-compassion meditation audio files were downloaded as an mp3 audio file from the website www.selfcompassion.org and each of them had a duration of 20 - 25 minutes.

Audio file 1: The Compassionate Body Scan (23:55 min). During the first week, participants listened to the Compassionate Body Scan audio file (Neff, 2021). This audio file aimed to teach participants to be mindful about their body sensations and feelings. It helped participants to have feelings of compassion, gratitude and appreciation of their body functionality. Participants were guided through a meditation where they could get in touch with their body sensations and feelings to identify areas of pain to later soothe any feelings of discomfort.

Audio file 2: Affectionate Breathing (21:28 min). During the second week, participants listened to the Affectionate Breathing audio file (Neff, 2021). This audio file aimed to develop compassion and generate feelings of kindness for oneself and others that might be suffering as one is at that moment without being judgemental. Participants were asked to sit comfortably on a chair or a meditation cushion. This meditation instructed participants to relax by breathing three times to release the tension in their body in each breath. Participants were then guided through a series of breathing exercises to have feelings of kindness and affection for themselves and others. This meditation exercise encouraged participants to be understanding when they

find themselves wandering around in their minds. Finally, it asked participants to allow themselves to be soothed by their breathing when experiencing.

Audio file 3: Loving-kindness meditation (20:10 min). During the third week, participants listened to an adapted version of the loving-kindness meditation (Neff, 2021) that focuses on cultivating self-compassion for a specific personal event that causes suffering. This audio file guided participants through a short body scan meditation. Next, participants were asked to be aware of the sounds in the present moment and concentrate in their breathing. Participants then were asked to think of an aspect of their personality that they do not feel comfortable with that make them feel inadequate. Then, it asked participants to get in touch with their feelings even if these were negative and to locate where those emotions feel in their body. Participants were encouraged to allow themselves to be imperfect and accept that feelings of inadequacy are part of a human shared experience. Finally, participants were instructed to repeat to themselves the following sentences: *May I be safe, May I be peaceful, May I be kind to myself, May I accept myself as I am*.

5.4.3.2. Relaxation meditation audio files

The three relaxation meditation files were taken from YouTube (Stephenson, 2013; McCready, 2017; The Honest Guys, 2017). Each relaxation meditation was the same length as its corresponding week's self-compassion meditations. The aim of the meditation selected was to help people to simply relax. Participants allocated to the control condition were sent a different relaxation meditation audio file every week, with the following instructions; "For the next 7 days, try to listen this audio file once a day".

Audio file 1: The great pyramid guided relaxation (20:57 min). The great pyramid guided relaxation audio file (Stephenson, 2013) aimed to guide participants to connect with their inner self and to let the tensions of the day disappear. Participants were told to sit in a comfortable position in a well-ventilated room and to ensure that they would not be disturbed

for 20 minutes. Next, participants were told to close their eyes and inhale to a count of four, feeling the air entering their lungs and hold the breath for two seconds and slowly exhale. Participants then were asked to imagine they were standing in front of the tower of Giza in Egypt and feel a sense of pace as they feel a gentle breeze and if feeling any tension in the body letting it go.

Participants were then asked to think of a question or a problem that they thought needed an answer and were encouraged to ask it and to feel the intensity of their desire. In addition, participants were encouraged to think of the tower of Giza as a representation of beauty, history, peacefulness and contentment. Additionally, it encouraged them to think that its special atmosphere has helped them to connect with their inner self and to find a sense of wellbeing that has not been present for a while.

Participants were then reminded that they could reconnect with the tower of Giza and that all they needed to do was to close their eyes and imagine themselves standing outside of the pyramid and that the more they practice, the easier would be to experience relaxation. Finally, participants were asked to bring their body to the present by breathing and exhaling, keeping experiencing the sense of calmness and deep pace. Participants opened their eyes when they felt ready to do so.

Audio file 2: Breathing meditation for stillness and relaxation (25:38 min). The guided breathing meditation for stillness and relaxation (McCready, 2017) aimed to help participants to experience stillness and relaxation. Participants could choose between being sitting on a chair / sofa or laying down, then they were encouraged to adopt a comfortable position. Participants were asked to pause after each exhale to experience stillness and enjoy the meditation. To start the meditation, participants were asked to breath in through their nose and out through their mouth. Along the breathing meditation, participants were asked to breath and pause to experience stillness and relax. Next, participants were given some time with

themselves (without any voice to guide the relaxation) so they could experience the stillness of the breath. Then, participants were told that when they felt ready, brought their awareness to the surface they were on, to take a deep breath and notice how their body felt. Finally, participants were asked to give themselves a thank you and open their eyes when they felt ready to do so.

Audio file 3: Blissful deep relaxation (20 min). The blissful deep relaxation audio file (The Honest Guys, 2017) aimed to guide participants into a deep state of relaxation, where they would experience a calmness state of mind. Participants were encouraged to relax and to have some time for themselves. Next, participants were told to be in control at all time and if they wished to stop the meditation they could open their eyes at all time. A bell signalled the end of the meditation. Participants were asked to close their eyes and to take a deep breath imagining that the air was pure and fresh, hold it for a short time and then to let it go. Along the relaxation meditation participants were told to imagine they were standing on a beautiful beach, to later lie down to look at a beautiful sky that represents the clarity of the mind and clouds represent thoughts that come to the mind. Participants were encouraged to dissipate any clouds and focus their attention on the clear sky. Finally, participants were asked to let their mind to comfort, relax and heal them. After a few minutes of listening to the sea waves, the bell rang to signal the participants the end of the relaxation.

5.4.4. Measures[4]

5.4.4.1. Baseline measures and follow-up measures

Demographic measures: Participants were asked to provide information regarding

[4] The questionnaires included several measures that were not relevant to the specific aims of this study (e.g., body image coping strategies, awareness of threats to body image). The plan was to conduct exploratory analyses alongside the planned analyses with the focal variables. Due to the onset of the COVID-19 pandemic, however, there was insufficient time to conduct these additional analyses. Thus, the decision was made to focus on the variables relevant to the primary aims of this study.

their age, gender, nationality, level of education, first language, ethnic background, and relationship status.

Trait self-compassion. Trait self-compassion was measured using the Self-Compassion Scale (Neff, 2003a). The SCS is a self-report measure that consists of 26 items that assess the three main components of self-compassion and their counterparts: self-kindness (vs self-judgement), common humanity (vs isolation) and mindfulness (vs over-identification). Example items include: "When I'm going through a very hard time, I give myself the caring and tenderness I need" (Self-kindness), "When I'm down and out, I remind myself that there are lots of other people in the world feeling like I am" (Common humanity), "When something upsets me I try to keep my emotions in balance" (Mindfulness), "I'm intolerant and impatient towards those aspects of my personality I don't like" (Self-judgement), "When I think about my inadequacies, it tends to make me feel more separate and cut off from the rest of the world" (Isolation) and "When something upsets me I get carried away with my feelings" (over-identification). Participants scored each item on a scale from 1 *(almost never)* to 5 *(almost always)*. An overall score is calculated by reverse scoring negative subscale items (self-judgement, isolation and over-identification) and computing a mean across all 26-items. Higher scores indicate greater levels of trait self-compassion. In the current study, internal consistency as measured by Cronbach's alpha was 0.94.

Body appreciation. Body appreciation was measured using the Body Appreciation Scale (Avalos et al., 2005). The BAS is a self-report measure that consists of 13 items (e.g., "I do not focus a lot of energy being concerned with my body shape or weight"). Participants scored each item on a scale from 1 *(never)* to 5 *(always)*. An overall score was calculated by averaging all the responses. Higher scores indicate greater body appreciation. In the current study, internal consistency as measured by Cronbach's alpha was 0.93.

Positive and Negative affect. Positive and negative affect were measured by using the short version of the Positive and Negative Affect schedule short form (Thompson, 2007). The I-PANAS-SF consist of a total of 10 items divided in two subscales of five items each, Positive Affect (e.g., inspired) and Negative Affect (e.g., upset). Participants were asked how they have felt over the past week and scored each item on a scale from 1 (very slightly or not at all) to 5 (extremely). An overall score was calculated by averaging all the obtained scores for the scale (ranging from 5 to 25). Higher scores on the NA are interpreted as higher levels of negative affect. In the current study, internal consistency as measured by Cronbach's alpha was 0.61 for positive affect and 0.71 for negative affect.

Body dissatisfaction. Body dissatisfaction was measured using the 16-item Body Shape Questionnaire (Evans & Dolan, 1993) which is based on the original 34-item body shape questionnaire) (Cooper et al., 1987). The BSQ-16 is a self-report measure that consists of questions about feelings or behaviours focused on body preoccupation (e.g., Have you felt ashamed of your body?). Participants scored each item on a scale from 1 (never) to 6 (always). An overall score was calculated by averaging all scores obtained. Higher scores indicate higher levels of body dissatisfaction. In the current study, internal consistency as measured by Cronbach's alpha was 0.93.

Body shame. Body shame was measured by using the Body Shame Subscale of the objectified body consciousness Scale (McKinley & Hyde, 1996). The body shame subscale is a self-report measure that consists of 8 items (e.g., "When I'm not the size I think I should be, I feel ashamed"). Participants scored each item on a scale from 1 (strongly disagree) to 7 (strongly agree). An overall score was calculated by adding up all scores obtained and diving them by eight. Higher scores indicate higher levels of body shame. In the current study, internal consistency as measured by Cronbach's alpha was 0.89.

Contingent self-worth based on appearance. Contingent self-worth based on appearance was measured by using the Appearance Subscale of the Contingent Self-worth Scale (Crocker et al., 2003). The appearance subscale is a self-report measure that consists of 5 items (e.g., "My sense of self-worth suffers whenever I think I don't look good"). Participants scored each item on a scale from 1 (strongly disagree) to 7 (strongly agree). An overall score was calculated by averaging all scores obtained. Higher scores indicate higher levels of self-esteem contingency based on appearance. In the current study, internal consistency as measured by Cronbach's alpha was 0.77.

5.4.4.2. Measures of potential mediators.

Body image resilience. Body image resilience was measured by using an adapted version of the original Brief Resilience Scale (Smith et al., 2008). The original BRS is a self-report measure that consists of 6 items (e.g., "I tend to bounce back quickly after hard times"). In this adaptation, participants indicated the extent they have felt this way "over the last week". Items have been reworded to make them body image and appearance related (e.g. "I tend to bounce back quickly after having a hard time with my appearance"). Participants scored each item on a scale from 1 (almost never) and 5 (almost always). An overall score is calculated by averaging all scores obtained. In the current study, internal consistency as measured by Cronbach's alpha was 0.87.

Number of meditation sessions per week. To assess how many days per week participants listened to the audio file, participants answered to the question: How many times did you listened to the meditation. Participants indicated their answer in a scale from 1 (one day) to 7 (seven days). This question was taken from Albertson et al.'s (2014) study.

5.4.5. Procedure

Prior to data collection, ethical approval was obtained from the University of Sheffield, Department of Psychology Ethics Committee, reference 026454. Upon clicking the

link to the study, participants were directed to the letter of information page for the study and the consent form. After providing informed consent, participants were then redirected to the study online on Qualtrics. Figure 2 presents the procedure for the entire longitudinal design.

5.4.5.1. Baseline Time-point

Participants were randomly allocated to a relaxation meditation group or a self-compassion meditation group. A block method randomization method (Suresh, 2011) was used to allocate participants into groups, implemented via the randomize command on Qualtrics, the online survey tool used to build the questionnaires. One or two days prior starting the meditation intervention, participants in both groups completed the same set of baseline measures. The order that measures were presented to participants was randomized to minimize order effects. After completing baseline measures, the researcher got in touch with the participant to welcome her to the experiment and answer potential questions regarding the study. At this point, participants who chose not to continue with the study withdrew and their data was deleted. Participants who chose to continue with the study were given the option to get in touch with the researcher at any point of the study.

5.4.5.2. Meditation Week 1, Week 2 and Week 3

Participants in the self-compassion meditation group were asked to listen to a different self-compassion meditation audio file every week for three weeks. Participants in the relaxation group were asked to listen to a different relaxation meditation audio file every week for three weeks. Participants in both conditions were given the following instructions: “For the next 7 days, try to listen this audio file once a day”.

At the end of Weeks 1, 2, and 3, all participants received an email to thank them for their participation and received a link to complete the mediator measures (body image resilience, positive affect and negative affect), a question about the number of times they

listened to the audios during the past week, and a reminder of the instructions for the following week.

5.4.5.3. Post-test Questionnaire

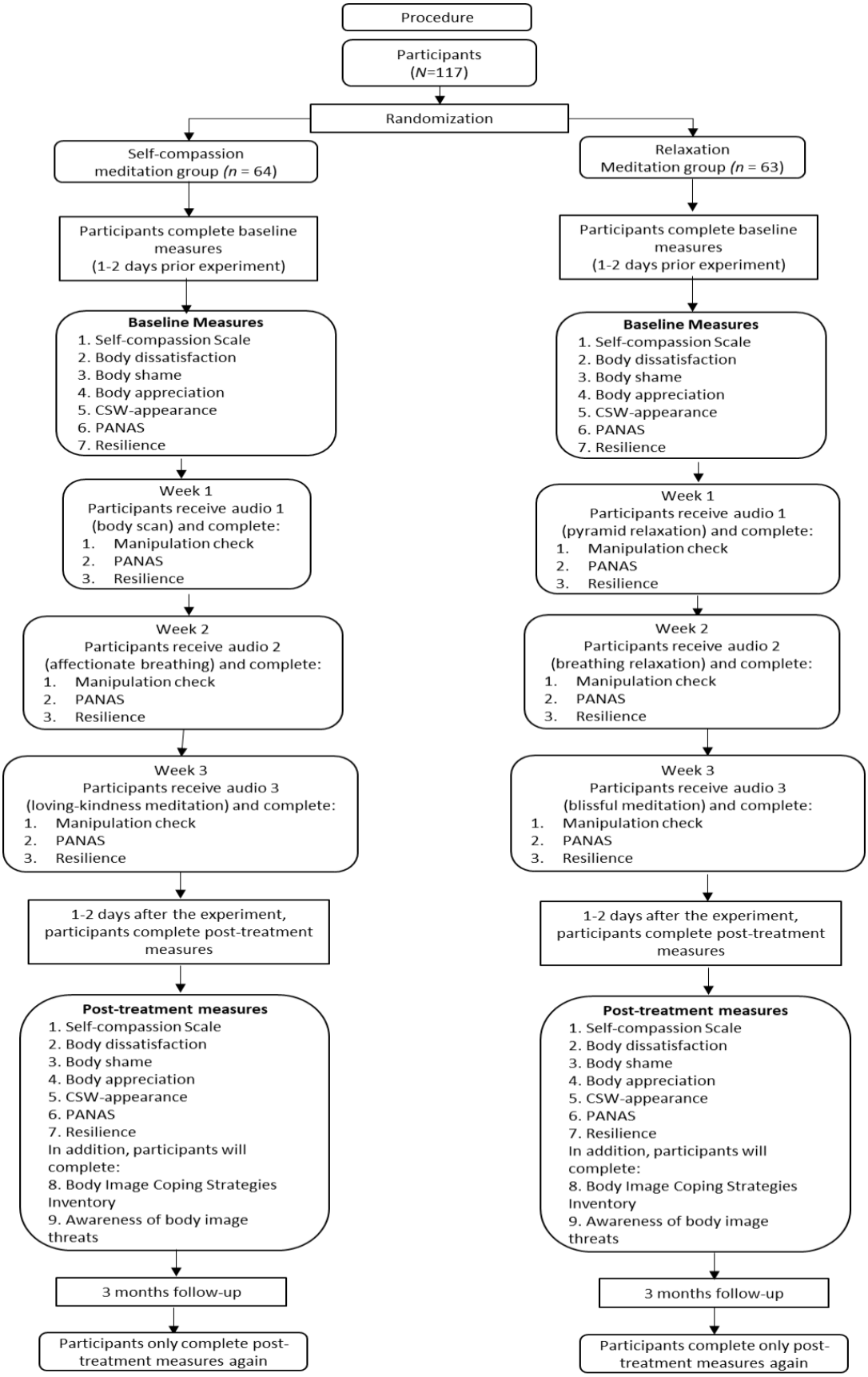
After completing Week 3, all participants received an email with the post-test measures. The post-test measures were the same as baseline measures with two additional measures: 1) the Body Image Coping Strategies Inventory (BICSI; Cash et al., 2005) and 2) the Awareness of body image threats scale.

5.4.5.4. 3-month follow-up Questionnaire

Three months later, all participants were asked to complete an online questionnaire that included the same measures as in the post-test. Finally, participants were offered the opportunity to participate in a prize draw.

Figure 2

Overview of procedure and design of Study 3



5.5. Results

The section below presents the preliminary data analysis, correlation analysis and descriptive statistics, test of experimental effects corresponding to hypotheses 1 to 3 and finally, test of mediation models corresponding to hypotheses 4a to 4c. The analytic strategy for each analysis is described at the start of each section.

5.5.1. Preliminary analysis

The dataset contained a relatively large proportion of missing values (64.86%). Therefore, it was not possible to use multiple imputation to replace the missing data, as multiple imputation is only recommended when between 5% and 40% of datapoints are missing (Clark & Altman, 2003). The large amount of missing data also meant that it was not possible to conduct an intention to treat analysis (ITT). An intention-to-treat analysis compares all treatment groups that include all participants allocated after randomization (Sedgwick, 2015). Instead, per-protocol analysis was used to compare treatment groups only including participants who completed the treatment to which they were allocated (Sedgwick, 2015). The implications for the data analytic strategy and interpretation of results are considered in the discussion section.

To determine whether there were any systematic differences between study non-completers (participants who completed the baseline questionnaire, but did not finish the study) and study completers (participants who remained in the sample), a one-way multivariate analysis of variance (MANOVA) was conducted on the main baseline measures: 1) demographic variables (age and prior meditation experience), 2) manipulated variable (trait self-compassion) 3) outcome variables (body dissatisfaction, body shame, body appreciation, appearance contingent self-worth, and 4) potential mediators (positive affect, negative affect and body image resilience). The overall effect of participant status was non-significant, Wilk's Lambda = .95, $F(10, 229) = 1.84$, $p = 0.30$; however, this was followed up with a series of

independent-samples t-tests to confirm that there were any systematic differences between study completers and non-completers on the individual variables. Consistent with the results of the MANOVA, no significant differences were found on any of the baseline measures (see Table 2). Thus, there was no evidence that participants who completed the study were different in baseline responses from participants who did not complete the study.

To determine whether there were significant differences between the self-compassion meditation group and the relaxation group in their responses to specific baseline measures: 1) demographic variables (age and prior meditation experience), 2) manipulated variable (trait self-compassion) 3) outcome variables (body dissatisfaction, body shame, body appreciation, appearance contingent self-worth, and 4) potential mediators (positive affect, negative affect and body image resilience), a one-way multivariate analysis of variance (MANOVA) was conducted. The overall effect of condition was non-significant, Wilk's Lambda = .90, $F(10, 114) = 1.27$, $p = 0.25$. To confirm these results, an independent-samples t-test was conducted. Table 2 presents the results for these analyses. No significant differences between the two groups were found ($p < .05$) on any of the study variables, except for resilience. Participants in the self-compassion meditation group reported significantly higher levels of baseline body image resilience than did participants in the relaxation meditation group (see Table 3). Given this pre-existing difference between the experimental groups, all subsequent analyses controlled for baseline body image resilience.

Table 2. *Descriptive statistics for completers and non-completers at baseline.*

Measure	Completers (n = 175)		Non-completers (n = 65)		*t(238)*	*p*
	M	*SD*	*M*	*SD*		
Age	28.66	12.20	30.82	12.11	-1.217	0.225
Prior meditation experience	4.51	0.54	4.58	0.61	-0.929	0.354
Trait self-compassion	2.81	0.77	2.88	0.78	-0.616	0.539
Body dissatisfaction	2.90	1.11	2.88	1.11	0.110	0.912
Body shame	3.75	1.03	3.71	1.01	0.306	0.760
Body appreciation	3.44	0.80	3.31	0.88	1.035	0.302
CSW- appearance	3.32	0.38	3.40	0.35	-1.561	0.120
Positive affect	2.61	0.66	2.68	0.75	-0.682	0.496
Negative affect	3.19	0.79	3.30	0.77	-0.962	0.337
Body image resilience	3.18	0.95	3.18	0.95	0.009	0.993

Note. *M* = Mean. *SD* = Standard Deviation.

Table 3. *Descriptive statistics by condition at baseline.*

Measures	Self-compassion meditation group (n = 64)		Relaxation meditation group (n = 63)		t (125)	p
	M	*SD*	*M*	*SD*		
Age	28.06	10.19	28.84	13.67	0.364	0.716
Prior meditation experience	4.58	0.53	4.48	0.53	-1.098	0.275
Trait self-compassion	2.96	0.83	2.74	0.74	-1.552	0.123
Body dissatisfaction	2.67	0.98	2.98	1.22	1.538	0.127
Body shame	3.40	1.33	3.62	1.44	0.872	0.385
Body appreciation	3.60	0.76	3.37	0.86	-1.578	0.117
CSW - appearance	3.70	0.82	3.80	0.74	0.665	0.507
Positive Affect	2.57	0.68	2.62	0.59	0.474	0.637
Negative Affect	3.22	0.79	3.23	0.83	0.019	0.985
Body image resilience	3.43	0.79	3.01	0.84	-2.850	**0.005**

Note. *M* = Mean. *SD* = Standard Deviation.

5.5.2. Correlation analyses and descriptive statistics

Table 4 shows the descriptive statistics and bivariate correlations between all the variables measured in the baseline questionnaire prior to the intervention for the entire sample. Trait self-compassion was associated with all but two variables in the expected directions. The two unexpected results were that trait self-compassion had a negative relationship with positive affect and a positive relationship with negative affect. Body dissatisfaction was also associated with all other variables, except positive affect. Body image resilience was associated with all variables and meditation experience but not age. Trait self-compassion was associated with meditation experience.

Table 4. *Correlations among variables at baseline for the participants who completed the whole study.*

Variable	*n*	*M*	*SD*	1	2	3	4	5	6	7	8	9	10
1. Age	127	28.46	12.02	-									
2. Meditation Experience	125	4.53	0.53	-.05	-								
3. Trait self-compassion	127	2.84	0.78	.08	**.22***	-							
4. Body Dissatisfaction	127	2.82	1.11	-.14	.00	**-.53****	-						
5. Body Appreciation	127	3.48	0.81	-.08	.12	**.61****	**-.71****	-					
6. Body Shame	127	3.51	1.38	-.03	-.05	**-.58****	**.73****	**-.72****	-				
7. CSW – appearance	127	3.75	0.77	**-.29****	-.03	**-.42****	**.45****	**-.36****	**.45****	-			
8. Body image resilience	127	3.21	0.83	.07	**.24****	**.57****	**-.53****	**.60****	**-.58****	**-.44****	-		
9. Positive Affect	127	2.59	0.63	-.11	-.10	**-.37****	.14	**-.34****	**.22***	.10	**-.34****	-	
10. Negative Affect	127	3.22	0.80	**.21***	.02	**.59****	**-.57****	**.51****	**-.51****	**-.36****	**.42****	**-.22***	-

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

5.5.3. Tests of experimental effects: Hypotheses 1 – 3.

Hypothesis 1.

A 2 between-participants factor (meditation group: self-compassion meditation vs relaxation meditation) x 2 within-participants factor (Time: baseline vs post-test) mixed ANCOVA was used to test whether women in the self-compassion meditation group experienced greater changes between baseline and post-test in levels of trait self-compassion, body appreciation, body dissatisfaction, body shame, contingent self-worth, negative and positive affect, and body image resilience. The two hypothesized control variables based on Albertson et al., (2014)—age and prior meditation experience—were not significantly associated with any other variables in this sample at baseline (see Table 3) and so were not used as a covariate. Instead, the analyses showed that baseline levels of body image resilience were significantly different between the two meditation groups; baseline body image resilience thus could serve as an alternative explanation for any experimental effects that are found. Therefore, baseline body image resilience was included as a covariate. Results of this analysis have been separated in three tables and have included Bonferroni adjustment for multiple comparisons accordingly.

Table 5a focuses on the main effect of time (baseline vs post-test). There was a significant change over time in all the variables except for positive affect. This indicated that women's trait self-compassion, body appreciation, negative affect, contingence self-worth based on appearance (CSW-appearance) and body image resilience increased over time. In contrast, women's body dissatisfaction and body shame decreased over time.

Table 5b focuses on the main effect of the meditation group (self-compassion vs relaxation). There was no significant difference between the self-compassion meditation group and the relaxation meditation group on any of the variables, except for body image resilience. This includes the trait self-compassion measure used as a manipulation check. This

suggests that even though one of the meditations focused on self-compassion specifically, no differences were found between the two kinds of meditation.

Table 5c shows the two-way interaction between time (baseline vs post-test) and group (self-compassion vs relaxation). No significant interaction was found between the kind of meditation group and time on any of the variables.

Table 5a. *Main effect of time (baseline vs post-test) on outcomes, controlling for baseline body image resilience.*

		Estimated Marginal Means			
		Baseline		Post-test	
Measure	Test statistics + Effect size	*M*	*SE*	*M*	*SE*
Trait self-compassion	$F(1,124) = 6.74$, $p < .001^b$ $\eta_p^2 = .052$	2.84[a]	0.06	3.12[a]	0.06
Body Dissatisfaction	$F(1,124) = 9.61$, $p < .001^b$ $\eta_p^2 = .072$	2.82[a]	0.08	2.53[a]	0.08
Body Shame	$F(1,124) = 6.27$, $p = 0.010^b$ $\eta_p^2 = .048$	3.51[a]	0.10	3.29[a]	0.10
Body Appreciation	$F(1,124) = 5.88$, $p = 0.001^b$ $\eta_p^2 = .045$	3.48[a]	0.06	3.65[a]	0.05
CSW- appearance	$F(1,124) = 1.97$, $p = 0.009^b$ $\eta_p^2 = .016$	3.75[a]	0.06	3.59[a]	0.06
Positive Affect	$F(1,124) = 4.89$, $p = 0.735^b$ $\eta_p^2 = .038$	2.59[a]	0.05	2.61[a]	0.08
Negative Affect	$F(1,124) = 16.83$, $p < .001^b$ $\eta_p^2 = .120$	3.22[a]	0.07	3.74[a]	0.07
Body image Resilience*	$F(1,125) = 30.35$, $p < .001^b$ $\eta_p^2 = .195$	3.21	0.07	3.53	0.07

* Note: The analysis for body image resilience was tested using an ANOVA. *M* = mean. *SE* = Standard Error

a. Covariates appearing in the model are evaluated at the following values: Baseline body image resilience Mean = 3.2178.
b. Adjustment for multiple comparisons: Bonferroni

Table 5b *Main effect of group on outcomes, controlling for baseline body image resilience.*

		Estimated Marginal Means			
		Self-compassion Meditation Group		Relaxation Meditation Group	
Measure	Test statistics + Effect size	*M*	*SE*	*M*	*SE*
Trait self-compassion	$F(1,124) = 0.31$, $p = 0.575^{b}$ $\eta_p^2 = .003$	2.95[a]	0.08	3.01[a]	0.08
Body Dissatisfaction	$F(1,124) = 0.33$, $p = 0.564^{b}$ $\eta_p^2 = .003$	2.72[a]	0.11	2.63[a]	0.11
Body Shame	$F(1,124) = 1.45$, $p = 0.231^{b}$ $\eta_p^2 = .012$	3.51[a]	0.13	3.28[a]	0.13
Body Appreciation	$F(1,124) = 1.19$, $p = 0.276^{b}$ $\eta_p^2 = .010$	3.51[a]	0.07	3.62[a]	0.07
CSW- appearance	$F(1,124) = 1.57$, $p = 0.213^{b}$ $\eta_p^2 = .013$	3.74[a]	0.08	3.60[a]	0.08
Positive Affect	$F(1,124) = 0.01$, $p = 0.892^{b}$ $\eta_p^2 = .000$	2.61[a]	0.08	2.59[a]	0.08
Negative Affect	$F(1,124) = 2.05$, $p = 0.155^{b}$ $\eta_p^2 = .016$	3.40[a]	0.08	3.57[a]	0.08
Body image resilience*	$F(1,125) = 5.08$, $p = 0.017^{b}$ $\eta_p^2 = .044$	3.54	0.09	3.23	0.09

* Note: The analysis for body image resilience was tested using an ANOVA. *M* = mean. *SE* = Standard Error

a. Covariates appearing in the model are evaluated at the following values: Baseline body image resilience Mean = 3.2178.

b. Adjustment for multiple comparisons: Bonferroni

Table 5c. *Interaction between time and group, controlling for baseline body image resilience.*

		Self-compassion meditation group				Relaxation meditation group			
Variable	Test statistics + Effect size	Baseline		Post-test		Baseline		Post-test	
		M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Trait self-compassion	$F(1,124) = 1.321$, $p = 0.253$ $\eta_p^2 = .011$	2.84[a]	0.84	3.05[a]	0.09	2.85[a]	0.08	3.18[a]	0.09
Body Dissatisfaction	$F(1,124) = 2.422$, $p = 0.122$ $\eta_p^2 = .019$	2.82[a]	0.12	2.63[a]	0.11	2.83[a]	0.12	2.44[a]	0.11
Body Shame	$F(1,124) = 0.159$, $p = 0.691$ $\eta_p^2 = .001$	3.60[a]	0.14	3.42[a]	0.14	3.41[a]	0.14	3.16[a]	0.14
Body Appreciation	$F(1,124) = 3.804$, $p = 0.053$ $\eta_p^2 = .030$	3.47[a]	0.08	3.54[a]	0.07	3.49[a]	0.08	3.75[a]	0.07
CSW- appearance	$F(1,124) = 1.194$, $p = 0.227$ $\eta_p^2 = .010$	3.79[a]	0.09	3.70[a]	0.09	3.71[a]	0.08	3.49[a]	0.09
Positive Affect	$F(1,124) = 0.339$, $p = 0.561$ $\eta_p^2 = .003$	2.62[a]	0.07	2.60[a]	0.10	2.56[a]	0.07	2.63[a]	0.10
Negative Affect	$F(1,124) = 0.021$, $p = 0.886$ $\eta_p^2 = .000$	3.13[a]	0.09	3.66[a]	0.10	3.31[a]	0.09	3.82[a]	0.10
Body image resilience*	$F(1,125) = 2.781$, $p = 0.098$ $\eta_p^2 = .022$	3.42	0.79	3.65	0.76	3.01	0.84	3.44	0.81

* Note: The analysis for body image resilience was tested using an ANOVA. *M* = mean. *SE* = Standard Error

a. Covariates appearing in the model are evaluated at the following values: Baseline body image resilience Mean = 3.2178.

Hypothesis 2.

A 2 between (meditation group: self-compassion meditation vs relaxation meditation) x 2 within (time: baseline vs 3-month follow-up) mixed ANCOVA was planned to compare changes in outcomes between the groups from baseline to follow-up. These analyses were conducted in the same was as those assessing Hypothesis 1, except that data from the 3-month follow-up was used in place of post-test data.

Table 6a focuses on the main effect of time (baseline vs 3-month follow-up). There were significant changes over time in trait self-compassion, body dissatisfaction, body shame, body appreciation, negative affect and body image resilience. Specifically, women's trait self-compassion, body appreciation, negative affect and body image resilience increased over time. In addition, women's body dissatisfaction and body shame decreased.

Table 6b focuses on the main effect of the group (self-compassion vs relaxation). There was no significant difference in any of the variables between the self-compassion meditation group and the relaxation meditation group, except for body image resilience. These findings suggest that there was no effect of the self-compassion meditation compared to the relaxation condition except for body image resilience. This includes the trait self-compassion measure used as a manipulation check. This suggests that even though one of the meditations focused on self-compassion specifically, no differences were found between both kinds of meditation.

Table 6c includes the two-way interaction between time (baseline vs post-test) and meditation group (self-compassion vs relaxation). There was a significant interaction between meditation group and time on two of the outcome variables: body dissatisfaction and body image resilience. These interactions were followed up by testing the simple main effects of time (baseline vs. 3-month follow-up) for each meditation group (self-compassion and relaxation).

Body dissatisfaction. Two one-way within-participants ANCOVAs with Time (baseline versus three-month follow-up) as the Independent Variable and baseline body image resilience as the covariate, were conducted. First for the self-compassion meditation group and then for the relaxation meditation group. Among participants in the *self-compassion meditation group*, there was no significant difference between body dissatisfaction at baseline (M = 2.67, SD = 0.99) and the three-month follow-up (M = 2.65, SD = 1.08), F (1, 59) = 2.98, p = .090, η_p^2= 0.05. Among participants in the relaxation meditation group, there was also no significant difference between body dissatisfaction at baseline (M = 3.00, SD = 1.25) and the three-month follow-up (M = 2.71, SD = 1.15), F (1, 56) = 3.26, p = .076, η_p^2= 0.06. While both simple effects did not reach conventional levels of significance (i.e., $p > 0.05$), the significant interaction was likely driven by the slightly larger effect size in the relaxation meditation group.

Body image resilience. Two one-way within-participants ANOVAs with Time (baseline versus three-month follow-up) as the Independent Variable were conducted. First for the self-compassion meditation group and then for the relaxation meditation group. Among participants in the *self-compassion meditation group*, body image resilience was significantly higher at the three-month follow-up (M = 3.43, SD = 0.94) compared to baseline (M = 2.95, SD = 0.82), F (1, 57) = 20.32, $p < .001$, $\eta_p^2 = 0.26$. Among participants in the *relaxation meditation group*, there was no significant difference between body image resilience at baseline (M = 3.44, SD = 0.80) and the three-month follow-up (M = 3.51, SD = 0.81), F (1, 60) = 0.60, p = .442, $\eta_p^2 = 0.01$. These results indicate that engagement in the relaxation meditation exercises increased body image resilience over time whereas engagement in the self-compassion meditation exercises did not.

There is an important caveat to the above interpretation of the results. Given the baseline differences in body image resilience between the conditions, the change in body

image resilience over a time for the relaxation meditation group is not necessarily meaningful because it represents a shift from a lower baseline level to an equivalent level at the three-month follow-up, compared to the self-compassion meditation group. Participants in the self-compassion meditation group reported a lower level of baseline body image resilience (M = 2.95, SD = 0.82) than did the participants in the relaxation meditation group (M = 3.44, SD = 0.80), F (1, 119) = 10.82, $p < .001$, $\eta_p^2 = 0.09$.

In contrast, there was no significant difference in body image resilience levels at the three-month follow-up time point between the self-compassion meditation group (M = 3.43, SD = 0.94) and the relaxation meditation group (M = 3.51, SD = 0.81), F (1, 119) = 0.22, p = .644, $\eta_p^2 < 0.01$. These additional results suggest that there may be a ceiling effect for levels of body image resilience (between 3.4 and 3.5) among all participants in the sample, regardless of the type of meditation exercises they completed. Meditation appears to help increase levels of resilience to this ceiling level (as shown in the relaxation meditation group) but does not appear to increase levels beyond this ceiling (as shown in the self-compassion meditation group).

Table 6a. *Main effect of time (baseline vs 3 month follow up) on outcomes, controlling for baseline body image resilience.*

Tests of Within-Subjects (Time Points)					
		Estimated Marginal Means			
		Baseline		3-month follow-up	
Measure	Test statistics + Effect size	*M*	*SE*	*M*	*SE*
Trait self-compassion	$F(1,116) = 5.44$, $p < .001^b$ $\eta_p^2 = .045$	2.84[a]	0.06	3.05[a]	0.07
Body Dissatisfaction	$F(1,116) = 0.02$, $p = 0.025^b$ $\eta_p^2 = .000$	2.83[a]	0.09	2.67[a]	0.09
Body Shame	$F(1,116) = 2.26$, $p = 0.014^b$ $\eta_p^2 = .019$	3.52[a]	0.10	3.28[a]	0.11
Body Appreciation	$F(1,116) = 2.90$, $p = 0.011^b$ $\eta_p^2 = .024$	3.48[a]	0.06	3.62[a]	0.06
CSW- appearance	$F(1,116) = 4.74$, $p = 0.166^b$ $\eta_p^2 = .039$	3.75[a]	0.06	3.66[a]	0.07
Positive Affect	$F(1,116) = 2.98$, $p = 0.191^b$ $\eta_p^2 = .025$	2.61[a]	0.06	2.71[a]	0.07
Negative Affect	$F(1,116) = 1.50$, $p < .001^b$ $\eta_p^2 = .013$	3.20[a]	0.07	3.58[a]	0.08
Body image resilience*	$F(1,117) = 15.91$, $p < .001^b$ $\eta_p^2 = .120$	3.19	0.07	3.46	0.08

Note: The analysis for body image resilience was tested using an ANOVA. *M* = mean. *SE* = Standard Error

a. Covariates appearing in the model are evaluated at the following values: Baseline body image resilience Mean = 3.1989.
b. Adjustment for multiple comparisons: Bonferroni

Table 6b. *Main effect of meditation group on outcomes, controlling for baseline body image resilience.*

Tests of Between-Subjects (meditation group)					
		Estimated Marginal Means			
		Self-compassion Meditation Group		Relaxation Meditation Group	
Measure	Test statistics + Effect size	*M*	*SE*	*M*	*SE*
Trait self-compassion	$F(1,116) = 0.98$, $p = 0.535^b$ $\eta_p^2 = .008$	3.02[a]	0.08	3.15[a]	0.09
Body Dissatisfaction	$F(1,116) = 0.93$, $p = 0.337^b$ $\eta_p^2 = .008$	2.83[a]	0.11	2.67[a]	0.11
Body Shame	$F(1,116) = 2.32$, $p = 0.130^b$ $\eta_p^2 = .020$	3.55[a]	0.13	3.25[a]	0.13
Body Appreciation	$F(1,116) = 1.43$, $p = 0.233^b$ $\eta_p^2 = .012$	3.48[a]	0.07	3.61[a]	0.07
CSW- appearance	$F(1,116) = 0.22$, $p = 0.635^b$ $\eta_p^2 = .002$	3.73[a]	0.08	3.68[a]	0.08
Positive Affect	$F(1,116) = 0.34$, $p = 0.556^b$ $\eta_p^2 = .003$	2.69[a]	0.07	2.63[a]	0.07
Negative Affect	$F(1,116) = 2.38$, $p = 0.125^b$ $\eta_p^2 = .020$	3.29[a]	0.09	3.50[a]	0.09
Body image resilience	$F(1,117) = 4.13$, $p = 0.044^b$ $\eta_p^2 = .034$	3.47	0.09	3.19	0.09

Note: The analysis for body image resilience was tested using an ANOVA. *M* = mean. *SE* = Standard Error

a. Covariates appearing in the model are evaluated at the following values: Baseline body image resilience Mean = 3.1989.

b. Adjustment for multiple comparisons: Bonferroni

Table 6c. *Interaction between time (baseline vs 3month-follow-up) and group (self-compassion vs relaxation) on outcomes, controlling for baseline body image resilience.*

Variable	Test statistics + Effect size	Self-compassion meditation Group				Relaxation meditation			
		Baseline		3-month follow-up		Baseline		3-month follow-up	
		M	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*
Trait self-compassion	$F(1,116) = 0.04$, $p = 0.832$ $\eta_p^2 = .000$	2.82[a]	0.08	2.99[a]	0.09	2.86 [a]	0.87	3.11 [a]	0.10
Body Dissatisfaction	$F(1,116) = 4.10$, $p = 0.045$ $\eta_p^2 = .034$	2.83[a]	0.12	2.82[a]	0.12	2.82[a]	0.12	2.51[a]	0.12
Body Shame	$F(1,116) = 0.87$, $p = 0.351$ $\eta_p^2 = .007$	3.63[a]	0.14	3.48[a]	0.15	3.42[a]	0.15	3.08[a]	0.15
Body Appreciation	$F(1,116) = 1.11$, $p = 0.294$ $\eta_p^2 = .009$	3.44[a]	0.08	3.52[a]	0.08	3.51[a]	0.08	3.71[a]	0.08
CSW- appearance	$F(1,116) = 0.35$, $p = 0.555$ $\eta_p^2 = .003$	3.80[a]	0.09	3.67[a]	0.09	3.70[a]	0.09	3.65[a]	0.09
Positive Affect	$F(1,116) = 0.09$, $p = 0.760$ $\eta_p^2 = .001$	2.63[a]	0.08	2.75[a]	0.09	2.59[a]	0.08	2.66[a]	0.10
Negative Affect	$F(1,116) = 0.46$, $p = 0.496$ $\eta_p^2 = .004$	3.13[a]	0.09	3.45[a]	0.11	3.28[a]	0.09	3.71[a]	0.11
Body image resilience	$F(1,117) = 9.00$, $p = 0.003$ $\eta_p^2 = .071$	3.43	0.79	3.50	0.81	2.94	0.82	3.43	0.93

Note: The analysis for body image resilience was tested using an ANOVA. *M* = mean. *SE* = Standard Error

a. Covariates appearing in the model are evaluated at the following values: Baseline body image resilience Mean = 3.1989.

Hypothesis 3.

A 2 between-groups factor (meditation Group: self-compassion meditation vs relaxation meditation) x 2 within-groups factor (time: post-test vs 3-month follow-up) mixed ANCOVA, with body image resilience as a covariate was used to compare changes in outcomes over time by group. The analyses were conducted in the same was as for Hypothesis 1 and 2. Results of this analysis have been separated in three tables and have included Bonferroni adjustment for multiple corrections accordingly.

Table 7a focuses on the main effect of time (post-test vs 3-month follow-up). There was a significant change over time in body dissatisfaction, and negative affect. Specifically, women's body dissatisfaction increased over time and negative affect decreased over time.

Table 7b focuses on the main effect of meditation group (self-compassion vs relaxation). There was no significant difference in any of the variables between the self-compassion meditation group and the relaxation meditation group, except for body appreciation. This includes the trait self-compassion measure used as a manipulation check. This suggests that even though one of the meditations focused on self-compassion specifically, no differences were found between the two kinds of meditation.

Table 7c includes the two-way interaction between time and group. There was no significant interaction between time and group on any of the variables.

Table 7a. *Main effect of time (post-test vs 3month follow up), controlling for baseline body image resilience.*

Tests of Within-Subjects (Time Points)					
		Estimated Marginal Means			
		Post-test		3-month Follow-up	
Measure	Test statistics + Effect size	*M*	*SE*	*M*	*SE*
Trait self-compassion	$F(1,116) = 0.08$, $p = 0.184^b$ $\eta_p^2 = .001$	3.12[a]	0.06	3.05[a]	0.07
Body Dissatisfaction	$F(1,116) = 9.23$, $p = 0.024^b$ $\eta_p^2 = .074$	2.53[a]	0.08	2.67[a]	0.08
Body Shame	$F(1,116) = 0.45$, $p = 0.974^b$ $\eta_p^2 = .004$	3.28[a]	0.10	3.28[a]	0.10
Body Appreciation	$F(1,116) = 0.62$, $p = 0.507^b$ $\eta_p^2 = .005$	3.65[a]	0.05	3.62[a]	0.05
CSW- appearance	$F(1,116) = 0.49$, $p = 0.449^b$ $\eta_p^2 = .004$	3.62[a]	0.06	3.66[a]	0.06
Positive Affect	$F(1,116) = 0.75$, $p = 0.211^b$ $\eta_p^2 = .007$	2.62[a]	0.07	2.71[a]	0.06
Negative Affect	$F(1,116) = 6.58$, $p = 0.044^b$ $\eta_p^2 = .054$	3.75[a]	0.07	3.58[a]	0.07
Body image resilience	$F(1,117) = 2.93$, $p = 0.089^b$ $\eta_p^2 = .024$	3.56	0.07	3.46	0.08

Note: The analysis for body image resilience was tested using an ANOVA. *M* = mean. *SE* = Standard Error

a. Covariates appearing in the model are evaluated at the following values: Baseline body image resilience Mean = 3.1989.

b. Adjustment for multiple comparisons: Bonferroni

Table 7b. *Main effect of meditation group, controlling for baseline body image resilience.*

Tests of Between-Subjects (meditation group)					
		Estimated Marginal Means			
		Self-compassion Meditation Group		Relaxation Meditation group	
Measure	Test statistics + Effect size	*M*	*SE*	*M*	*SE*
Trait self-compassion	$F(1,116) = 0.98$, $p = 0.324^b$ $\eta_p^2 = .008$	3.02[a]	0.08	3.15[a]	0.09
Body Dissatisfaction	$F(1,116) = 2.55$, $p = 0.113^b$ $\eta_p^2 = .022$	2.73[a]	0.11	2.47[a]	0.11
Body Shame	$F(1,116) = 2.74$, $p = 0.100^b$ $\eta_p^2 = .023$	3.45[a]	0.14	3.11[a]	0.14
Body Appreciation	$F(1,116) = 4.37$, $p = 0.039^b$ $\eta_p^2 = .036$	3.52[a]	0.07	3.74[a]	0.07
CSW- appearance	$F(1,116) = 0.75$, $p = 0.388^b$ $\eta_p^2 = .006$	3.69[a]	0.08	3.58[a]	0.08
Positive Affect	$F(1,116) = 0.00$, $p = 0.936^b$ $\eta_p^2 = .000$	2.67[a]	0.09	2.66[a]	0.09
Negative Affect	$F(1,116) = 2.19$, $p = 0.142^b$ $\eta_p^2 = .019$	3.56[a]	0.09	3.77[a]	0.09
Body image resilience	$F(1,117) = 1.18$, $p = 0.279^b$ $\eta_p^2 = .010$	3.59	0.10	3.43	0.10

Note: The analysis for body image resilience was tested using an ANOVA. *M* = mean. *SE* = Standard Error

a. Covariates appearing in the model are evaluated at the following values: Baseline body image resilience Mean = 3.1989.

b. Adjustment for multiple comparisons: Bonferroni

Table 7c. *Interaction between time (post-test vs 3month follow up) and group (self-compassion vs relaxation), controlling for baseline body image resilience.*

Variable	Test statistics + Effect size	Self-compassion meditation Group				Relaxation meditation			
		Post-test		3-month Follow-up		Post-test		3-month Follow-up	
		M	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*
Trait self-compassion	$F(1,116) = 0.04$, $p = 0.832$ $\eta_p^2 = .000$	3.05[a]	0.09	2.99[a]	0.09	3.19[a]	0.09	3.11[a]	0.10
Body Dissatisfaction	$F(1,116) = 0.49$, $p = 0.483$ $\eta_p^2 = .004$	2.64[a]	0.11	2.82[a]	0.12	2.42[a]	0.12	2.51[a]	0.12
Body Shame	$F(1,116) = 0.39$, $p = 0.533$ $\eta_p^2 = .003$	3.42[a]	0.15	3.48[a]	0.15	3.13[a]	0.15	3.08[a]	0.15
Body Appreciation	$F(1,116) = 0.55$, $p = 0.460$ $\eta_p^2 = .005$	3.52[a]	0.07	3.52[a]	0.08	3.78[a]	0.08	3.71[a]	0.08
CSW- appearance	$F(1,116) = 2.16$, $p = 0.144$ $\eta_p^2 = .018$	3.72[a]	0.09	3.67[a]	0.09	3.52[a]	0.09	3.65[a]	0.09
Positive Affect	$F(1,116) = 1.16$, $p = 0.283$ $\eta_p^2 = .010$	2.59[a]	0.11	2.75[a]	0.09	2.65[a]	0.11	2.66[a]	0.10
Negative Affect	$F(1,116) = 0.42$, $p = 0.518$ $\eta_p^2 = .004$	3.68[a]	0.10	3.45[a]	0.11	3.82[a]	0.11	3.71[a]	0.11
Body image resilience	$F(1,117) = 2.25$, $p = 0.136$ $\eta_p^2 = .019$	3.68	0.10	3.50	0.11	3.44	0.10	3.43	0.11

Note: The analysis for body image resilience was tested using an ANOVA. *M* = mean. *SE* = Standard Error

a. Covariates appearing in the model are evaluated at the following values: Baseline body image resilience Mean = 3.1989.
b. Adjustment for multiple comparisons: Bonferroni

5.5.4. Test of mediation models: Hypotheses 4a – 4c.

Hypothesis 4.

The purpose of this mediation analysis is to investigate whether trait self-compassion changes body dissatisfaction via positive affect, negative affect and body image resilience. Model 6 of PROCESS macro (Hayes, 2013) was used to examine the direct and indirect pathways through which baseline trait self-compassion (predictor variable X) might have an effect on post-test body dissatisfaction (outcome variable Y) through one of the mediator variables (positive affect, negative affect, or body image resilience) at each time point Week 1(M1), Week 2 (M2) and Week 3 (M3). Three mediation models were tested, one for each mediator variable. All three mediators at different time points were entered simultaneously (See Figures 3a, 3b, and 3c).

Hypothesis 4a: Changes in body dissatisfaction at baseline and post-test in the self-compassion meditation group will be mediated by higher levels of positive affect.

The total effect (b = -0.01, SE = 0.0615) was not significant: 95% CI [-.1127, .1413]. Figure 3a presents the direct effects between each pair of variables in the model, and Table 8a presents the indirect effects tested in the model. None of the indirect effects from baseline trait self-compassion via positive affect to post-test body dissatisfaction were significant.

Figure 3a

Serial mediation model for trait self-compassion meditation group (N = 63) assessing the effect of positive affect between self-compassion and body dissatisfaction.

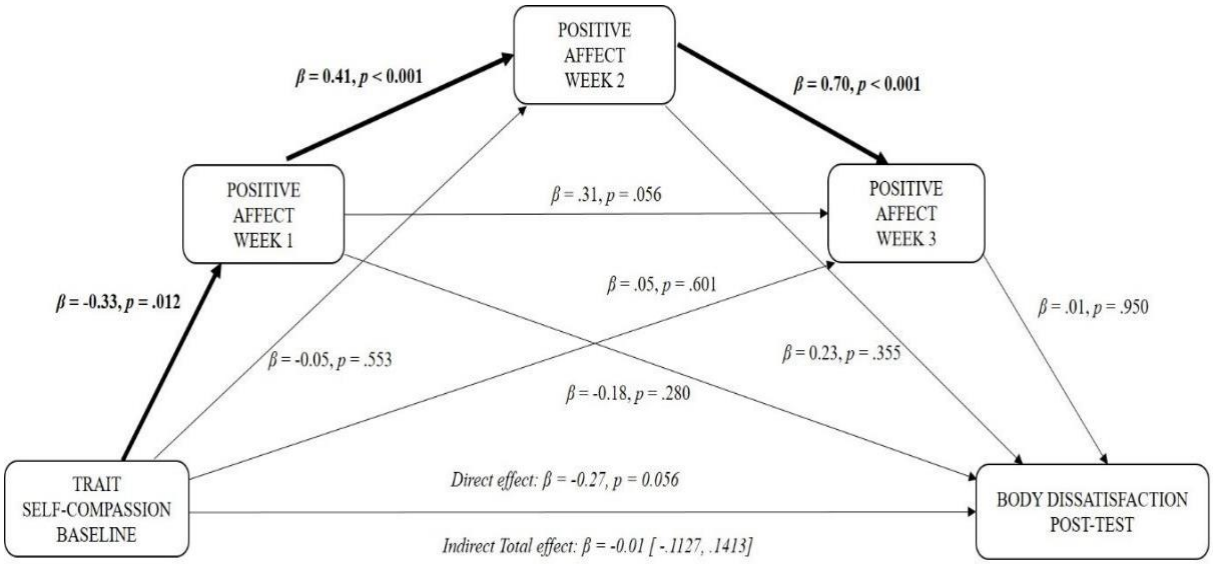


Table 8a. *Unstandardized pathway coefficients for all indirect effects in serial mediation model for self-compassion meditation group (N = 63) (Baseline trait self-compassion – Positive affect - Post-test body dissatisfaction).*

	Indirect effect path	Effect	SE	Lower 95% CI	Upper 95% CI
1	Baseline trait self-compassion -> Week 1 Positive affect -> Post-test body dissatisfaction	0.06	0.06	-0.0446	0.2196
2	Baseline trait self-compassion -> Week 2 Positive affect -> Post-test body dissatisfaction	-0.01	0.03	-0.0989	0.0347
3	Baseline trait self-compassion -> Week 3 Positive affect -> Post-test body dissatisfaction	0.00	0.01	-0.0355	0.0347
4	Baseline trait self-compassion -> Week 1 Positive affect -> Week 2 Positive affect -> Post-test body dissatisfaction	-0.03	0.03	-0.1184	0.0333
5	Baseline trait self-compassion -> Week 1 Positive affect -> Week 3 Positive affect -> Post-test body dissatisfaction	-0.00	0.02	-0.0473	0.0433
6	Baseline trait self-compassion -> Week 2 Positive affect -> Week 3 Positive affect -> Post-test body dissatisfaction	-0.00	0.01	-0.0230	0.0287
7	Baseline trait self-compassion -> Week 1 Positive affect -> Week 2 Positive affect -> Week 3 Positive affect -> Post-test body dissatisfaction	-0.00	0.01	-0.0362	0.0350

Hypothesis 4b: Changes in body dissatisfaction at baseline and post-test in the self-compassion meditation group will be mediated by higher levels of negative affect.

The total effect (*b* = -0.01, *SE* = 0.0791) was not significant: 95% CI [-.1690, .1509]. Figure 3b presents the direct effects between each pair of variables in the model, and Table 8b presents the indirect effects tested in the model. None of the indirect effects from baseline trait self-compassion via negative affect to post-test body dissatisfaction were significant.

Figure 3b

Serial mediation model for trait self-compassion meditation group (N = 63) assessing the effect of negative affect between self-compassion and body dissatisfaction.

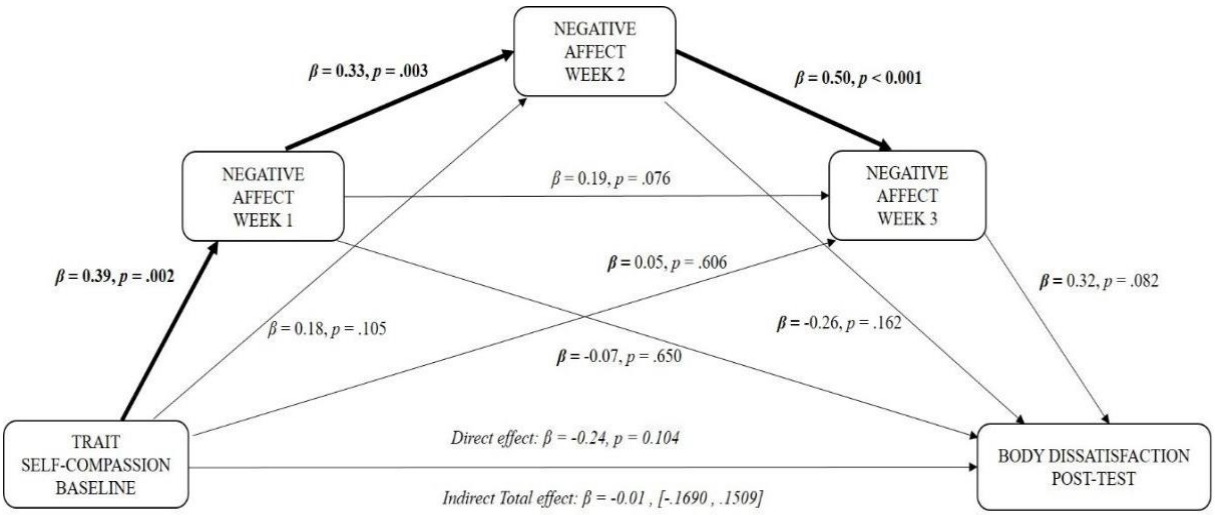


Table 8b. *Unstandardized pathway coefficients for all indirect effects in serial mediation model for self-compassion meditation group (N = 63)*

(Baseline trait self-compassion – Negative affect- Post-test body dissatisfaction)

Indirect effect path	Effect	SE	Lower 95% CI	Upper 95% CI
1. Baseline trait self-compassion -> Week 1 Negative affect -> Post-test body dissatisfaction	-0.02	0.06	-0.1451	0.1119
2. Baseline trait self-compassion -> Week 2 Negative affect -> Post-test body dissatisfaction	-0.04	0.05	-0.1699	0.0211
3. Baseline trait self-compassion -> Week 3 Negative affect -> Post-test body dissatisfaction	0.01	0.03	-0.049	0.1094
4. Baseline trait self-compassion -> Week 1 Negative affect -> Week 2 Negative affect -> Post-test body dissatisfaction	-0.03	0.03	-0.1173	0.0132
5. Baseline trait self-compassion -> Week 1 Negative affect -> Week 3 Negative affect -> Post-test body dissatisfaction	0.02	0.02	-0.0065	0.0912
6. Baseline trait self-compassion -> Week 2 Negative affect -> Week 3 Negative affect -> Post-test body dissatisfaction	0.02	0.02	-0.0061	0.0831
7. Baseline trait self-compassion -> Week 1 Negative affect -> Week 2 Negative affect -> Week 3 Negative affect -> Post-test body dissatisfaction	0.02	0.01	-0.0013	0.0592

Hypothesis 4c: Changes in body dissatisfaction at baseline and post-test in the self-compassion meditation group will be mediated by higher levels of body image resilience.

The total effect (*b* = -0.28, *SE* = 0.0914) was significant 95% CI [-.4772, -.1167]. Figure 3c presents the direct effects between each pair of variables in the model, and Table 8c presents the indirect effects tested in the model. The indirect effect from baseline trait self-compassion via body image resilience to post-test body dissatisfaction was significant.

Figure 3c

Serial mediation model for trait self-compassion meditation group (N = 63) assessing the effect of body image resilience between self-compassion and body dissatisfaction.

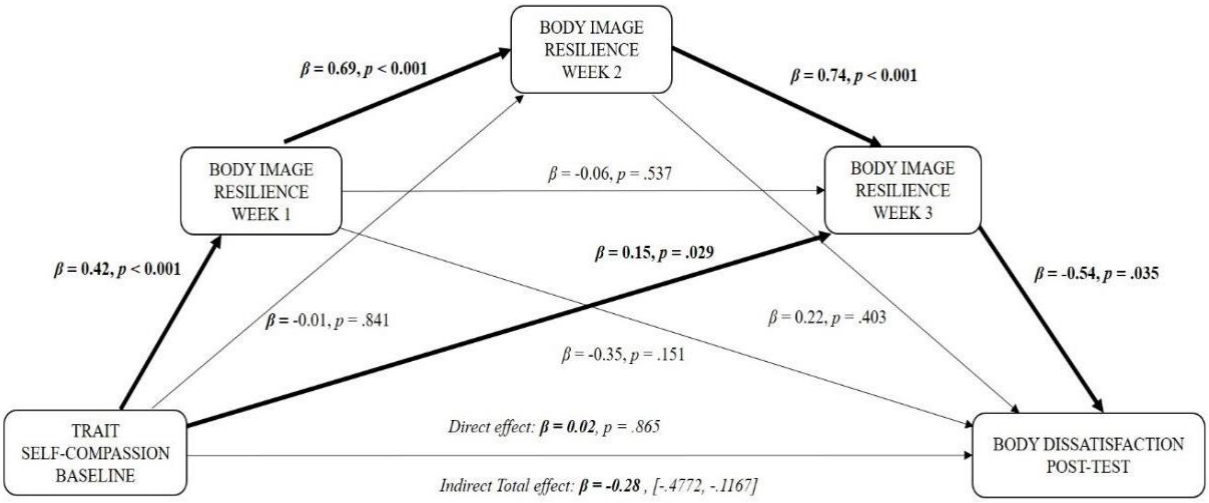


Table 8c. *Unstandardized pathway coefficients for all indirect effects in serial mediation model for self-compassion meditation group (N = 63) (Baseline trait self-compassion – body image resilience- Post-test body dissatisfaction).*

Indirect effect path	Effect	SE	Lower 95% CI	Upper 95% CI
1. Baseline trait self-compassion -> Week 1 (BI) Resilience -> Post-test body dissatisfaction	-0.13	0.07	-0.2743	0.0249
2. Baseline trait self-compassion -> Week 2 (BI) Resilience -> Post-test body dissatisfaction	0.00	0.03	-0.0572	0.0884
3. Baseline trait self-compassion -> Week 3 (BI) **Resilience -> Post-test body dissatisfaction**	**-0.08**	**0.05**	**-0.2102**	**-0.0001**
4. Baseline trait self-compassion -> Week 1 (BI) Resilience -> Week 2 (BI) Resilience -> Post-test body dissatisfaction	0.06	0.07	-0.0603	0.2481
5. Baseline trait self-compassion -> Week 1 (BI) Resilience -> Week 3 (BI) Resilience -> Post-test body dissatisfaction	-0.01	0.03	-0.0950	0.0470
6. Baseline trait self-compassion -> Week 2 (BI) Resilience -> Week 3 (BI) Resilience -> Post-test body dissatisfaction	-0.00	0.04	-0.1207	0.0741
7. Baseline trait self-compassion -> Week 1 (BI) **Resilience -> Week 2** (BI) **Resilience -> Week 3** (BI) **Resilience -> Post-test body dissatisfaction**	**-0.11**	**0.07**	**-0.3050**	**-0.0091**

Note: BI = Body Image

5.6. Discussion

Study 3 sought to test the effects of a self-compassion intervention on body dissatisfaction over time in a longitudinal design, and to explore the mechanisms underpinning any effects of trait self-compassion on body dissatisfaction over time. This discussion a) provides a summary of the results, particularly those related to Albertson et al.'s (2014) study, b) focuses on each hypothesis, c) considers the theoretical implications and finally, d) outlines the limitations and future directions.

5.6.1. Summary of the results related to Albertson et al.'s (2014) study

Study 3 sought to replicate Alberson et al.'s research, which investigated the effect of a self-compassion intervention on body dissatisfaction and addressed two aspects of their methodology that restricts the interpretation of their findings. First, the waitlist group used by Albertson et al., (2014) as a control group may have meant that an effects observed in the self-compassion intervention condition may simply reflect a placebo effect. To address this issue, Study 3 used an active control group that allowed participants to experience a relaxation meditation for three weeks. Thus, the placebo effect was ruled out by having participants allocated to two different meditations (self-compassion versus relaxation), which should have led to similar expectations as to their likely effects.

Second, Albertson et al. (2014) did not test any mechanisms to explain how the self-compassion program lowered levels of body dissatisfaction. To address this issue, Study 3 tested three potential mediators—positive affect, negative affect and body image resilience—of the relationship between trait self-compassion and body dissatisfaction. Previous research has developed meditation trainings and writing interventions to lower levels of body dissatisfaction successfully (e.g., Gilbert & Irons 2004, Albertson et al., 2014; Ziemeret al., 2019). However,

less attention has been devoted to investigate mechanisms that may explain how such interventions work. The present study extended a small but growing research on the understanding of how interventions to lower levels of body dissatisfaction work. Results demonstrated that there is an effect of meditation over time, regardless of the kind of meditation group (self-compassion or relaxation). In addition, body image resilience was found to mediate the relationship between trait self-compassion and body dissatisfaction.

5.6.2. Evidence for Hypotheses

Hypothesis 1.

There was a significant main effect of time (baseline vs post-test) on most of the variables. Specifically, there was an increase in positive experiences such as trait self-compassion, body appreciation, negative affect, and body image resilience and a decrease in body dissatisfaction and body shame and contingence self-worth based on appearance (CSW – appearance). These findings indicate that women's experiences became more positive over time, regardless of which type of meditation (self-compassion or relaxation) they completed during the study. A potential explanation for why no differences were found between the two meditation groups can be found in previous research. Two basic types of meditation have been identified by the literature, mindfulness meditation and focused meditation (Sedlmeier et al., 2012). The self-compassion meditation belongs to the category of mindfulness meditations, as this kind of meditation instructs participants to adopt an open attitude towards negative emotions, thoughts, and feelings (e.g., loving-kindness meditation). The relaxation meditation belongs to the category of focused meditation, as this kind of meditation instructs participants to focus on sensations or images (e.g., pyramid guided meditation for deep relaxation). However, it has been argued that both kinds of meditations produce the same relaxation response (Benson et al., 1974), as they both include

components of mindfulness, such as body relaxation, guided breathing, and openness to negative emotions.

Given the afore-mentioned similarities between these two types of meditation (self-compassion and relaxation), it is likely that both meditations may have similar effects in helping women to 1) indirectly acknowledge their body functionality through guided breathing, 2) adopt an understanding attitude towards themselves, and 3) do not over-identify with negative thoughts or feelings regarding their body appearance (Neff, 2003a, Amy et al., 2020). In support of this idea, a meta-analysis has found that various types of meditations (e.g., transcendental meditation, relaxation meditation) result in similar-sized positive effects on outcomes such as mindfulness, negative emotions, positive emotions, and self-compassion (Sedlmeier et al., 2012).

Another explanation for why no differences were found between the two meditation groups is that the sample size may not have been big enough to detect these effects. A post-hoc power analysis showed that 212 participants were needed to detect a medium effect size (d = 0.5) using independent groups ANCOVA with a significance level of $p = 0.05$ (Cohen, 1992). However, the current study recruited 117 participants to match Albertson et al.'s (2014) sample size. This study was not powered to account for the start of the COVID-19 pandemic halfway through the study. Therefore, it was not possible to recruit more participants throughout the pandemic.

However, while participants reported an increase in positive experiences over time on the variables listed above, there were two notable exceptions to this pattern. First, negative affect increased over time across both meditation groups. This result was not expected as the negative impact of meditation has not been documented in previous research (e.g., Albertson et al., 2014). However, the present study is unique due to the circumstances in which it was conducted: data was collected between October 1st 2019 and July 31st 2020, which marked the onset and growth of the

global COVID-19 pandemic. The COVID-19 pandemic presented an unforeseen challenging context that likely had an independent impact on people's general negative affect over time. Research has found that during the COVID-19 pandemic the general population experienced high rates of negative affect in the form of anxiety, depression, post-traumatic stress disorder and stress (Xiong et al., 2020). Additionally, qualitative research has found that levels of negative effect were significantly higher during the pandemic compared to before the pandemic (Brown et al., 2021; Nutley et al., 2021; Richardson et al., 2020). This increase in negative affect can be partly attributed to the range of restrictions that U.K. residents faced from March 2020, including stay-at-home orders, cancellation of non-essential excursions, and avoidance of social contact outside one's household (Johnson, 2020). It is likely that women under such constraints would have curtailed their typical positive interactions and experiences while also experiencing an increasing number of stressors, thus increasing their negative affect. Assuming that the women who took part in the present study had similar experiences, their enhanced general negative affect would have been revealed in their responses to the relevant items in the questionnaires. Second, positive affect did not significantly change over time. This finding is not consistent with what Neff et al., (2007) found. However, as described above, it is likely that people did not experience positive affect as expected because participants completed the meditation while the pandemic caused by COVID-19 was spreading across the UK (World Health Organization, 2020). Women who participated in the study were immersed in constant stress due to the expectations of gender roles (e.g., housework) while at the same time trying to balance work tasks (Sandberg & Thomas, 2020).

Third, there was no significant effect of the self-compassion meditation on most of the variables, except for body image resilience. That is, in contrast to Albertson et al.'s (2014) findings, there were no significant differences between the self-compassion meditation group and the

relaxation meditation group in trait self-compassion, body dissatisfaction, contingency self-worth based on appearance, body shame, and body appreciation. Thus, there was no evidence that trait self-compassion is differentially affected by the type of meditation that people undertake, whether it is specifically focused on self-compassion or more generally focused on relaxation. This finding is, however, consistent with Amy et al. (2020), who replicated Albertson et al.'s, (2014) method and included a guided imaginary meditation as an active control group. They did not find significant differences between their two meditation groups: self-compassion meditation and guided imaginary meditation.

Fourth, women in the self-compassion meditation group reported higher levels of body image resilience compared to women in the relaxation meditation group, however, this may simply reflect the pre-existing differences in baseline body image resilience between the two groups.

Hypothesis 2.

There was a significant change over time in trait self-compassion, body dissatisfaction, body shame, body appreciation, negative affect and body image resilience. These findings are consistent with previous research (Albertson et al., 2014; Amy et al., 2020). These findings demonstrate that changes across time in trait self-compassion, body dissatisfaction, body shame, body appreciation, negative affect and body image resilience can be maintained.

Additionally, there was a significant difference in body image resilience between the self-compassion meditation group and the relaxation meditation group at baseline and 3-month follow-up. As expected, women in the self-compassion meditation group had an increase in body image resilience compared to women in the relaxation meditation group. This finding provides support to the idea that self-compassion can help people to build emotional resilience (Neff, 2003a).

Albertson et al. (2014) and Toole and Craighead (2016) found that participants in the self-compassion intervention group had significantly lower levels of contingencies of self-worth based on appearance (women's evaluation of themselves based on their physical appearance) after the intervention compared to before; this pre-post difference over time was larger than the difference shown in the control condition. Contrary to these findings, however, the present study did not find any significant differences in contingencies of self-worth based on appearance between the self-compassion meditation condition and the waitlist control condition. This finding is, however, consistent with Amy et al. (2020) who replicated Albertson et al.'s (2014) method and included a guided imaginary meditation as a control group. They did not find any changes in contingencies of self-worth based on appearance, either between the meditation groups or over time.

In addition, positive affect did not show any significant change over time. This finding is not consistent with previous research (e.g., Albertson et al. 2015; Amy et al., 2020). One explanation for this finding is that the fact that women were exposed at high levels of stress due to COVID-19 and high gender role expectations put on them such as housework and child care (Sandberg & Thomas, 2020).

The two-way interaction demonstrated that there was a significant interaction between the self-compassion meditation and time on body dissatisfaction and body image resilience. In other words, in the self-compassion meditation group women showed lower levels of body dissatisfaction across time. This finding is consistent with previous research (Albertson et al. 2015; Amy et al., 2020). However, further analysis showed that the change in body image resilience over time can be explained by the higher baseline level in the self-compassion meditation group; thus this effect was not considered to be meaningful.

The literature on body image resilience has not previously examined its association with trait self-compassion and body dissatisfaction, thus it would be important for future research to replicate this finding and provide further evidence of the link between trait self-compassion and body image resilience as well as the link between body image resilience and body dissatisfaction. Regardless of the limited research on body image resilience, previous research has pointed out that self-compassion can help individuals to build emotional resilience (Neff & McGehee, 2010; Kemper et al., 2015).

Hypothesis 3.

When looking at the main effect of time (post-test vs 3-month follow-up), it was found that there was a significant decrease in body dissatisfaction, and negative affect. This is consistent with Albertson et al.'s (2014) study and other researchers (Amy et al., 2020). However, there was no significant effect of time on trait self-compassion, shame, positive affect, body appreciation, contingent self-worth based on appearance (CSW-appearance) and body resilience. This may have happened because the three-month gap between the post-measures and the follow-up measures took place between April and June 2020, which was when the COVID-19 pandemic was spreading across the UK (World Health Organization, 2020). Therefore, women who participated in the study were immersed in constant stress due to external factors and thus may not have continued to practice meditations during this period.

Importantly, there was a significant difference between the self-compassion meditation group and the relaxation meditation group in body appreciation. This is consistent with previous findings (Albertson et al., 2014; Amy et al., 2020). The main effect of the two-way interaction showed no significant interaction between any of the variables. This may have happened due to the sample size. Albertson et al.'s (2014) study had a sample size of 228 adult women whereas this

study recruited 117 female participants, allocated in a self-compassion meditation group (n = 63) or a relaxation meditation group (n = 64).

Hypothesis 4.

Positive and Negative affect. Contrary to what was hypothesized, positive and negative affect were not found to be significant mediators of the relationship of trait self-compassion and body dissatisfaction. This is inconsistent with what was found in Study 2 of this thesis, where positive affect and negative affect were found significant mediators. Previous research has identified negative affect as a predictor of body dissatisfaction in a longitudinal (one week) study (Haedt-Matt et al., 2012). One potential explanation of this finding is that the three-week follow-up used in the present study did not provide an opportunity to detect an effect of self-compassion on positive and negative affect, because people's affective experiences change constantly and thus may not be accurately measured with a measure administered once a week for three weeks. Consistent with this explanation, previous research in mood repair has not found significant affective changes in longitudinal studies conducted over a one-week period (Josephson, 1996).

Body image resilience. Body image resilience was found to significantly mediate the relationship between trait self-compassion and body dissatisfaction. Body image resilience is a recent construct that lacks experimental research to support the theoretical model proposed by Choate (2005), which describes the social, structural, and psychological protective factors that improve body image, for example support from family of origin and rejection of the superwoman ideal. However, this model does not measure body image resilience directly. This is a problem because there is no evidence of the impact of body image resilience on body dissatisfaction. Another issue with Choate's model of body image resilience is the lack of experimental studies conducted by other researchers to provide support to her model. Study 3 reported in the present

thesis has contributed of measure body image resilience for the first time. Future work could measure body image resilience with the scale tailored for this study and measure the protective factors proposed in Choate's (2005) model and look at the correlations to find out how much Choate's protective factors (e.g., rejection of the superwoman ideal, positive physical self-concept, support from family of origin) contribute to body image resilience. The current study provides some of the first evidence of the mediating role of body image resilience.

5.6.3. Theoretical implications

To date, only two studies have attempted to replicate Albertson et al.'s (2014) method (Toole & Craighead, 2016; Amy et al., 2020). Both studies shortened the intervention from three weeks to one week, they also omitted the three-week follow-up, and did not test potential mechanisms underpinning the relationship between trait self-compassion and body dissatisfaction. Although both studies found that a self-compassion intervention lowered levels of body dissatisfaction in women, only Amy et al. (2020) partially-addressed the first limitation of Albertson et al. (2014) by including a guided imaginary meditation as an active control group. The present study built on Toole and Craighead (2016) and Amy et al. (2020) to also investigate variables that may mediate the relationship between trait self-compassion and body dissatisfaction, thus offering insights into the mechanisms through which self-compassion interventions may have benefit women who struggle with body dissatisfaction. Body image resilience was found to significantly mediate the relationship between trait self-compassion and body dissatisfaction. This novel finding supports the idea that trait self-compassion can help individuals to develop emotional resilience (Neff, 2003, Neff & Mc Gehee, 2010). This is important because building body image resilience through self-compassion provides women with

access to a new skill that can be used as a shield to protect them against the negative effects of body dissatisfaction.

Study 3 also has important implications for the conceptualization of body image resilience. To the researcher's knowledge, work on body image resilience has not directly defined body image resilience. Although Choate (2005) proposed a theoretical model that included protective factors that may contribute to body image resilience, she did not directly conceptualise or measure body image resilience directly. Future research could manipulate body image resilience and test its consequences for other types of outcome variables (e.g., body surveillance, body shame, body appreciation, body compassion). Additionally, future research could also look at potential mechanisms that underpin the relationship between body image resilience and body dissatisfaction.

Another area for future research is to develop a measure of body image resilience. To date there is not a scale that measure this construct. The present study used an adapted version of the Brief Resilience Scale (BRS; Smith et al., 2008) to measure body image resilience that reworded the original items of the BRS to relate them to body image and appearance. Although this adapted version had a good internal consistency (Cronbach alpha = .87) it does not substitute a "tailor-made" body image resilience scale. This adapted version, however, could serve as a starting point for researchers to pilot test the items to identify whether each item assesses body image resilience. In addition, researchers could identify which items are clear for participants and delete items that potentially confuse participants. Developing a standardized measure of body image resilience will allow researchers in the future to measure the construct with the highest levels of reliability and validity.

5.6.4. Practical implications

The present study included an active control group when replicating Albertson's et al.'s (2014) study rather than a passive control group of those on the waiting list for the intervention. Results showed the mere act of meditation (self-compassion or relaxation) can help women to lower levels of body dissatisfaction. This finding was consistent with Amy et al. (2020) who included a guided imaginary meditation as a control group. In addition, previous research has reported that regardless the kind of meditation, the simple act of meditating can help people to relax (Benson et al., 1974; Sedlmeier et al., 2012). This suggests that practicing a self-compassion meditation is as beneficial as other kind of meditations, such as relaxation meditation, rather than providing specific additional benefits.

In the context of therapy, such contributions facilitate the understanding of interventions lowering body dissatisfaction. In addition, the fact that this study used podcasts to teach self-compassion to women, opens a new channel of communication to cultivate self-compassion in a contact-free way. For example, future research could offer the intervention online. This would involve streaming the meditation through a video-conferencing software (e.g., google meet, zoom, Microsoft teams) and have all participants at the same time in the meditation group.

In addition, research could focus on the development of interventions to increase levels of body image resilience in women. To date, there are several meditation interventions that have demonstrated to increase levels of self-compassion (Gilbert & Procter, 2006; Albertson et al. 2015; Toole & Craighead, 2018; Amy et al., 2020) and this study found that self-compassion can increase levels of body image resilience. Therefore, based on the principle that self-compassion can be taught, this may be the case for body resilience. If so, it would be interesting to identify the best methods to help women to develop body image resilience. This way women could have

a kind of "shield" that can protect themselves from internal and external stimuli that triggers body dissatisfaction.

5.6.4. Limitations and future directions

The present study provides evidence of the mediating role of body image resilience in the relationship between trait self-compassion and body dissatisfaction for the first time, however, this study has some limitations and offers opportunities for future research. First, the current study is reported as per-protocol (i.e., only participants who provided data at each time point were analysed) therefore results must be interpreted with caution. Only including completers does not acknowledge the possibility that participants will discontinue any kind of interventions; in other words, the per-protocol approach does not provide any information about who dropped out of the study or their reasons for doing so. In addition, per-protocol analysis may overestimate the effect of the intervention expected outside of a clinical trial (Weiss et al., 2020), because it does not include data from people who dropped out of the study. To address this issue, it is advised to conduct an intention-to-treat analysis (ITT, Gupta, 2011). ITT analysis includes every participant who was randomized in each condition ignoring withdrawal, non-compliance, and protocol deviations (Fisher, 1990). This is achieved by estimating missing values using, for example, multiple imputation analysis. However, estimation is only possible when there is a relatively low dropout rate. Furthermore, this analysis avoids excessively optimistic results of the efficacy of an intervention as the result of removing non-compliers (Heritier et al., 2003). As previously mentioned, an ITT analysis was not possible to conduct due to a relatively large proportion of missing values (64.86%) in the data set. In addition, it was not possible to use multiple imputation to replace the missing data, as multiple imputation is only recommended when between 5% and 40% of datapoints are missing (Clark & Altman, 2003).

Second, Study 3 obtained a smaller sample size than the original target due to the number of people who dropped out. The low number of participants is especially likely to undermine the statistical power of the mediation analyses (Fritz & MacKinnon, 2007). To avoid high drop-out rates, researchers could recruit only participants who are interested in meditation or have body image issues and are looking for an intervention to help themselves (Toole & Craighead, 2016; Amy et al., 2020). This way participants may feel more motivated to complete the intervention program. In fact, research has found that pre-training motivation predicted attrition (Sitzmann et al., 2010). In other words, participants who are already motivated at the start of the study will maintain their interest and complete the intervention, thus improving the completion rates. However, one potential problem with this strategy is that it compromises the generalizability of results, because only participants who had a high level of pre-training motivation will have participated. Thus, strategies to improve completion rates must be balanced against strategies to improve external validity or the generalizability of results.

Due to the ongoing world health crisis caused by the COVID-19 pandemic, some participants withdrew from the study because they needed to travel to their home countries or to re-arrange their personal circumstances to adapt to the situation. This concern comes from the instructions given to participants, where they were asked to “try to listen this audio file once a day, for the next 7 days”. That instruction made participants think that if they missed any day of the meditation programme, then it was better not to continue with the study to not affect the research results. Such unforeseen situations may be addressed by allowing participants to skip their meditation practice for one or two days per week. The mean of the number of meditations per week in Albertson et al.’s (2014) was 3.6 and in this study was 4.5, even though they were told to meditate seven days. This suggests that people who are asked to meditate every day,

typically meditate 3 to 4 times per week. Therefore, allowing participants to take a break from their meditation practice once or twice per week should not affect the results. Indeed, so doing would give them some flexibility to deal with any unexpected circumstances before deciding whether to drop out or not.

5.6.5. Conclusions

Study 3 provided the first investigation of whether and how body dissatisfaction is influenced by different types of meditation (self-compassion or relaxation). Women who participated in either type of meditation showed improvements in body dissatisfaction over time. This suggests that regular meditation can bring positive outcomes to women with body dissatisfaction, regardless of the specific focus or content of the meditation. Indeed, there was no difference in reported levels of trait self-compassion between the two types of mediation, even though only one meditation specifically targeted self-compassion. Trait self-compassion was related to lower body dissatisfaction over time, an effect that was mediated by body image resilience. Although these findings are preliminary and need to be replicated, they offer important insights into strategies that might help reduce women's body dissatisfaction.

CHAPTER 6

GENERAL DISCUSSION

Given that negative body image can have a negative impact on physical and psychological health, it is important to develop interventions that can reduce people's levels of body dissatisfaction. To date, studies have focused on two protective factors: self-compassion and gratitude (e.g., Geraghty et al., 2010; Albertson et al., 2015). However, more work is needed to corroborate the effectiveness of such interventions as well as identify the mechanisms through which self-compassion and gratitude lower levels of body dissatisfaction. The present thesis investigated these questions (see chapter 2 subsection 2.4).

The first aim of this research was to provide further evidence for the effectiveness of identified protective factors in reducing body dissatisfaction, specifically self-compassion and gratitude. Study 1 used a correlational design to explore the relationships between self-compassion and body dissatisfaction, and between gratitude and body dissatisfaction. Building on the results of the first study, Study 2 and Study 3 used experimental designs to test the effects of a self-compassion intervention on body dissatisfaction.

The second aim of this research was to examine a range of potential mechanisms that may explain the relationship between the key predictors (self-compassion, gratitude) and body dissatisfaction – i.e., *how* these factors are protective. Mechanisms were chosen based on theoretical links to the predictors (gratitude or self-compassion) and the main outcome (body dissatisfaction), as well as preliminary evidence for these associations in previous research. Across the three studies, five potential mechanisms were examined: (i) self-objectification (Study 1), (ii) affective mechanisms (positive affect and negative affect; Studies 2 and 3), (iii) cognitive mechanisms (positive momentary-thought action repertoires and negative momentary-

thought action repertoires; Study 2), (iv) implicit associations (appearance schema activation and non-appearance schema activation; Study 2) and (v) body image resilience (Study 3).

This final chapter presents a summary of the conclusions that can be drawn from the findings from the three reported studies. The first section discusses the experimental effects of self-compassion interventions on body dissatisfaction and the second section considers the mechanisms that may explain this relationship, placing these results within the context of the literature on body dissatisfaction. The third section discusses the contributions of this thesis, as well as the implications for theory and practice. The fourth section discusses the main limitations of this thesis research and suggestions for future research. Finally, the fifth section presents the conclusions that can be drawn from the three studies conducted in this research programme.

6.1 Summary of findings

6.1.1. Experimental effects of self-compassion interventions on body dissatisfaction

Research on factors that reduce body dissatisfaction has identified two key predictors: gratitude and self-compassion. Yet studies to date have only examined the role of these two predictors separately (e.g., Geraghty et al., 2010; Ferreira et al., 2013, Homan et al., 2014; Albertson et al., 2015; Wolfe & Patterson, 2017); thus, little is known about the independent relationship between each predictor and body dissatisfaction. Study 1 addressed this question by examining the role of gratitude and self-compassion as simultaneous predictors of body dissatisfaction. The aim was to consider which of these variables should be targeted by interventions tested in the subsequent studies. Study 1 used a correlational design to explore the relationships between gratitude, self-compassion, and body dissatisfaction among a sample of 343 adult mostly British women with no history of eating disorders. Results from bivariate correlations showed that self-compassion and gratitude were negatively associated with body

dissatisfaction, consistent with findings from previous research (Geraghty et al., 2010; Ferreira et al., 2013). Results from a multiple regression analysis showed that self-compassion was a significant negative predictor of body dissatisfaction, whereas there was no evidence that gratitude predicted body dissatisfaction. Therefore, the subsequent studies in this thesis focused on testing the effects of self-compassion on body dissatisfaction.

Study 2 built on Study 1 by examining the experimental effects of a brief manipulation of self-compassion. A sample of 158 female adult mostly British women completed a writing task about a negative body event that either aimed to elicit specific feelings of self-compassion or aimed to elicit a general response with no mention of self-compassion. Results showed that the manipulation of self-compassion did not have an effect on self-compassion or on body dissatisfaction. In other words, there was no evidence that the manipulation of self-compassion worked as it did in previous research (Leary et al., 2007) that used the same exercise. One explanation for this null effect is that participants were given freedom in the writing tasks regarding the choice of negative events; thus, there may have been too much variation in the focus of this single short-term activity to produce any systematic effect. This issue was addressed in the third study by testing a longer manipulation of self-compassion that provided more structure in the way in which participants engaged with the key concepts.

Study 3 built on Study 2 by examining the experimental effects of a more involved self-compassion meditation intervention on body dissatisfaction over time. A sample of adult mostly British women with no history of eating disorders completed a three-week self-compassion meditation intervention designed to evoke either feelings of self-compassion about their body, or a three-week relaxation mediation intervention designed to evoke a relaxation response about their body. The impact of this intervention on participants' body dissatisfaction was assessed at

two time-points: post-test (a few days after participants had completed the three-week meditation intervention) and three-months later. When comparing the impact of the meditation groups on body dissatisfaction, results showed no significant effect: the type of meditation completed by participants (self-compassion or relaxation) did not have an impact on body dissatisfaction. This finding is not consistent with a previous study (Albertson et al., 2015) that showed significant differences in body dissatisfaction between the self-compassion meditation group and the waitlist control condition. However, the results of Study 3 were consistent with another intervention study (Amy et al., 2020) that did not find significant differences between two meditation groups: self-compassion meditation and guided imaginary meditation. The difference in results might be explained by the use of an active control condition (i.e., another meditation intervention) in Study 3 and Amy et al. (2020): it appears that any meditation (self-compassion or another type) is equivalent in its impact on body dissatisfaction.

When the effects of time were examined at baseline vs post-test, results demonstrated that there was a significant main effect on body dissatisfaction: Regardless of which meditation intervention the women had completed, they reported lower levels of body dissatisfaction after the meditation intervention compared to before. This result is consistent with previous work showing a decrease in body dissatisfaction among women who completed a three-week self-compassion meditation intervention (e.g., Albertson et al. 2015; Toole & Craighead, 2016; Amy et al., 2020). -The meditation interventions also resulted in lower body dissatisfaction at the three-month follow-up compared to the baseline, and at the three-month follow-up compared to the post-test immediately after the meditation was completed. These findings are consistent with previous research (Albertson et al., 2015; Amy et al., 2020) which show that changes in body dissatisfaction can be maintained over time. Together, these findings support the idea that

meditation interventions—whether focused on self-compassion or relaxation—can lower levels of body dissatisfaction both in the short-term (immediately after the meditation intervention has ended) and in the longer-term (over a period of three months).

6.1.2. Mechanisms underlying the relationship between self-compassion and body dissatisfaction

Research has shown that self-compassion and gratitude interventions can lower levels of body dissatisfaction (Albertson et al., 2015; Toole & Craighead, 2016; Amy et al., 2020). However, less is known about the mechanisms that may underpin these effects. To address this question, this thesis examined the mechanisms underpinning the effects of self-compassion and gratitude on body dissatisfaction. This section reviews the conclusions that can be drawn across the three reported studies.

Self-objectification

Study 1 examined the potential role of self-objectification in mediating the relationship between self-compassion and body dissatisfaction, and the relationship between gratitude and body dissatisfaction. Results showed that self-objectification was not associated with any of these variables, and thus cannot serve as a mediator. This finding is not consistent with previous research where self-objectification has been found to be negatively associated with self-compassion (Liss & Erchull, 2015) and positively associated with body dissatisfaction (Fredrickson & Roberts, 1997; Tiggemann & Lynch, 2001; Myers & Crowther, 2007). The results are also not consistent with previous research where self-objectification has been associated with body dissatisfaction (Fredrickson & Roberts, 1997; Tiggemann & Lynch, 2001; Myers & Crowther, 2007). This mixed evidence may be due to there not being a comprehensive instrument that can measure self-objectification as a single construct. For example, the Self-

Objectification Questionnaire (Noll & Fredrickson, 1998) asks participants to rank observable attributes (e.g., weight) and non-observable attributes (e.g., health). This exercise does not directly assess the subjective nature of self-objectification, and the ranking task may also produce inaccurate results: participants may find the instructions confusing and thus their answers may not necessarily match their experiences. Another measure that aims to assess self-objectification is the Objectified Body Consciousness Scale (McKinley & Hyde, 1996) which has three subscales: 1) body surveillance, 2) body shame and 3) appearance control beliefs. Participants are instructed to report the extent to which they agree with the items, and the response scale includes a "not applicable" option. The problem with this methodology is that participant can skip over any item they wish, which increases the amount of missing data that the researcher will not be able to analyse. Further research could develop a new measure of self-objectification that address these issues.

Positive affect and negative affect.

Study 2 examined a number of potential mechanisms of the relationship between self-compassion and body dissatisfaction. The mechanisms examined are: i) affective mechanisms (positive affect and negative affect), ii) cognitive mechanisms (positive momentary-thought action repertoires and negative momentary-thought action repertoires), iii) implicit associations (appearance schema activation and non-appearance schema activation). This section will focus only on positive affect and negative affect, as results showed them to be the sole significant mechanisms in the study.

Previous research has found preliminary evidence for positive affect and negative affect as the process underpinning the relationship between self-compassion and body dissatisfaction. Specifically, evidence suggests that self-compassion is positively associated with positive affect

and negatively associated with negative affect (Leary et al., 2007; Neff et al., 2007a; Neff & Vonk, 2009; López et al., 2018). In addition, previous research has found that the negative affect evoked by shame, anxiety and sadness are linked with body dissatisfaction (Fredrickson & Roberts, 1997; Neff, 2003a; Neff et al., 2007a, Neff et al., 2007b). However, no previous study has investigated both positive and negative affect as parallel mechanisms; thus, little is known about the independent effect of each of these variables to explain the relationship between self-compassion and body dissatisfaction. Studies 2 and 3 sought to address this question.

Study 2 found that positive and negative affect significantly mediated the relationship between self-compassion and body dissatisfaction. These findings contribute to the literature (Ferreira et al., 2013; Pinto-Gouveia et al., 2014; Albertson et al., 2015) as this is the first direct evidence of the role played by positive and negative affect in mediating the relationship between self-compassion and body dissatisfaction. Study 3 built on Study 2 by testing the mediating role of positive and negative affect in a three-week self-compassion intervention. Contrary to the findings from Study 2, Study 3 found that positive affect and negative affect were not significant mediators of the relationship between self-compassion and body dissatisfaction at baseline and post-test. One explanation for this inconsistency is that the impact of affect is reduced in the context of a longer-term longitudinal design. Indeed, research in mood repair has reported no significant affective changes in longitudinal studies conducted over a week (Josephson, 1996).

It is also important to remember that Study 3 was conducted during a turbulent time in British history: data was collected during the COVID-19 pandemic, which impacted people's lives in unprecedented ways. For example, people had to self-isolate and were not allowed to have social contact with their loved ones unless they belonged to the same household, and they were asked to work from home (Johnson, 2020). Among the emotions that people experienced

through lockdown, research has found that uncertainty and fear were the two negative amotions that most people identified (Herat, 2020). Unfortunately, Study 3 did not include any measure that could account for the general impact of COVID-19 on participants' positive and negative affect. Future research could measure general affect using measures such as the PANAS-X (Watson & Clark, 1999), which measures four basic negative emotions (fear, sadness, guilt, hostility), three basic positive emotion scales (joviality, self-assurance, attentiveness), and four other affective states (e.g., shyness, fatigue, surprise, and serenity). The measurement of a broader range of emotional states would allow researchers to capture more nuanced experiences elicited by participants' more general life circumstances. Yet one important constraint is that this measure includes 60 items, and thus would add require more time and effort from participants.

Body image resilience

The final mechanism examined in Study 3 was body image resilience, which has not been directly tested in empirical studies as a predictor of body image (Choate, 2005). Body image resilience was found to be a mechanism that explains the relationship between self-compassion and body dissatisfaction over the course of a three-week self-compassion intervention. This finding makes an important contribution to the literature on body image resilience by documenting its impact on body dissatisfaction. The result also adds a previously un-examined variable to explain the process underpinning the impact of self-compassion on body dissatisfaction. The following section expands this summary of findings by highlighting the contributions and implications of this thesis.

6.2. Contributions and implications of this thesis

6.2.1 Theoretical contributions

This first contribution of this thesis regards the effects of a self-compassion intervention. To date research has found that a three-week self-compassion meditation intervention can lower levels of body dissatisfaction in women when compared to a waitlist control group (Albertson et al., 2015). Yet no research had directly investigated whether a self-compassion meditation was better than another type of meditation (i.e., relaxation meditation intervention). Study 3 showed equivalent results for the two types of meditation (relaxation and self-compassion), perhaps because both meditations produced a similar relaxation response that was effective in lowering body dissatisfaction. Indeed, previous research has shown that mindfulness meditations and focused meditations (e.g., those focused on self-compassion) generate the same relaxation response (Benson et al., 1974). Mindfulness meditations instruct participants to adopt an open perspective towards negativity, especially emotions, thoughts and feeling. These instructions are equivalent to the self-compassion meditation used in Study 3 so it could be allocated in this type of meditation category. It is important to highlight that mindfulness is a component of self-compassion, therefore there is a conceptual overlap. Focused meditations instruct participants to focus on their sensations or images (e.g., a pyramid). These instructions are equivalent to the relaxation meditation used in Study 3 so it could be allocated in this type of meditation. As such, the two types of meditation could be considered essentially equivalent with respect to their impact on body dissatisfaction.

The second contribution of this thesis is to further understand the mechanisms that may explain the relationship between self-compassion and body dissatisfaction. The findings of Study 2 and Study 3 strengthen the proposition that two variables—positive affect and body image

resilience—can explain how trait self-compassion can lower levels of body dissatisfaction. Study 2 demonstrated that positive affect is a significant mediator of the relationship between trait self-compassion and body dissatisfaction. One explanation is that trait self-compassion enhances positive affect by encouraging people to adopt a kind and understanding interpretation of the negative event, which activates cues of psychological safety (Wang, 2005) that in turn reduces body dissatisfaction. Another explanation for this effect draws on the undoing hypothesis of positive emotions (Fredrickson et al., 2000), which posits that positive emotions might undo the effects of negative emotions. As such, the positive emotional response elicited by self-compassion may work as an antidote to the experience of body dissatisfaction.

A third potential explanation for these findings involves the impact of mood on information processing. Research has found that mood can cause people to look closer at details of the situation that are congruent with their mood allowing them to filter out details that are not congruent with their mood. Thus, their perception of sensory information is changed (Calvo & Nummenmaa, 2007; Chun & Turk-Browne, 2007; Sanchez, et al., 2014). For example, negative affect makes people more likely to remember negative associations and pay attention to the self. Thus, women who experience negative affect in a situation where their body is compromised could potentially have negative feelings and may feel negative towards their body.

Results from Study 3 indicated that body image resilience mediated the relationship between trait self-compassion and body dissatisfaction. Research on general resilience shows that trait self-compassion helps individuals to build resilience by helping them accept that every human has flaws (Neff & McGehee, 2010; Bluth et al., 2018). Applying this principle to the context of body dissatisfaction, recognizing that failure and shortcomings are part of all humans' experience could help women to feel compassionate about their body imperfections and thus

adopt an understanding attitude towards themselves, which would help them reduce their sense of body dissatisfaction. Another explanation for these findings involves the impact of protective filtering and body image flexibility on positive body image. Qualitative research has found that protective filtering and body image flexibility are two key concepts in positive body image and that they may help women to build resilience (Linardon et al., 2021; Evens, Stutterheim & Alleva, 2021). Specifically, protective filtering refers to accepting information that is aligned with positive body image and it helps women to disbelieve any message that could damage their positive body image (Tylka & Wood-Barcalow, 2015). In this context, it may be that the components of self-compassion (i.e., self-kindness, common humanity, and mindfulness) might be used to filter the information that women receive. For example, when women have negative perceptions about their body or encounter negative messages about their body (e.g., from other people or popular culture) they could adopt a kind attitude towards themselves rather than self-criticism and judgement, seeing their experience as part of a human shared experience rather than isolating, and holding their painful thoughts and feelings as they appear rather than over-identifying when they experience negative feelings regarding their body. Thus, women build resilience and are less likely to experience the negative effects of body dissatisfaction.

Body image flexibility, refers to the ability to experience thoughts or feelings about the body without over-reacting, avoiding, or changing them (Sandoz et al., 2013). It also entails the ability to choose a lifestyle that is consistent with personal values even when the individual deals with unwanted private events regarding the body (Sandoz et al., 2013; Webb et al., 2014). Research has found that women high in body image flexibility are less likely to show maladaptive behaviours and attitudes towards food and eating, report issues regarding their body, and pursue societal standards (Linardon et al., 2021). Research has examined the relationship

between self-compassion and body image flexibility. For example, Ferreira et al. (2011) found that body image flexibility was positively associated with self-compassion. In addition, Kelly et al. (2014) found that greater levels of self-compassion are associated with a lower impact of body mass index on the levels of body image flexibility. Although both Ferreira et al., and Kelly et al., adopted correlational designs, they provide preliminary evidence of a relationship between self-compassion and body image flexibility. In this context it may be that the mindfulness component of self-compassion (i.e., accepting feelings and emotions as they appear without overreacting) helps women to be open about their feelings and emotions regarding their body. This would allow women to accept negative emotions and feelings without overreacting and adopt an understanding attitude towards their body image.

6.2.2. Implications for practice

Implications for interventions

Results of Study 3 in this thesis did not find significant differences between the self-compassion meditation intervention when compared to the relaxation meditation intervention. This finding is supported by previous research (Amy et al., 2020) which used a guided imaginary meditation as an active control group. Similar to Study 3 of this thesis, Amy et al. (2020) found that regardless of the meditation group (i.e., self-compassion or relaxation) no interaction or main effect for group were found. Importantly, the studies reported in this thesis provide no evidence for the efficacy of self-compassion interventions. Thus, further research is needed to better understand whether a self-compassion meditation intervention or relaxation meditation intervention would be beneficial for women who experience body dissatisfaction.

Online interventions—such as the meditation interventions set up in Study 3— have been widely used and recommended by the National Health Service (NHS) in the United Kingdom

(Simmonds-Buckley et al., 2020). They have the potential to help to treat various mental health problems such as depression and anxiety, as well as more everyday non-clinical concerns such as body dissatisfaction (Marks et al., 2007; Barak et al., 2008, Albertson et al., 2015). The use of online interventions is likely to increase from 2020, as the COVID-19 global pandemic has increased people's access to the internet and their ability to engage in various aspects of their lives online, including work, study, medical appointments, and social events (Blumenstyk, 2020). For example, in 2013, the Australian Government funded TheMindSpot Clinic, a series of online sessions designed to provide people living in remote locations with the opportunity to access triage, assessment, referral, education and treatment services to help individuals with symptoms of anxiety and depression (Titov et al., 2018). Such examples demonstrate that online interventions can make mental health services more accessible to people, especially for those who have limited mobility due to disabilities or caring responsibilities, or who live in rural or isolated areas far away from health centres.

The increased accessibility of online interventions addresses a significant problem faced by public health systems that traditionally rely on in-person interventions (Wang et al., 2005). Specifically, treatments often require too much time and staff-power to be offered to patients on a wide scale, and they often require too much time and effort from patients to be completed on a regular basis (Gamm et al., 2010; Gibson & O'Connor, 2010). Indeed, research shows that people have better access to health services that are provided via remotely and/or online via telehealth and telemedicine (Zhou et al., 2020; Gajarawala & Pelkowski, 2021).

In sum, this thesis does recommend the use of self-compassion meditation interventions to treat body dissatisfaction. Online interventions and face-to-face interventions could be used to deliver either self-compassion interventions or relaxation meditations. However, further research

is needed to understand the efficacy of self-compassion meditation interventions and relaxation meditation interventions.

Implications for therapy

Therapy is a treatment for mental health problems where a psychologist or other mental health professional provides support and creates a neutral, objective, and safe environment for a patient to work through their problems (Fox, 2017). There are many types of therapy used to treat different outcomes, such as cognitive behavioural therapy (CBT), interpersonal therapy, and psychoanalysis among others (American Psychological Association, 2016). CBT in particular is one of the most common therapies used to treat body dissatisfaction and associated clinical issues such as eating disorders (Murphy et al., 2010; Linardon et al., 2017; Mulkens & Waller, 2021). These therapies have focused mainly on reducing the role of risk factors that exacerbate body dissatisfaction rather than on building protective factors that can reduce body dissatisfaction (Rosen et al., 1989; Cerea et al., 2021).

The empirical studies reported in this thesis have shown the importance of looking at protective factors such as trait self-compassion and body image resilience to reduce patients' levels of body dissatisfaction. For example, mental health therapists could help patients develop new skills (e.g., body image resilience) that help treat the specific problem (e.g., body dissatisfaction) but can also be applied to all areas of patients' lives. By focusing on protective factors, mental health professionals will be able to help their patients to build general resources that can be used to reduce body dissatisfaction and any other problems that may emerge in the future. Research has also looked at the role of self-compassion therapy to treat depression and anxiety. A metanalysis found that self-compassion skills can be developed in therapy and can reduce levels of depression and anxiety (Wilson et al., 2019). In addition, research has looked at

the role of self-compassion to address issues relevant to the topic of this thesis, including eating disorders and body image concerns (e.g., bulimia, anorexia, and body dissatisfaction). For example, Turk and Waller (2020) conducted a meta-analysis to examine the effectiveness of self-compassion interventions in improving body image concerns. Their results showed that self-compassion interventions resulted in higher levels of positive body image and fewer body image concerns. Together these findings suggest that therapy focusing on self-compassion may help individuals work through range of different clinical and non-clinical issues surrounding body image. However, further research is needed to better understand the role of self-compassion meditation and relaxation meditation in developing and maintaining positive body image and the mechanisms that may explain their relationship.

6.3. Limitations and future research

While this thesis makes some important contributions to theory and practice, there are some limitations that should be addressed in future research. This section will consider two general limitations across the three empirical studies: 1) the self-directed nature of the interventions, which although potentially helpful from an applied perspective, may undermine the internal and external reliability of the studies and 2) self-report measures, which may compromise the validity of participants' responses and the association between the measured variables.

6.3.1. Self-directed interventions

Directed interventions require highly qualified personnel or specialists to provide guidance and support throughout the treatment (Muñoz & Mendelson, 2005). In addition, where the intervention needs frequent contact with the participant, interventions become expensive (Tang et al., 2014). In contrast, self-directed interventions need no professional involvement or

no involvement beyond an introductory face-to face session, email or video call (Tang et al., 2014). Self-directed interventions have been found to be beneficial in managing common physical health problems (e.g., diabetes, obesity) and psychological conditions (e.g., depression, body dissatisfaction). For example, studies have shown that self-directed interventions have the power to lower levels of body dissatisfaction, reduce depression, reduce fat intake, and reduce smoking rates (McKay et al., 2002; Muñoz et al., 2006; Christensen et al., 2006; Hrabosky & Cash, 2007; Albertson et al., 2015). In other words, self-directed interventions have shown to have a positive impact on measurable health outcomes.

However, self-directed interventions do have their problems. This section introduces two limitations and discusses their implications. The first limitation focuses on experimental control, and the second limitation concerns potential attrition.

6.3.1.1 *Less experimental control*

Experimental control refers to researchers' efforts to minimize the effects of additional environmental variables that may influence the dependent variable (Kidd & Morgan, 2010). Directed interventions enable researchers to have control over those additional variables because they can directly supervise the participant during the study (Carey et al., 2012). Because self-directed interventions do not need the involvement of a professional at all or do not need more than an introductory face-to-face session with the researcher (Tang et al., 2014), they tend to provide less experimental control. Study 3 of this thesis provides an example of the lower experimental control afforded by a self-directed intervention. This study was conducted online and relied on participants to complete all online questionnaires independently and remotely (baseline, weekly, post-test, three-month follow-up) and complete all online experimental tasks (i.e., the meditation interventions). The third wave of data collection started before the COVID-

19 pandemic was declared in the U.K. (March 1st, 2020) and was completed during the pandemic (July 31st, 2020). The social and physical constraints imposed during the pandemic likely introduced a number of external variables that impacted participants' responses, such as anxiety, fear, loneliness, and boredom. Yet because the study was self-directed, it was not possible for the researchers to monitor participants' actions and responses or to add additional questions to explore their experiences. In other words, it was not possible to directly consider the impact of the external variables when analysing the data.

Despite these problems, self-directed interventions have a lot of benefits (including lower cost and broader reach), and thus they are routinely used by practitioners and researchers alike (Simmonds-Buckley et al., 2020; Bennion et al., 2017). As such, future research could consider strategies to increase experimental control in a self-directed study. For example, researchers could incorporate a short interview at the beginning and the end of the study, where participants could provide information about any factors that may have impacted their responses. In this way, researchers could learn about potential external factors that need to be considered when analysing their data and interpreting their results, especially when their findings are not consistent with previous studies on the topic.

6.3.1.2.Attrition

Attrition is a term used to refer to participants who drop out of a research study before its completion, participants who did not complete post-intervention measures and those participants who did not complete follow-up measures in an experiment (Davis & Addis, 1999). Geraghty et al. (2010) argue that attrition is a problem because it reduces the number of valid responses that are available for researchers to analyse. The attrition may also be caused by unknown systematic factors that impact a specific sub-set of participants (e.g., personality characteristics, structural

constraints), which then means that the dataset of valid responses does not necessarily represent the broader population. In this way, attrition can jeopardize the generalizability of findings (i.e., low external validity) and / or limit the extent to which the evidence can answer the research question (i.e., low internal validity).

Research has found that high levels of attrition are likely to occur when self-directed interventions do not include any guidance from, or contact with, the researcher, as there is no continuous contact, or reminders to engage with the intervention (Eysenbach, 2005). For example, attrition was found across the three empirical studies of this thesis: 28% attrition rate in Study 1, 29% attrition rate in Study 2, 22% baseline attrition rate, 43% post-test attrition rate, and 8% attrition rate at follow-up in Study 3. These attrition rates are consistent with previous research using a self-directed gratitude intervention to reduce body dissatisfaction, which reported an attrition of 62% (Geraghty et al., 2010). The follow-up attrition rate in Study 3 is consistent with research by Albertson et al. (2015), who reported an attrition rate of 48%.

Due to the relatively high rates of attrition in Study 3 further analysis was conducted to determine whether there were any systematic patterns of attrition (see Chapter 5 for details). Results indicated no evidence of systematic variation in those who dropped out: participants who did not complete the study reported equivalent responses on the baseline measures as did participants who did complete the study. Nevertheless, there is always the possibility that participants who drop out of a study share particular characteristics that differentiate them from participants who complete a study.

It is important to acknowledge that some attrition can always be expected and will occur in research and practice. However, by identifying variables that predict attrition, psychological interventions can be enhanced and employ targeted techniques to retain those individuals who

could potentially drop out (Bennett & Glasgow, 2009). For example, research has identified age as a demographic predictor of attrition (Buller et al., 2008), such that older participants (> 45 years old) are more likely to complete post-intervention measures (Couper et al., 2007). However, more work is needed to determine the efficacy of research methods designed to promote engagement such as email reminders (Geraghty et al., 2010). Conducting empirical evaluations to determine the efficacy of such methods means that researchers can rely on evidence-based recommendations for methods to reduce attrition in their studies.

6.4.2. Self-report measures

Self-report measures ask participants to directly report their beliefs and behaviours, they capture people's subjective experience of situations and things (e.g., their body), which are often more important than objective (Lavrakas, 2008). Response scales for self-report measures can take different formats such as Likert scales (i.e., agree, neither agree or disagree, disagree) or semantic differentials (i.e., 1-absolutetly dissatisfied, 2, 3, 4, 5-completely satisfied). Self-report measures are widely used because they provide researchers with a practical and efficient method to learn about people's internal states and experiences that are not easily observable (Paulhus & Vazire, 2007).

Unfortunately, data obtained via self-report measures can also be limited by common method variance. Common method variance refers to "the systematic error variance that is shared among all variables used to measure the construct" (Richardson et al., 2009, p. 763). Common method variance is a problem because the similar aspects of the measures can result in inflated estimates of the relationships between these measures (Jakobsen & Jensen, 2015). In other words, "the method variance components of the individual measures are more positively related than an underlying true relationship" (Doty & Glick, 1998, p.376). For example, Study 1

of this thesis asked participants to report their levels of self-compassion, gratitude, self-objectification and body dissatisfaction using similar response scales. It is possible that using a similar measurement approach produced a similar pattern of responses across these measures, independent of participants' actual experiences: participants would simply fall into a pattern of responding positively (or negatively) to all items that are presented in similar ways. Such inflated correspondence in patterns of responses would produce positive associations between the variables, that may not actually exist in the population.

To lessen the impact of common method variance future research could use statistical methods to detect and control any potential CMV. For example, Harman's single-factor test, is a method where all the items from each construct are loaded into an exploratory factor analysis to examine whether one single factor or one general factor emerge and accounts for most of the covariance between measures (Chang et al., 2010).

6.4.3. Recruitment strategy and exclusion criteria.

The three empirical studies included in this thesis used the same recruitment strategy, screening, and inclusion criteria. First, the recruitment strategy consisted in reaching female students through university emailing lists and women from the general population through social media websites (e.g., Facebook, Twitter). This is a limitation because only participants who had access to social media websites and university students who signed up to receive information about opportunities to participate in research studies at the University of Sheffield with access to the emailing lists were able to take part in the studies. Therefore, women who had no access to internet or technology were missed out. This recruitment strategy does not affect the generalizability of the findings in this thesis, as the demographics of each empirical study showed. Further research should consider including other kinds of strategies to recruit

participants. For example, recruiting participants through printed means such as mail, newspapers and including options for people with disabilities who may not be able to record their own answers and may need assistance.

Second, a screening question was used to ensure that participants with eating disorders did not participate in any of the studies included in this thesis. The reason for excluding participants with a history of eating disorders was because the researcher was not being supervised by a clinical psychologist, therefore it would not have been ethical for the author of this thesis to deal with concerns or distress that might be particularly likely among participants who have been diagnosed with an eating disorder. For example, Study 2 asked participants to recall an event when they have felt uncomfortable with their body. This could have triggered an unwanted response in some participants, which may had been particularly likely and / or problematic for those who have or have had an eating disorder.

6.4. Conclusions

The social pressure for women to achieve the thin body ideal is developed and reinforced thorough the media (e.g., magazines, television, social media) and is thus encountered by just about everyone who is engaged with mainstream society. Exposure to this thin ideal puts woman at risk of developing body dissatisfaction, because they evaluate their own bodies in comparison to an ideal standard that may be impossible them to attain (Fitzsimmons-Craft et al., 2012). Body dissatisfaction has negative consequences for physical and psychological health, as it has been identified as a risk factor for eating disorders such as bulimia and anorexia (Tylka, 2004; Abbate-Daga et al., 2010; Stice & Shaw, 2002; Castellano et al., 2021). It is thus vital to understand the factors that can reduce levels of body dissatisfaction in women (e.g., Albertson et al., 2015; Geraghty et al., 2010).

This research aimed to investigate the effectiveness of two protective factors—self-compassion and gratitude—in reducing body dissatisfaction in women. Results across the three studies showed that self-compassion, rather than gratitude, was significantly and negatively associated with body dissatisfaction. Furthermore, a three-week meditation intervention (whether focused on self-compassion or relaxation principles) was shown to reduce body dissatisfaction in the short-term (immediately after the programme ended) and longer-term (three months later). Thus, it appears that a structured self-guided meditation programme can serve as an effective intervention to lower levels of body dissatisfaction, regardless of its specific content.

Additionally, this research examined mechanisms that may explain the relationship between self-compassion and body dissatisfaction. The studies tested a range of possible mechanisms—including self-objectification, affective mechanisms, cognitive mechanisms, implicit associations, and body image resilience—but showed that body image resilience was the sole variable that accounted for the relationship between self-compassion and body dissatisfaction.

The studies in this research programme provided important insights into the role of self-compassion as a protective factor to reduce body dissatisfaction, with important implications for theoretical models of body dissatisfaction and for interventions and therapy aiming to reduce levels of body dissatisfaction. Yet further research is needed to consolidate and extend the findings. For example, future studies could focus on developing reliable and valid instruments that more effectively assess key variables such as body image resilience and momentary-thought action repertoires. Other studies could consider how best to mitigate the methodological problems associated with self-directed interventions (e.g., experimental control, attrition), as these interventions are more likely to be used in a world that has become used to virtual

interactions during the COVID-19 pandemic. Taken together, this work can help women to love, accept and appreciate their body - regardless its flaws- to become more comfortable with themselves.

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