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Protecting women from image and eating-related difficulties: The promising role of body compassion and the bright side of non-striving

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Master's Dissertation in Cognitive-Behavioural Interventions in
Psychological and Health Disorders supervised by Professor Cláudia
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**PROTECTING WOMEN FROM IMAGE AND EATING-RELATED
DIFFICULTIES: THE PROMISING ROLE OF BODY COMPASSION AND
THE BRIGHT SIDE OF NON-STRIVING**

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Protecting women from image and eating-related difficulties: The promising role of body compassion and the bright side of non-striving

Abstract

Self-compassion, an ability which has been associated with the enhancement of psychological health, and indicators of happiness, optimism, life satisfaction and social connectedness, encompasses the combination of three main elements: self-kindness, common humanity, and mindfulness.

Self-compassion has been covered in literature as a buffer against the impact of negative events, illness and distressing situations, by promoting people's ability to cope with negative events and encouraging them to accept negative internal experiences.

Regarding body image and eating difficulties, self-compassion can have a favourable impact since it increases body appreciation and satisfaction and functions as an antidote to shame and self-judgement. Self-compassion has revealed a protective role against body image and eating-related problems, including binge eating. However, the study of this specific compassionate competence focused on body image is still largely unexplored.

Body compassion is a fresh construct that intends to make a bridge between body image and self-compassion. This construct comprises the three components of self-compassion with an emphasis on body image, adding information of how individuals relate to their bodies.

Although body compassion seems to entail a promising role as a key factor against disordered eating behaviours, to the extent of our knowledge, its protective character has not been yet studied regarding binge eating. Therefore, firstly, the present study aimed to test two path models which hypothesized that body compassion moderates the impacts of

(i) the cumulative number and (ii) negative appraisal of major life events on binge eating behaviours, in a sample of 458 women from the Portuguese general population.

Major life events, typically unpredictable, have been characterized as the experience of an abrupt life change which may generate serious and long-lasting effects. Literature found associations between major life events and disordered eating behaviours, namely the engagement in binge eating (i.e., occurrence of episodes of eating large amounts of food in a discrete period of time with a sense of loss of control over eating and emotional distress). These episodes, often preceded by emotional distress, constitute a maladaptive attempt to avoid or escape from unpleasant thoughts and emotions.

Path analysis results suggested that a compassionate ability focused on body demonstrated its moderator effect on the relationship between cumulative number of major life events and binge eating, accounting for 34% of the variance of binge eating. Body compassion also seems to function as a moderator on the relationship between negative appraisal of major life events and binge eating, accounting for 33% of the variance of binge eating. These findings underline the moderator effect of body compassion in the known relationship between major life events and binge eating by suggesting that body compassion can modulate the experience of life events, specifically by acting as a buffer of its impact in the display of binge eating. The same is to say that in women who present higher levels of body compassion, the impact of major life events in binge eating is attenuated.

Secondly, the current study aimed at exploring whether body compassion could also have a mediator role on the association between secure non-striving (i.e., a non-competitive mentality) and body image shame and disordered eating symptomatology, in a sample of 307 women from the Portuguese general population.

Literature suggests that the vulnerability to some types of psychopathology,

including eating psychopathology, may be associated with increased competitive behaviors, related to humans' need to strive to achieve certain goals. Insecure striving, a defensive strategy that may emerge in early dysfunctional relationships to avoid inferiority and feel socially accepted, seems to lead individuals to build their relationships on competition rather than on caring or cooperative dynamics, which paradoxically orientates them to social comparison and shame sensitivity. On the other hand, although less studied, secure non-striving presents an adaptive nature, being linked with feelings of social accepted and safeness regardless of one's success. Regarding eating psychopathology, secure non-striving appears to be negatively associated with dysfunctional eating attitudes and physical appearance-related anxiety.

In fact, culture plays an important role on determining the desirable body image, especially for women. Since society associates attractiveness with the detention of a thin body, as a mirror of beauty, health, success, power and happiness, body image may constitute a source of shame, as one perceives that failing to achieve the standard can be seen by others as a failure and as a motive to be rejected. Particularly in women, the experience of higher levels of shame appears to be associate with a decreased ability for self-compassion, and consequents adoptions of compensatory maladaptive strategies (e.g., striving for a perfect body through disordering eating behaviors).

To the extent of our knowledge, science has focused its attention on the dark side of striving. To explore the bright side of this construct, the current work is the first examining the specific contribution of secure non-striving on body image and eating-related disturbances.

Path analysis results revealed the mediator effect of body compassion on the relationship between secure non-striving and both body image shame and disordered eating symptomatology, in a model explaining 62% of the variance of disordered eating

symptomatology. Findings seem to notify that holding a non-competitive mentality associates with an attitude of compassion towards body image, which in turn associates with a lighter experience of inferiority feelings based on physical appearance, and with a lower display of disordered eating attitudes and behaviors, in women.

Overall findings from the current study provide important insights for the research in the field of disordered eating attitudes and behaviours, by contributing to a greater understanding of the moderator and mediator role of body compassion on body image shame and eating difficulties.

Taking into account previous literature, the present study suggests that defusion, common humanity and acceptance abilities focused at body image may have a beneficial effect on body image shame and disordered eating symptomatology, including binge eating. These results appear to offer clinical implications, by underlining the relevance of the development of body compassion-based intervention programs to promote abilities of decentering, the recognition that experiences of major life events are shared by humans and cultivate an attitude of acceptance of body-related undesirable perceptions, thoughts and feelings in order to develop healthy eating attitudes and behaviours. Moreover, present findings seem also to underline the bright side of establishing non-competitive relationships with one's self and others. Thus, prevention programs and interventions with disordered eating attitudes and behaviours may benefit from promoting non-competitive and affiliative relationships and body compassion among women.

Keywords: body compassion; secure non-striving; major life events; body image shame; disordered eating symptomatology; binge eating; moderation analyses; mediation analyses.

Protegendo as mulheres de dificuldades relacionadas com a imagem corporal e com a alimentação: O papel promissor da compaixão focada no corpo e os benefícios de uma mentalidade não competitiva

Resumo

A autocompaixão, uma capacidade que tem sido associada à melhoria da saúde psicológica e a indicadores de felicidade, otimismo, satisfação com a vida e ligação aos outros, é um construto que combina três elementos principais: *self-kindness*, humanidade comum e *mindfulness*.

Esta competência tem sido demonstrada na literatura como exercendo um papel amortecedor do impacto de eventos negativos, doenças e situações causadoras de *distress*, promovendo a capacidade das pessoas para lidar com eventos negativos e encorajando-as a aceitarem experiências negativas internas.

Relativamente a dificuldades relacionadas com a imagem corporal e com a alimentação, a autocompaixão pode ter um impacto favorável aumentando a apreciação e a satisfação corporal, e funcionando como um antídoto da vergonha e do autocriticismo. De facto, a autocompaixão tem revelado um papel protetor contra a vergonha focada na imagem corporal e problemas relacionados com a alimentação, incluindo o *binge eating*. No entanto, o estudo desta competência específica focada na imagem corporal parece encontrar-se por explorar.

A compaixão focada na imagem corporal (*body compassion*) é um construto inovador que pretende fazer uma ponte entre a imagem corporal e a autocompaixão. Este construto, compreendendo os três componentes da autocompaixão com ênfase na imagem corporal, fornece informação de como os indivíduos se relacionam com o seu corpo.

Embora a *body compassion* pareça ter um papel promissor como fator-chave diante de comportamentos alimentares perturbados, do nosso conhecimento, o seu caráter

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protetor perante o *binge eating* não foi ainda estudado. Assim, primeiramente, o presente estudo pretendeu testar dois modelos que hipotetizam que a *body compassion* modera o impacto da (i) acumulação e (ii) apreciação negativa de eventos de vida *major* nos comportamentos de *binge eating*, numa amostra de 458 mulheres da população geral Portuguesa.

Os eventos de vida *major*, tipicamente imprevisíveis, têm sido caracterizados como a experiência de uma mudança de vida abrupta que pode gerar efeitos sérios e duradouros. A investigação tem encontrado associações entre estes eventos e a presença de comportamento alimentar perturbado, nomeadamente a adoção de *binge eating* (i.e., ocorrência de episódios de ingestão de grandes quantidades de comida num período discreto de tempo com a sensação de falta de controlo e *distress* emocional). Estes episódios parecem constituir uma tentativa maladaptativa para evitar ou escapar de pensamentos e emoções indesejáveis.

Os dados deste estudo sugeriram que uma competência compassiva focada no corpo demonstra o seu efeito moderador na relação entre a acumulação de eventos de vida *major* e *binge eating*, explicando 34% da variância do *binge eating*. A *body compassion* também parece funcionar como moderadora na relação entre a apreciação negativa dos eventos de vida *major* e o *binge eating*, explicando 33% da variância do *binge eating*. Estes resultados sublinham o efeito moderador da *body compassion* na relação conhecida entre eventos de vida *major* e *binge eating*, sugerindo que a *body compassion* pode modular a experiência destes eventos, especificamente por atuar como um amortecedor do seu impacto na adoção de *binge eating*. Isto significa que nas mulheres que apresentam elevados níveis de *body compassion*, o impacto dos eventos de vida *major* no *binge eating* é atenuado.

Em segundo lugar, o presente estudo pretendeu explorar se a *body compassion*

poderia também ter um papel mediador na associação entre *secure non-striving* (i.e., uma mentalidade não-competitiva) e vergonha focada na imagem corporal e comportamento alimentar perturbado, numa amostra de 307 mulheres da população geral Portuguesa.

A literatura sugere que a vulnerabilidade para alguns tipos de psicopatologia, incluindo psicopatologia alimentar, pode estar associada a comportamentos competitivos, relacionados com a necessidade humana para empenhar esforços com o intuito de alcançar determinados objetivos. O *striving* inseguro, uma estratégia defensiva que parece ter origens em relações precoces disfuncionais, com o propósito de evitar a inferioridade e sentir aceitação social, parece conduzir os indivíduos à construção de relações baseadas na competição em detrimento de dinâmicas de cuidado ou cooperação, que, paradoxalmente, os orienta para comparações sociais e sensibilidade à vergonha. Por outro lado, embora menos estudado, o *non-striving* seguro apresenta uma natureza adaptativa, encontrando-se ligado a sentimentos de aceitação e segurança independentemente do sucesso da pessoa. Relativamente à psicopatologia alimentar, esta mentalidade não competitiva parece estar negativamente associada a atitudes alimentares disfuncionais bem como a ansiedade relacionada com a aparência física.

De facto, a cultura desempenha um papel importante na determinação de uma imagem corporal desejada, especialmente para as mulheres. Uma vez que a sociedade associa a atratividade à detenção de um corpo magro, percecionando-o como um espelho de beleza, saúde, sucesso, poder e felicidade, a imagem corporal pode constituir uma fonte de vergonha, em que a mulher percebe que falhar no alcance do padrão de beleza desejado socialmente pode ser visto pelos outros como uma falha e como tal um motivo para ser rejeitada. Particularmente nas mulheres, a experiência de elevados níveis de vergonha parece estar associada a uma menor competência para ser autocompassiva e consequentemente com a adoção de estratégias compensatórias maladaptativas (e.g.,

esforços para alcançar um corpo perfeito através de comportamentos alimentares perturbados).

Do nosso conhecimento, a investigação tem focado a sua atenção na face negativa do *striving*. Para explorar o uma face positiva deste construto, o presente estudo será o primeiro a examinar a contribuição específica do *non-striving* seguro nas dificuldades relacionadas com a imagem corporal e alimentação.

Os dados deste estudo revelaram que a *body compassion* apresenta um efeito mediador na relação entre o *non-striving* seguro e vergonha focada da imagem corporal bem como no comportamento alimentar perturbado, num modelo que explica 62% da variância desta sintomatologia. Os resultados parecem sugerir que uma mentalidade não competitiva se associa a uma atitude compassiva perante a imagem corporal, que por seu turno se associa com uma menor experiência de sentimentos de inferioridade baseados na aparência física, e com uma menor apresentação de atitudes e comportamentos alimentares perturbados, nas mulheres.

No seu conjunto, os resultados deste estudo parecem providenciar importantes informações para a investigação na área das atitudes e comportamentos alimentares perturbados, contribuindo para uma melhor compreensão do papel moderador e mediador que a *body compassion* pode assumir na vergonha focada na imagem corporal e nas dificuldades relacionadas com um comportamento alimentar perturbado.

Tendo em conta a literatura, o presente trabalho sugere que competências de desfusão, humanidade comum e aceitação focadas na imagem corporal podem desempenhar um efeito benéfico na vergonha focada da imagem corporal e no comportamento alimentar perturbado, incluindo *binge eating*. Estes resultados parecem oferecer implicações clínicas relevantes, enfatizando a importância de desenvolver programas de intervenção baseados na *body compassion* de modo a promover

competências de descentração, de reconhecimento de que as experiências de eventos de vida *major* são partilhadas por todas as pessoas e cultivar uma atitude de aceitação de percepções, pensamentos e sentimentos indesejáveis relacionados com o corpo, com o propósito de desenvolver atitudes e comportamentos alimentares saudáveis. Adicionalmente, os dados do presente estudo parecem sublinhar o lado favorável de estabelecer relações não competitivas com o próprio e com os outros. Assim, programas de prevenção e intervenção com mulheres que experienciam atitudes e comportamentos alimentares perturbados podem beneficiar da promoção de relações não competitivas e afiliativas bem como da *body compassion*.

Palavras-chave: compaixão focada na imagem corporal; mentalidade não competitiva; eventos de vida *major*; vergonha focada na imagem corporal; comportamento alimentar perturbado; *binge eating*; análises de moderação; análises de mediação.

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List of Papers

- I. Barata-Santos, M., & Ferreira, C. (2018). *Body compassion safeguarding the impact of major life events in binge eating.*

Manuscript submitted for publication on *Appetite*.

- II. Ferreira, C., & Barata-Santos, M. (2018). *Body compassion as a highlighter of the bright side of non-striving for women's body image and eating difficulties.*

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PAPER I

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Body compassion safeguarding the impact of major life events in binge eating

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Abstract

Body compassion is a fresh construct that incorporates two multidimensional concepts: body image and self-compassion. Although self-compassion has revealed a protective role against body image and eating-related problems (e.g., binge eating), the study of this specific compassionate competence focused on body image is still largely unexplored. The present study aimed to test two path models which hypothesized that body compassion moderates the impacts of (i) the cumulative number and (ii) negative appraisal of major life events on binge eating behaviours, in a sample of 458 women from the Portuguese general population.

Results showed that body compassion was negatively associated with major life events and binge eating. Path analysis results demonstrated the moderator effect of body compassion on the relationship between major life events (both cumulative number and negative appraisal) and binge eating, accounting for 34% and 33% of the variance of binge eating, respectively. These study results seem to enhance the protective role of body compassion regarding binge eating symptoms in women, by buffering the potentially damaging association between the occurrence of major life events and the engagement in binge eating symptoms. Current findings appear to provide important research and clinical insights, supporting the relevance of promoting body compassion in prevention and treatment programs for disordered eating attitudes and behaviours.

Keywords: major life events; body compassion; binge eating; eating psychopathology; moderation analyses.

Introduction

Major life events have been characterized as the experience of an abrupt life change which may generate serious and long-lasting effects (Olafsson & Svensson, 1986; Settersten & Mayer, 1997). These events are typically unpredictable, and although some of them may constitute helpful situations (e.g., better changes in financial state), others may have destabilizing effects (e.g., death of a family member; Wagner, Compass, & Howell, 1988). Folkman (1984) suggested that individuals may appraise a major life event as positive (appraised as preserving or enhancing the individual's well-being) or negative (involving harm, loss or threat). Indeed, it has been acknowledged that the way one appraises an event shapes the meaning of its experience, that is whether the event is seen as stressful or as being potentially handled (Folkman, 1984).

Major life events are related to significant changes in life satisfaction (Anusic, Yap, & Lucas, 2014) and its accumulation is linked to psychological maladjustment (Buccheri, Mussaad, Bost, & Fiese, 2018) and higher levels of depression and anxiety (Michl, McLaughlin, Shepherd, & Nolen-Hoeksema, 2013; Phillips, Carroll, & Der, 2015). Literature also found significant associations between major life events and disordered eating behaviours (Degortes, Santonastaso, Zanetti, Tenconi, Veronese, & Favaro, 2014). One possible explanation is that disordered eating behaviours may emerge as a manifestation of maladaptive coping, i.e., to regulate the negative affect associated with major life events (Lazarus & Folkman, 1984; Laessle, 2009). Particularly, Woods and colleagues (2010) argue that the combination of major life events may lead to negative affect and, under conditions of high dietary restraint, may weaken self-regulatory resources, putting these individuals at risk for engaging in binge eating (Woods, Racine, & Klump, 2010).

Binge eating is characterized by the occurrence of episodes of eating large amounts

of food in a discrete period of time with a sense of loss of control over eating and emotional distress (American Psychiatric Association, 2013). Episodes of binge eating are often preceded by emotional distress and constitute a maladaptive attempt to avoid or escape from unpleasant thoughts and emotions (Duarte, Pinto-Gouveia, & Ferreira, 2015; Goldfield, Adamo, Rutherford, & Legg, 2008; Longa & Young, 2018). As proposed by Heatherton and Baumeister (1991), binge eating seems to be a pattern of motivated withdrawal from meaningful self-awareness that may occur in a context of reduced or unreflective focus on present sensations. Indeed, individuals who lack adaptive coping skills may be especially susceptible to binge eating when confronted with major life events (Bodell, Smith, Holm-Denoma, Gordon, & Joiner, 2011). These individuals may use binge eating as a way to escape from unwanted internal events (such as thoughts, perceptions, sensations and emotions) and end up engaging in a paradoxical pattern that promotes more negative affect (Heatherton & Baumeister, 1991; Kelly, Cotter, & Mazzeo, 2014). Binge eating is considered a phenomenon of increasing prevalence in women (Johnsen, Gorin, Stone, & le Grange, 2003), entailing severe implications (e.g., higher levels of depression, stress and anxiety) both in clinical and nonclinical populations (Duarte et al., 2015; Kessler, Berglund, Chiu, Deitz, Hudson, Shahly, & Xavier, 2013; McManus & Waller, 1995).

Self-compassion has been covered in literature as a buffer against the impact of negative events, illness and distressing situations (Neff, Kirkpatrick, & Rude, 2007; Leary, Tate, Adams, Allen, & Hancock, 2007). As defined by Neff (2003a), self-compassion encompasses the combination of three main elements: self-kindness (i.e., being gentle, supportive and understanding to oneself rather than judgmental when facing personal shortcomings); common humanity (i.e., recognizing one's experiences as part of the larger human experience rather than feeling isolated by one's imperfection);

mindfulness (i.e., being aware of and holding one's painful thoughts and feelings with clarity and balance, rather being absorbed in an exaggerated storyline about one's negative aspects or life experiences). Self-compassion has been associated with patterns of thoughts and competences that tend to promote people's ability to cope with negative events (Leary et al., 2007; Neff & Dahm, 2015). In fact, self-compassion encourages people to accept negative internal experiences with a sense of connectedness, and to embrace effective actions towards well-being (Neff, 2004).

Self-compassion has been associated with the enhancement of psychological health (e.g., Neff et al., 2007; Zessin, Dickhauser, & Garbade, 2015), and several indicators of happiness, optimism, life satisfaction and social connectedness (e.g., Leary et al., 2007; Neff, 2003a). Research also proposes that self-compassion can have a favourable impact in body image and eating difficulties (e.g., Duarte, Ferreira, Trindade, & Pinto-Gouveia, 2015; Braun, Park, & Gorin, 2016). In fact, while increasing body appreciation and satisfaction (Marta-Simões, Ferreira, & Mendes, 2016; Kelly & Stephen, 2016), self-compassion may help to protect women from potential body image threats (Breines, Toole, Tu, & Chen, 2014; Kelly, Miller, & Stephen, 2016; Rodgers et al., 2017).

Body compassion is a fresh construct that intends to make a bridge between body image and self-compassion (Altman, Linfield, Salmon, & Beacham, 2017). This construct comprises the three components of self-compassion (Neff, 2003a) with an emphasis on body image (Cash, 2004), adding information of how individuals relate to their bodies. Recent research showed the adaptive character of body compassion, namely its buffer effect of the impact of general shame in body image shame and eating psychopathology (Oliveira, Trindade, & Ferreira, 2018), and its association with an increased capacity for flexibility in processes of change related to health and appearance (Altman, Zimmaro, & Woodruff-Borden, 2017). In addition, individuals who present higher levels of body

compassion tend to have higher positive affect and lower negative affect (Oliveira et al., 2018).

Although body compassion seems to entail a promising role as a key factor against disordered eating behaviours, to the extent of our knowledge, its protective character has not been yet studied regarding binge eating. Therefore, the current study aimed to explore whether the impact of the accumulation of major life events and its negative appraisal in the display of binge eating can be attenuated by body compassion. It is expected that body compassion will buffer the impact of major life events, specifically, its number and negative appraisal, in the engagement in binge eating behaviours.

Material and Methods

Participants

This study was carried out in a sample of 458 women from the general population with ages between 18 and 65 years old ($M = 30.74$; $SD = 12.15$) and a mean of 14.01 ($SD = 2.53$) years of education. Participants' mean body mass index (BMI) was 23.14 ($SD = 3.99$). A total of 32 participants (6.99%) presented a BMI indicating thinness or underweight ($BMI < 18.5$), 308 (67.25%) presented normal weight ($18.5 \geq BMI \leq 24.9$), 89 (19.43%) were overweight ($25 \geq BMI \leq 29.9$), and 29 (6.33%) presented obesity ($BMI \geq 30.0$).

Measures

Body Mass Index

Participants' BMI values were calculated by dividing the current weight (in kilograms, kg) by height squared (in meters, m).

Major Life Events Questionnaire (MLEQ; Trindade & Ferreira, 2017)

MLEQ was adapted from Major Stressful Life Events (Cohen, Tyrrell, & Smith, 1991). This self-report measure is composed of 22 items that represent major life events that may happen in one's life (e.g., divorce, pregnancy or significant someone's death). For each item, participants are asked to report the occurrence or absence of a specific event in their lives in the previous 12 months. For each event identified, participants are asked to evaluate, in a 3-point scale, its positive (1 = slightly good; 2 = moderately good; 3 = very good) or negative (1 = slightly bad; 2 = moderately bad; 3 = very bad) impact in their lives. For the aim of this study the number of last year major events and the negative appraisal of occurred events were computed.

The Body Compassion Scale (BCS; Altman et al., 2017; Ferreira, Marta-Simões, & Oliveira, 2018)

BCS is a 23-item self-report measure to assess attitudes of compassion towards one's body. This scale comprises three subscales: defusion (e.g., "When I feel frustrated with my body's inability to do something, I tend to feel separate and cut off from other people"), common humanity (e.g., "When I am frustrated with some aspect of my appearance, I try to remind myself most people feel this way at some time") and acceptance (e.g., "I am accepting of my looks just the way they are"). Items are rated on a 5-point scale (score range 1 = "Almost never" to 5 = "Almost always"). In this study it was used a global BCS score, which presented a Cronbach's alpha of 0.92 in the original (Altman et al., 2017) and of 0.88 in the Portuguese version (Ferreira et al., 2018). In the current study the scale also revealed high internal consistency (presenting a Cronbach's alpha value of 0.92).

Binge Eating Scale (BES; Gormally, Black, Daston, & Rardin, 1982; Duarte et al., 2015)

BES is a self-report measure that allows for the evaluation of the severity of binge eating symptomatology. Particularly, BES assesses behavioural (e.g., eating large amounts of food) and affective or cognitive symptoms (e.g., guilt, feeling out of control to stop eating) that precede or follow a binge-eating episode. This scale comprises 16 items, each item include 3 or 4 statements, which reflect a range of severity (from 0 = “no difficulties” to 3 = “severe problems”). Respondents are asked to choose the statement that best describes their experience. The scale presented good psychometric properties, with a Cronbach’s alpha value of 0.85 in the original (Gormally et al., 1982) and of 0.88 in the Portuguese version (Duarte et al., 2015). In the current study, this scale presented a Cronbach’s alpha of 0.91.

Procedures

The present study is included in a wider research project regarding the impact of emotion regulation processes on women’s mental health and well-being.

Data collection followed ethical and deontological requirements inherent to scientific research and was approved by the Ethics Committee of the Faculty of Psychology and Educational Sciences of the University of Coimbra (Portugal).

Respondents were recruited using a snowball sampling method, through e-mail or social networks. A LimeSurvey (an approved online data collection website) link was sent to potential participants, with a brief explanation of the purposes and procedures of the study, confidentiality, and voluntary participation. Participants provided their written informed consent before completing the online versions of self-report measures. In accordance to the aims of this research, respondents were excluded from the study if they: (a) presented ages under 18 years or over 65 years; (b) were male; and (c) did not have a

Portuguese nationality.

Data analyses

Descriptive and correlation analyses were conducted using the software IBM SPSS (v.22; SPSS Inc., Chicago, IL), in order to examine the sample characteristics and the associations between number of major life events, negative appraisal of major life events, body compassion and binge eating symptomatology, and also age and BMI.

Using the software AMOS (version 21, SPSS; Armonk, NY: IBM Corp.), two moderation models were explored. First, it was intended to test the moderator effect of body compassion (BCS) in the relationship between the cumulative number of major life events in the last 12 months and binge eating (BES). The model explored three causal paths to BES (endogenous, dependent variable): (a) the impact of number of major life events; (b) the impact of body compassion; (c) the impact of the interaction term between the number of major life events and body compassion (Figure 1). Second, it was also intended to test the moderator effect of body compassion (BCS) in the relationship between negative appraisal of major life events and binge eating (BES). The model explored three causal paths to BES (endogenous, dependent variable): (a) the impact of negative appraisal of major life events; b) the impact of body compassion; c) the impact of the interaction term between negative appraisal of major life events and body compassion (Figure 2).

The Maximum Likelihood method was used to estimate all model path coefficients, and effects with $p < 0.050$ were considered statistically significant. Finally, two graphs were plotted to better understand the relationships between predictors (number and negative appraisal) and outcome variable (BES), at different levels - low, medium, and high - of the moderator (BCS). In these representations the three curves were plotted

considering the following cut-point values of the moderator variable on the x axis: one standard deviation below the mean, the mean, and one standard deviation above the mean, as recommended by Cohen and colleagues (2003).

Results

Descriptive and correlation analyses

Descriptive statistics for the study variables are presented, for the total sample ($N = 458$), in Table 1.

Correlation results demonstrated that cumulative number of major life events was negatively associated with low magnitude with body compassion, and positively linked with low magnitude with binge eating (as measured by BES). Results also showed that negative appraisal of major life events revealed a low-magnitude negative association with body compassion, and a low-magnitude positive association with binge eating (BES). Moreover, body compassion was negatively and strongly associated with BES. Regarding age and BMI, age only associated significantly with the number of major life events (although with weak magnitude), and BMI with body compassion, binge eating symptomatology and age.

Table 1. Means (*M*), Standard Deviations (*SD*) and correlations between the study measures (*N* = 458)

Measures	M	SD	1.	2.	3.	4.	5.
1. MLE_number	3.08	2.29	-	-	-	-	-
2. MLE_negative	4.57	4.40	-	-	-	-	-
3. BCS	76.91	16.70	-0.13**	-0.12*	-	-	-
4. BES	7.99	7.90	0.15**	0.15**	-0.52***	-	-
5. Age	30.74	12.15	-0.22***	-0.06	0.05	-0.07	-
6. BMI	23.14	3.99	-0.06	0.04	-0.26***	0.35***	0.34***

Note. MLE_number = number of major life events (assessed by MLEQ); MLE_negative = negative appraisal of major life events (assessed by MLEQ); BCS = Body Compassion Scale; BES = Binge Eating Scale; * $p < 0.050$; ** $p < 0.010$; *** $p < 0.001$.

Path Analysis

The purpose of first path analysis was to examine whether body compassion moderated the impact of number of major life events in binge eating symptoms. This model was tested through a fully saturated model (zero degrees of freedom) and comprised 20 parameters. Since BMI presented a significant correlation with binge eating symptomatology, this variable effect was controlled for in the path model.

Results indicated that all paths coefficients in the model were statistically significant ($p < 0.050$) and explained 34% of the variance of binge eating (Fig. 1).

Number of major life events had a positive direct effect of 0.58 on binge eating ($b_{MLEQ_{number}} = 2.01$; $SE_b = 0.63$; $Z = 3.20$; $p = 0.001$). In turn, BCS presented a direct effect of -0.30 ($b_{BCS} = -0.14$; $SE_b = 0.03$; $Z = -4.48$; $p < 0.001$) towards BES. Furthermore, the interaction effect between number of major life events and body compassion presented significant direct effects on binge eating ($b_{MLEQ_{number} \times BCS} = -0.02$; $SE_b = 0.01$;

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$Z = -2.68$; $p < 0.01$; $\beta = -0.49$). Also BMI had a positive direct effect of 0.24 on binge eating ($b_{\text{BMI}} = 0.47$; $SE_b = 0.08$; $Z = 5.93$; $p < 0.001$). Due to the significance of the effect of the interaction term on binge eating symptomatology, results seem to indicate the presence of a moderator effect of body compassion on the association between number of major life events and binge eating.

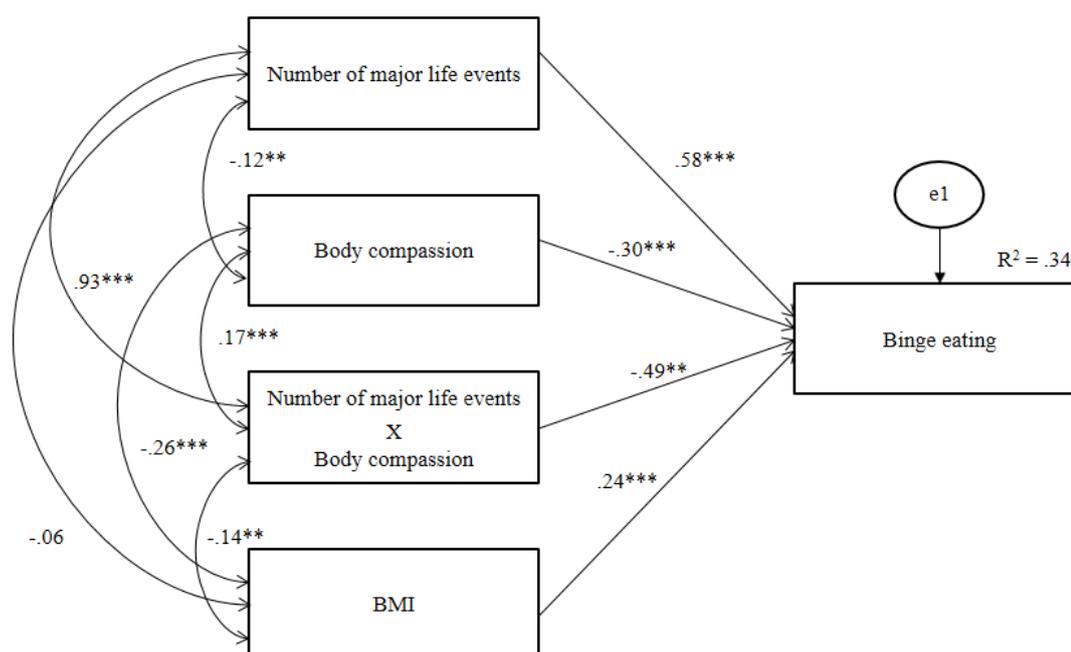


Figure 1. Path model showing the association between Number of major life events and binge eating, moderated by body compassion, with standardized estimates and square multiple correlations (R^2 ; $N = 458$). Note: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

The purpose of second path analysis was to examine whether body compassion moderated the impact of negative appraisal of major life events in binge eating. This model was tested through a fully saturated model (zero degrees of freedom) and comprised 20 parameters. BMI's effect was also controlled in this path model.

Results indicated that all paths coefficients in the model were statistically significant ($p < 0.050$) and explained 33% of the variance of binge eating (Fig. 2).

The relationships between negative appraisal of major life events (MLEQ), body compassion (BCS), and binge eating (BES) were analysed. Negative appraisal of major life events had a positive direct effect of 0.50 on binge eating ($b_{\text{MLEQnegative}} = 0.90$; $SE_b = 0.30$; $Z = 3.05$; $p < 0.01$). Body compassion presented a direct effect of -0.35 ($b_{\text{BCS}} = -0.16$; $SE_b = 0.03$; $Z = -6.30$; $p < 0.001$) towards BES. Moreover, the interaction effect between negative appraisal of major life events and body compassion presented significant direct effects on binge eating ($b_{\text{MLEQnegative} \times \text{BCS}} = -0.01$; $SE_b = 0.00$; $Z = -2.60$; $p < 0.01$; $b = -0.43$). Also BMI presented a direct effect of 0.23 ($b_{\text{BMI}} = 0.45$; $SE_b = 0.08$; $Z = 5.71$; $p < 0.001$) on binge eating. Although all of the analysed effects were significant, it is the significance of the effect of the interaction term on BES that seems to indicate the presence of a moderator effect of body compassion on the association between negative appraisal of major life events and binge eating.

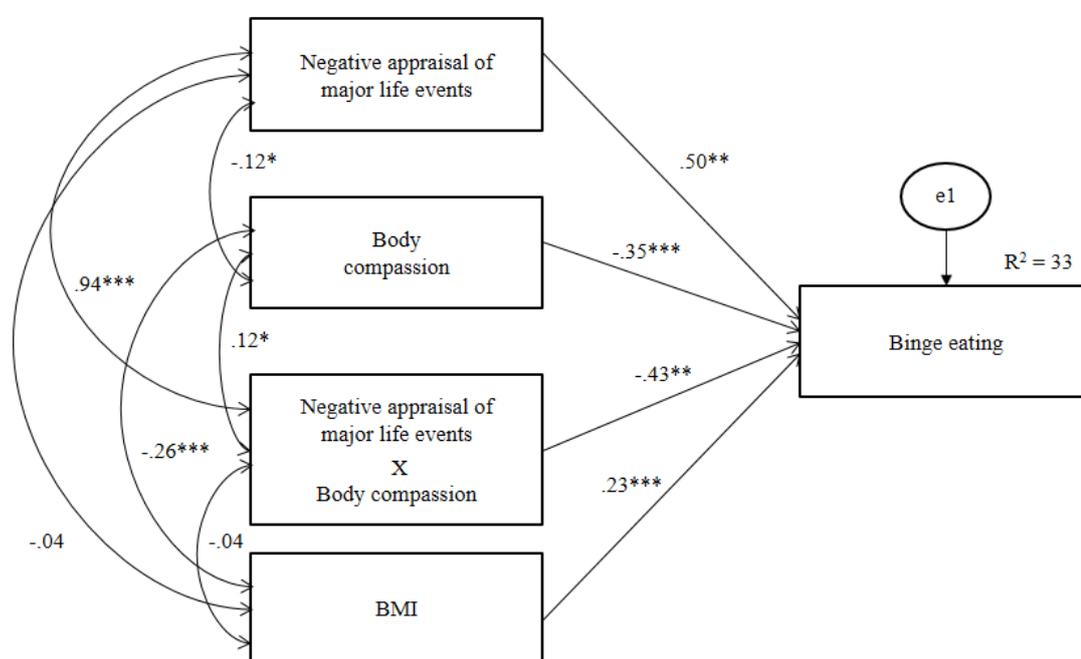


Figure 2. Path model showing the association between negative appraisal of major life events and binge eating, moderated by body compassion, with standardized estimates and square multiple correlations (R^2 ; $N = 458$). Note: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

To better explain the two explored moderation models, two graphic representation were plotted (Figures 3 and 4).

The first graphic representation (Figure 3) presents number of life events on the x axis, binge eating symptomatology on the y axis, and the moderator body compassion in three different levels (low, medium and high). The visual inspection of this moderator effect allowed to notice that women who display higher levels of body compassion, present lower levels of binge eating symptomatology, for any number of life events presented, in comparison to those with medium and especially those with lower levels of body compassion. Specifically, body compassion seems to function as a buffer of the impact of the number of major life events in binge eating symptomatology.

The graphic representation of the second moderation (Figure 4), which considers negative appraisal of major life events as independent variable, binge eating as dependent variable, and body compassion as moderator in three different levels (low medium, high), also revealed body compassion as a buffer. Specifically, for the same levels of negative appraisal of major life events, women who present high levels of body compassion tend to report lower binge eating in comparison to those who present medium and low levels of body compassion (BCS).

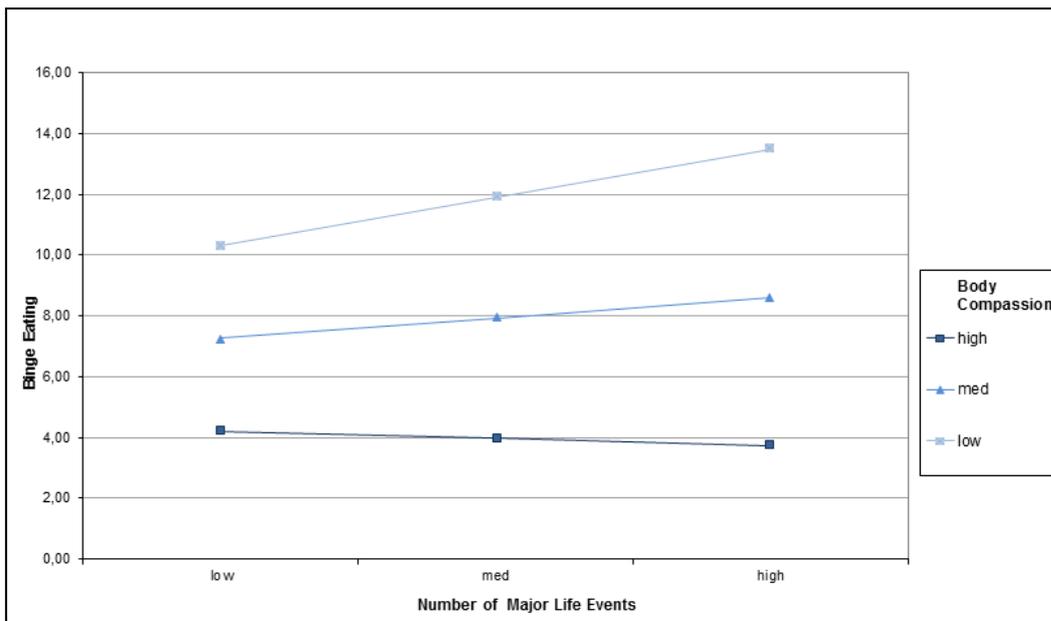


Figure 3. Graphic for the relation between number of major life events and binge eating with different levels of body compassion (BCS).

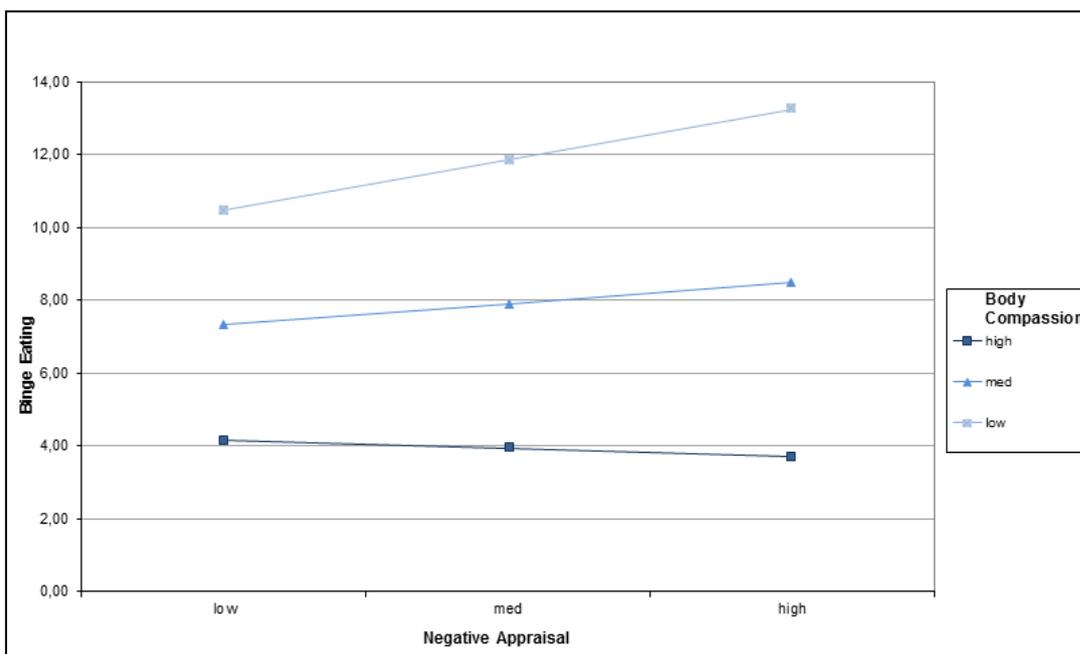


Figure 4. Graphic for the relation between negative appraisal of major life events and binge eating with different levels of body compassion (BCS).

Discussion

This study underlines the moderator effect of body compassion in the known relationship between major life events and binge eating.

Correlation analyses results were in agreement with previous works (e.g., Degortes et al., 2014; Woods et al., 2010; Duarte et al., 2015), and seem to extend the prior research by suggesting that both the accumulation of major life events and its negative appraisal are positively linked to binge eating symptomatology. Moreover, our work corroborated a negative and strong association between body compassion and eating difficulties (e.g., Oliveira et al., 2018; Altman et al., 2018), but extended literature by offering further information about the association between body compassion and binge eating symptomatology, which revealed a negative and strong correlation.

In order to examine the potential protective role of body compassion regarding binge eating, the moderator effect of body compassion on the relationship of number of major life events with binge eating was tested through a path analysis. The model accounted for 34% of the variance of binge eating and confirmed our hypothesis. Also, another path analysis was designed in order to explore the moderator effect of body compassion on the relationship of negative appraisal of major life events with binge eating symptoms. Our hypothesis was also confirmed, and this model accounted for 33% of the variance of binge eating. Results seem to show that major life events (whether evaluated in number and in its negative appraisal) and body compassion explain the engagement in binge eating behaviours. Moreover, path analyses showed that body compassion can modulate the experience of life events, specifically by acting as a buffer of its impact in the display of binge eating.

These findings seem to suggest that in women who present higher levels of body compassion, the impact of major life events in binge eating is attenuated. The graphical

representation of the two path analyses allowed to understand that for the same number or level of negative appraisal of major life events, women who present higher levels of body compassion tend to present lower severity of binge eating, comparatively to those who reveal lower levels of body compassion. These findings seem to indicate that body compassion can buffer the effect of accumulation of major life events and its negative appraisal on binge eating.

The present study seems to go beyond literature by demonstrating that body compassion may influence major life events impact in important health outcomes, namely eating-related outcomes. The moderator effect of body compassion seems to be a key-finding of this study. In fact, growing empirical evidence has been showing self-compassion as an emotional regulation strategy (e.g., Pennebaker, 1993; Salovey & Mayer, 1990), i.e., that self-compassion associates with emotional approach coping (i.e., identify, understand, and express emotions in an adaptive way; Pennebaker, 1993; Salovey & Mayer, 1990) rather than problem-focused coping (i.e., emotional avoidance; Neff, 2003b). On the other way, problem-focused coping has been identified as a non-adaptive process associated with the negative impact of unwanted experiences (such as life events) in well-being and health, which can translate into the engagement in binge eating (Longa & Young, 2018; Heatherton & Baumeister, 1991). Self-compassion, when specifically focused at body image, has been demonstrated as holding a buffer role on the relationship between general feelings of inferiority and inadequacy and body and eating difficulties (Oliveira et al., 2018). Our study thus extends these findings by suggesting that defusion, common humanity and acceptance abilities focused at body image may have a beneficial effect on binge eating.

The current study findings need to be interpreted taking into consideration some important limitations. The cross-sectional design does not allow for causal interpretations

of the results. Future research should have longitudinal designs (e.g., latent growth models) to explore the directionality of the relationships and to further explore the effects of body compassion on binge eating. Also, the use of different assessment measures, such as structured interviews, may have advantages comparing to the exclusive use of self-report instruments. Additionally, the use of a community females-only sample may represent an important limitation. Thus, future studies should be conducted using different samples (e.g., male and clinical samples). Finally, since binge eating has a multi-determined and complex nature, other variables (e.g., experiences of being criticized, dieting) and emotional regulation processes (e.g., self-criticism, self-compassion, body image flexibility) should be accounted in upcoming studies.

Conclusions

This is the first study examining the moderator effect of body compassion in the association between major life events and binge eating. Our findings provide an empirical support for the beneficial role of body compassion, by revealing its buffer effect on the association between major life events and binge eating in women. These results appear to offer important research and clinical implications, by underlining the relevance of the development of body compassion-based intervention programs to address binge eating behaviours. Thereby, future interventions should promote abilities of decentering, the recognition that experiences of major life events are shared by humans and cultivate an attitude of acceptance of body-related undesirable perceptions, thoughts and feelings in order to develop healthy eating attitudes and behaviours.

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PAPER II

Ferreira, C., & Barata-Santos, M. (2018). *Body compassion as a highlighter of the bright side of non-striving for women's body image and eating difficulties.*

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**Body compassion as a highlighter of the bright side of non-striving for women's
body image and eating difficulties**

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Abstract

Literature has suggested that the vulnerability to disordered eating symptomatology may be associated with insecure striving (i.e., the perceived need to strive to prove one's worth and avoid social inferiority). In contrast, secure non-striving (i.e., feeling others acceptance whether one succeeds or fails) appears to be negatively associated with dysfunctional eating attitudes. Nonetheless, research on this association is scarce.

The present study aimed to test a path model which hypothesized that body compassion, a fresh construct, mediates the associations of secure non-striving with body image shame and disordered eating, in a sample of 307 women. The model accounted for 62% of the variance of disordered eating symptomatology, with excellent fit to empirical data. Path analysis results demonstrated the mediator effect of body compassion on the relationship between secure non-striving and both body image shame and disordered eating symptomatology. These findings seem to emphasise the protective roles of establishing non-competitive relationships with one's self and others, and of having compassionate attitudes toward body image, since both are linked to lower levels of body image shame and disordered eating symptoms in women.

Present findings appear to provide important research and clinical insights, by highlighting the benefits of promoting non-competitive and affiliative relationships in prevention and intervention programs for disordered eating attitudes and behaviours.

Keywords: non-striving; body compassion; body image shame; eating psychopathology; mediation analyses.

Highlights

- Non-striving is negatively linked with body image and eating-related difficulties
- Non-competitive mentality is insufficient to protect women from body image shame
- Non-competitive mentality is associated with body-focused compassion competences
- Body compassion mediates the link between non-striving, body and eating difficulties
- Body compassion may lead to a less experience of body shame and disordered eating

1. Introduction

Literature has suggested that the vulnerability to some types of psychopathology may be associated with increased competitive behaviors, which arise from humans' need to strive to achieve certain goals (e.g., Bellew, Gilbert, Mills, McEwan, & Gale, 2006). To assess striving, Gilbert and colleagues (2007) developed a scale that specifically measures insecure striving (i.e., the perceived need to strive to prove one's worth and avoid social inferiority) and secure non-striving (i.e., feeling acceptable and accepted in one's social world, whether one succeeds or fails). Insecure striving is considered a defensive strategy, with possible origin in early dysfunctional relationships (i.e., critical, perfectionistic; Gilbert et al., 2007; Gilbert, McEwan, Bellew, Mills, & Gale, 2009). It seems that early criticism when combined with exposure to social life competition (e.g., peer group competition, media exposure) may prompt individuals to feel evaluated by others and experience inferiority (Gilbert, 2005; Dykman, 1998; McKinley, 1999). Insecure striving emerges in this context as a strategy to avoid inferiority and feel socially

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accepted (Gilbert, 2005; Dykman, 1998; McKinley, 1999), which leads individuals to build their relationships on competition rather than on caring or cooperative dynamics, which paradoxically orientates them to social comparison and shame sensitivity (Gilbert, 2005). Striving thus can become a powerful source of stress, and it is indeed considered a significant predictor of psychopathology (Gilbert et al., 2007; Gilbert et al., 2009). Although less studied, and by contrast, secure non-striving presents an adaptive nature and is related feelings of social accepted and safeness regardless of one's success (Ferreira, Pinto-Gouveia, & Duarte, 2011; Gilbert et al., 2007). Its adaptive nature can be understood since individuals who are secure are able to approach achievement tasks as growth seeking opportunities (Gilbert et al., 2007). Moreover, research indicates that secure non-strivers are more orientated to cooperative, affiliative and accepting environments (Gilbert et al., 2007). Secure non-striving associates negatively with fears of rejection, inferiority, validation-seeking, hypercompetitive attitudes, stress, anxiety and depression (Bellew et al., 2006; Gilbert et al., 2007; Gilbert et al., 2009).

On the eating psychopathology context, secure non-striving appears to be negatively associated with dysfunctional eating attitudes and physical appearance-related anxiety (Bellew et al., 2006; Ferreira et al., 2011). Research also suggests that by contrast, the need to present one's appearance in a perfectionistic way (an attitude associated to insecure striving; e.g., McGee, Hewitt, Sherry, Parkin e Flett, 2005; Bellew et al., 2006) associates with disordered eating (Marta-Simões & Ferreira, 2016; Ferreira, Pinto-Gouveia, & Duarte, 2013a). Indeed, a competitive social mentality seems to magnify the impact of a low social rank in drive for thinness (a nuclear feature of eating disorders defined as an excessive concern with dieting, weight and a thin body image; Stice & Shaw, 1994; Ferreira et al., 2013a).

Culture always had an important role on determining the desirable body image, especially for women (Buote, Wilson, Strahan, Gazzola, & Papps, 2011; Pinto-Gouveia, 2000). Culturally, physical appearance is a central dimension based on which self-worth and the place occupy in the social group is determined by others (Ferreira et al., 2013a,b; Myers & Crowther, 2009). Currently, society associates attractiveness with the detention of a thin body, which is considered a synonym of beauty, health, success, power and happiness (e.g., Strahan, Wilson, Cressman, & Buote, 2006). Thus, in order to be valued by the social group, this “thin ideal” must be pursued (Stice, Schupak-Neuberg, Shaw, & Stein, 1994), whereas not being thins should be avoided to diminish the possibility of being judged and/or rejected (Puhl & Heuer, 2009). Body image may thus constitute a source of shame, as one perceives that failing to achieve the socially-desired beauty standard can be seen by others as a failure and as a motive to be rejected (Duarte, Pinto-Gouveia, Ferreira, & Batista, 2015, Gilbert, 2005).

Shame may emerge as an emotional response, in social experiences, when individuals perceive that the self is negatively judged by others (Gilbert, 1998). Despite its evolutionarily adaptive character (Gilbert, 2002), shame is a painful emotion which associates with several psychopathological indicators when in experienced in high levels (e.g., depression and eating psychopathology; Gilbert, 2000; Pinto-Gouveia, Ferreira, & Duarte, 2014). Particularly in women, it seems that the experience of higher levels of shame associates with a decreased ability for self-compassion, and the consequent adoption of compensatory maladaptive strategies, such as striving for a perfect body through disordering eating behaviors (Ferreira et al., 2013c; Mendes, Ferreira, Marta-Simões, & Trindade, 2016). Moreover, body image-related shame, that is the perception that one’s body is unattractive and falls short of what the sociocultural context defines as a desirable physical appearance has also been regarded as a source of distress and body

image and eating-related psychopathology, namely among women (Bessenoff & Snow, 2006; Castonguay, Brunet, Ferguson, & Sabiston, 2012; Duarte et al., 2015).

Regarding body image dissatisfaction and eating psychopathology, self-compassion is known to have favorable impact in body image and eating difficulties (e.g., Duarte, Ferreira, Trindade, & Pinto-Gouveia, 2015; Braun, Park, & Gorin, 2016) and specifically function as an antidote to shame and self-judgement (Pinto-Gouveia et al., 2014), and to increase body acceptance and appreciation (Marta-Simões, Ferreira, & Mendes, 2016; Kelly & Stephen, 2016). Self-compassion is defined by Neff (2003) as the combination of three main elements: self-kindness (i.e., being kind to oneself rather than judgmental when facing personal difficulties); common humanity (i.e., recognizing one's experiences as shared, rather than feeling isolated in one's imperfections); mindfulness (i.e., being aware of and holding one's undesired internal events with balance, rather than being absorbed by one's negative aspects or life experiences). Making a bridge between body image and self-compassion, Altman and colleagues (2017) developed a new construct: body compassion. This construct comprises the three components of self-compassion (Neff, 2003) with an emphasis on body image (Cash, 2004), adding information of how individuals relate to their bodies. Recent research has been showing the adaptive character of body compassion, namely its buffer effect of the impact of general shame in body image shame and eating psychopathology (Oliveira, Trindade, & Ferreira, 2018), and its association with an increased capacity for flexibility in processes of change related to health and appearance (Altman, Zimmaro, & Wooddruff-Borden, 2017).

The present study aimed at exploring the relationship between secure non-striving and both body image shame and disordered eating symptoms. Although science has provided some insight regarding the association of insecure striving with body image and

eating-related disturbances, to the extent of our knowledge, this is the first work exploring the specific contribution of secure non-striving. Specifically, an integrative model was tested to understand how body compassion operates in the association between holding a non-competitive mentality and the experience of body image shame and the display of disordered eating symptoms.

2. Material and Methods

2.1. Participants

This study was carried out in a sample of 307 women from the Portuguese general population with ages between 18 and 35 years old ($M = 23.22$; $SD = 4.57$) and a mean of 14.46 ($SD = 2.03$) years of education. Participants' mean body mass index (BMI) was 22.33 ($SD = 3.58$). A total of 30 participants (9.77%) presented a BMI indicating (BMI < 18.5), 215 (70.03%) presented normal weight ($18.5 \geq \text{BMI} \leq 24.9$), 50 (16.29%) were overweight ($25 \geq \text{BMI} \leq 29.9$), and 12 (3.91%) presented obesity (BMI ≥ 30.0).

2.2. Measures

2.2.1. Body Mass Index

Participants' BMI values were calculated by dividing the current weight (in kg) by height squared (in m).

2.2.2. Striving to Avoid Inferiority Scale (SAIS; Gilbert et al., 2007; Ferreira et al., 2011)

SAIS is a self-report scale composed of three parts. The present study only used the secure non-striving subscale (SNS; 8 items) which evaluated feelings of safeness and of being valued regardless of one's success or failure (e.g., "People accept me whether I'm successful or not"). Participants are requested to rate each item on a 5-point scale (from

0 = “Never” to 4 = “Always”). This subscale presented good internal consistency in the original ($\alpha = 0.87$; Gilbert et al., 2007) and in the Portuguese version ($\alpha = 0.87$; Ferreira et al., 2011).

2.2.3. *Body Compassion Scale (BCS; Altman, Linfield, Salmon, & Beacham, 2017; Ferreira, Marta-Simões, & Oliveira, 2018)*

BCS is a 23-items self-report measure to assess attitudes of compassion towards one’s body, comprising three subscales: defusion (e.g., “When I feel frustrated with my body’s inability to do something, I tend to feel separate and cut off from other people”), common humanity (e.g., “When I am frustrated with some aspect of my appearance, I try to remind myself most people feel this way at some time”) and acceptance (e.g., “I am accepting of my looks just the way they are”). Items are rated on a 5-point scale (from 1 = “Almost never” to 5 = “Almost always”). In this study it was used a global score, which presented a Cronbach’s alpha of 0.92 in the original validation study (Altman et al., 2017) and of 0.88 in the Portuguese version (Ferreira et al., 2018).

2.2.4. *Body Image Shame Scale (BISS; Duarte et al., 2015)*

BISS is a 14-items self-report measure that assesses the experience of body image-related shame, comprising two dimensions: externalized (i.e. perception of being negatively evaluated by others because of one’s physical appearance) and internalized shame (i.e. negative self-evaluations of one’s physical appearance). Items are rated on a 5-point scale (from 0 = “Never” to 4 = “Almost always”). Only the total score was used in this study, which has previously revealed high internal consistency ($\alpha = 0.92$; Duarte et al., 2015).

2.2.5. *Eating Disorder Examination Questionnaire (EDE-Q; Fairburn & Beglin, 1994; Machado et al., 2014)*

EDE-Q is a self-report version of the Eating Disorder Examination interview (EDE; Fairburn, Cooper, & O'Connor, 2008), assessing the frequency and severity of disordered eating attitudes and behaviours. EDE-Q includes 36 items, focusing on the past 28 days, and 4 subscales: restraint, eating concern, weight concern and shape concern. EDE-Q revealed good psychometric properties in the original ($\alpha = 0.94$; Fairburn & Beglin, 1994) and Portuguese versions ($\alpha = 0.94$; Machado et al., 2014).

Cronbach's alpha values (α) for the present study are reported in Table 1.

2.3. *Procedures*

The present study is included in a broader research regarding the impact of emotion regulation processes on women's mental health and well-being.

Data collection followed ethical and deontological requirements inherent to scientific research.

Respondents were recruited online using a snowball sampling recruitment method. A LimeSurvey (on-line statistical survey web app) link was sent to potential participants, through social networks or e-mail. This link contained a text explaining the purposes and procedures of the study, confidentiality, voluntary participation and option of withdrawal, a written informed consent, as well as online versions of self-report measures. Criteria for inclusion was also explained to potential participants: (a) being female; (b) being aged between 18 and 35; and (c) having Portuguese nationality.

2.3.1. Data analyses

Descriptive and correlational analyses were conducted through SPSS (v.22; IBM Corp. Armonk NY) and path analysis was performed using the software AMOS (v.22, SPSS Inc., Chicago, IL).

Descriptive statistics (means and standard deviations) assessed sample's characteristics. Pearson product-moment correlations were conducted to examine associations between secure non-striving, body compassion, body image shame, disordered eating symptomatology, age and BMI (Cohen, Cohen, West, & Aiken, 2003).

Path analyses were performed to estimate presumed theoretical relationships among the study variables (Byrne, 2010; Kline, 2005). The path model examined whether secure non-striving (exogenous variable) and disordered eating symptomatology (endogenous variable) would be mediated by both body compassion and body image shame (endogenous mediator variables), while controlling BMI effects (Figure 1).

The Maximum Likelihood estimation method was used to test path model coefficients' significances and fit statistics, with a 95% confidence interval. The adequacy of the model was assessed by: chi-square (χ^2), normed chi-square (CMIN/DF), Tucker Lewis Index (TLI), Comparative Fit Index (CFI) and Root-Mean Square Error of Approximation (RMSEA), using a 95% confidence interval (Hu & Bentler, 1999). Moreover, mediational paths significance was further analysed resorting to the Bootstrap resampling method, with 5000 Bootstrap samples and 95% bias-corrected confidence intervals around the standardized estimates of direct, indirect and total effects. A significant mediation effect ($p < 0.05$) was considered when zero was not included in the interval between the lower and upper bound of the confidence interval (Kline, 2005).

3. Results

3.1. Descriptive and correlation analyses

Descriptive statistics for the study variables are displayed, for the total sample ($N = 307$), in Table 1.

Results showed that secure non-striving was positively and moderately correlated with body compassion, and negatively associated with body image shame and disordered eating severity with moderate magnitudes. Body compassion was negatively and strongly linked to both body image shame and disordered eating severity. Positive and strong correlations were also found between body image shame and disordered eating severity. BMI presented a negative and moderate association with body compassion, a positive and moderate relationship with body image shame and disordered eating severity, and a weak negative association with secure non-striving. Lastly, age appears positively, albeit weakly associated with secure non-striving and BMI.

Table 1. Means (M), Standard Deviations (SD) and correlations between the study measures ($N = 307$)

Measures	α	M	SD	1.	2.	3.	4.	5.
1. SNS	0.86	22.61	5.44	-	-	-	-	-
2. BCS	0.93	76.61	17.20	0.37***	-	-	-	-
3. BISS	0.96	16.51	13.36	-0.26***	-0.64***	-	-	-
4. EDE	0.95	1.27	1.19	-0.33***	-0.68***	0.71***	-	-
5. Age	-	23.22	4.57	0.11*	-0.02	0.09	0.05	-
6. BMI	-	22.33	3.58	-0.12*	-0.35***	0.43***	0.48***	0.19***

Note. SNS = Secure non-striving (assessed by the SAIS); BCS = Body Compassion Scale; BISS = Body Image Shame Scale; EDE-Q = Eating Disorder Examination Questionnaire (global score); * $p < 0.050$; ** $p < 0.010$; *** $p < 0.001$.

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3.2. Path Analysis

The path model was firstly tested in a fully saturated version (i.e., with zero degrees of freedom) with 20 parameters. One path coefficient was not statistically significant: the direct effect of secure non-striving on body image shame ($b_{\text{SNS}} = -0.05$; $\text{SEb} = 0.11$; $Z = -0.49$; $p = 0.628$). This path was removed, and the model was retested.

The retested and final model (with all paths significant) (Figure 1) accounted for 23% of the variance of body compassion, 48% of the variance of body image shame, and 62% of the variance of disordered eating symptomatology. This model presented an excellent fit to the empirical data [$\chi^2_{(1)} = 0.24$; $p = 0.628$, $\text{CMIN/DF} = 0.24$; $\text{TLI} = 1.00$; $\text{CFI} = 1.00$; $\text{RMSEA} = 0.00$; $p = 0.739$; 95% CI = 0.00 - 0.12].

Results showed that secure non-striving exhibited a positive direct effect of 0.33 ($b_{\text{SNS}} = 1.04$; $\text{SEb} = 0.16$; $Z = 6.52$; $p < 0.001$) on body compassion, and a negative direct effect of -0.09 ($b_{\text{SNS}} = -0.02$; $\text{SEb} = 0.01$; $Z = -2.28$; $p = 0.023$) on disordered eating. Body compassion presented a direct negative effect of -0.58 ($b_{\text{BCS}} = -0.45$; $\text{SEb} = 0.03$; $Z = -13.32$; $p < 0.001$) on body image shame and a direct negative effect of -0.32 ($b_{\text{BCS}} = 0.02$; $\text{SEb} = 0.00$; $Z = 6.49$; $p < 0.001$) on disordered eating. Body image shame revealed a positive and direct effect of 0.40 ($b_{\text{BISS}} = 0.04$; $\text{SEb} = 0.00$; $Z = 8.01$; $p < 0.001$) on disordered eating.

The analysis of indirect effects revealed that secure non-striving presented a negative indirect effect of -0.19 on body image shame, totally mediated by body compassion (95% CI = -0.27 to -0.12; $p < 0.001$); and of -0.18 (95% CI = -0.25 to -0.12; $p < 0.001$) on disordered eating, partially mediated by body compassion and body image shame. Body compassion showed a negative indirect effect of -0.23 on disordered eating, partially mediated by body image shame (95% CI = -0.30 to -0.16; $p < 0.001$).

In conclusion, results seem to show that body compassion mediates the associations of secure non-striving with body image shame and disordered eating severity. Specifically, as the impact of secure non-striving on body image shame seems to be fully mediated by body compassion, the impact of secure non-striving on disordered eating is partially mediated by body compassion.

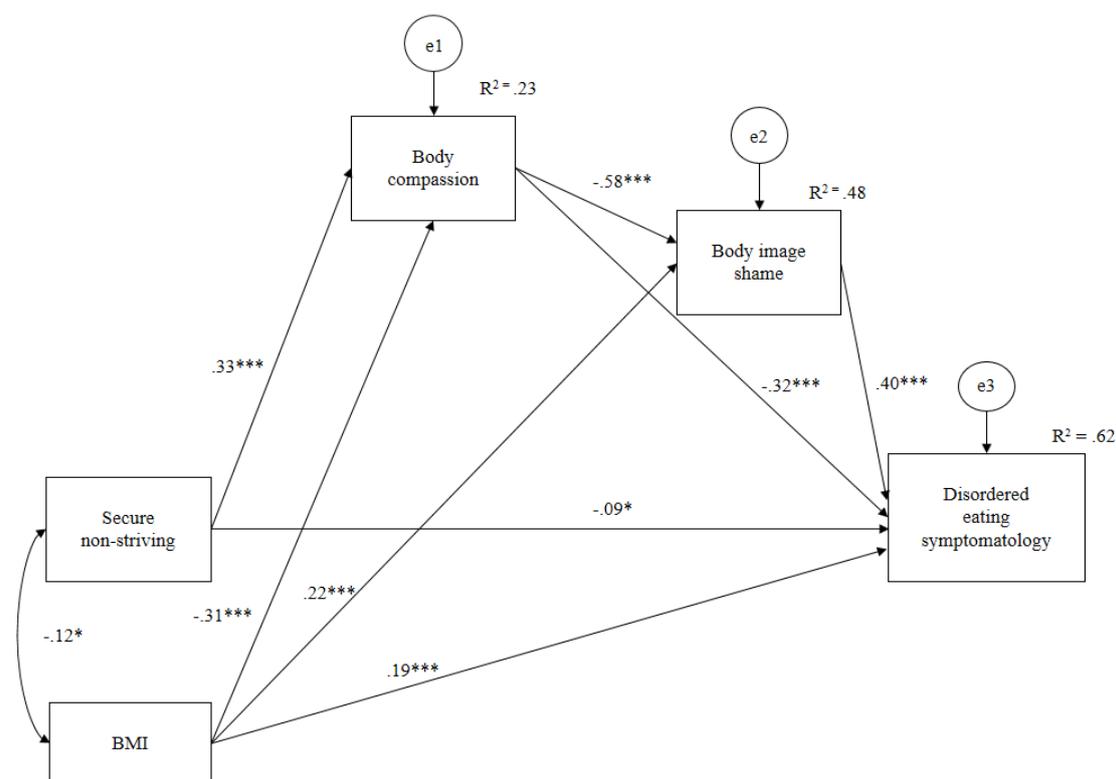


Figure 1. Path model showing the association between secure non-striving and disordered eating severity, mediated by body compassion and body image shame, while controlling for BMI effects, with standardized estimates and square multiple correlations (R^2 ; $N = 458$). Note: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

4. Discussion and conclusions

This study aimed at exploring whether body compassion mediates the association of secure non-striving with body image shame and with disordered eating attitudes and behaviors, in a sample of young adult women.

Correlation analyses results were consistent with previous works underlining the adaptive character of secure non-striving (e.g., Gilbert et al., 2007; Ferreira et al., 2011), by suggesting its negative association with psychopathological variables (body image shame and disordered eating), and positive association with an adaptive emotion regulation process (body compassion). Body compassion associated negatively with body image and eating-related difficulties, as suggested by Oliveira and colleagues (2018) and Altman and colleagues (2017).

The path analysis revealed the mediator effect of body compassion in the association of secure non-striving with body image shame and with disordered eating symptomatology, in a model explaining 62% of the variance of disordered eating symptomatology. The model presented an excellent fit to empirical data and showed that secure non-striving's association with body image shame is fully mediated by body compassion. This result seems to point out that holding a non-competitive mentality may be insufficient to protect women from body image shame. Indeed, directing compassion to oneself when dealing with body image-related difficulties seems to hold a particular importance for a lighter experience of shame. A possible explanation for this result is that secure non-striving mentality associates with a perception that others are able to direct us kindness and understanding even when they perceive our defects or failures, which seems to be not as relevant for diminishing shame levels, as self-compassion (i.e., direct kindness and understanding to oneself when one perceives one's own defects or failures). In fact, the present study adds to literature by further underlining that as self-compassion may be an optimal antidote do general shame feelings (Ferreira et al., 2013c), body compassion seems to hold a powerful effect over body-related shame (Oliveira et al., 2018). The second mediation analysis showed that the impact of secure non-striving in the display of disordered eating is both direct and indirect (i.e., mediated by body

compassion). This result is supported by previous findings on the importance of establishing warm, safe and non-competing relationships for both self-compassion and indicators of good mental health, such as a lower display of disordered eating (Ferreira, Oliveira, & Mendes, 2017). Although the direct effect of secure non-striving on disordered eating is weak, this is a relevant data by underlying the protective role of a non-competitive mentality on eating psychopathology.

The current study findings need to be interpreted taking into consideration some important limitations. The cross-sectional design does not allow for causal interpretations of the results (thus future research should have longitudinal designs). Also, the use of different assessment measures, such as structured interviews, may have advantages comparing to the exclusive use of self-report instruments. Additionally, the use of a community females-only sample may represent an important limitation. Thus, future studies should be conducted using different samples (e.g., male and/or clinical samples).

Overall, findings seem to inform that, in women, holding a non-competitive mentality associates with an attitude of compassion (kindness, mindful awareness and a sense of common humanity) towards body image, which in turn associates with a lighter experience of inferiority feelings based on appearance characteristics, and with a lower display of disordered eating attitudes and behaviors. In terms of implications, present findings seem to underline the bright side of establishing non-competitive relationships with one's self and others. Indeed, secure non-striving seems to be connected to the adaptive emotion regulation mechanism of compassion towards body image, which seems to be a potential adaptive strategy to deal with body shame and disordered eating. Thus, prevention programs and interventions with body-difficulties in women may benefit from promoting non-competitive and affiliative relationships and body compassion.

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Contributors

Authors Cláudia Ferreira and Mafalda Barata-Santos, designed the study, prepared the measures and wrote the protocol. All authors conducted literature research and provided summaries of previous research studies. Author Joana Marta-Simões and Mafalda Barata-Santos conducted the statistical analysis. Author Cláudia Ferreira supervised and contributed throughout the conduction of these tasks and approved the final manuscript.

Conflict of interest

The authors declare no conflicts of interest.

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APPENDICES

APPENDIX A

Submission information of Paper I

- Instructions for authors of *Appetite*

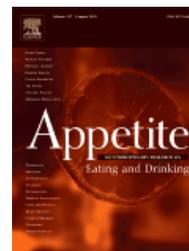


APPETITE

AUTHOR INFORMATION PACK

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Mafalda Sofia Barata Santos (e-mail: mafaldasbsantos@gmail.com) 2018

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APPENDIX B

Submission information of Paper II

Instructions for authors of *Eating Behaviors*



EATING BEHAVIORS

An International Journal

AUTHOR INFORMATION PACK

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ISSN: 1471-0153

DESCRIPTION

Eating Behaviors is an international peer-reviewed scientific journal publishing human research on the etiology, prevention, and treatment of obesity, binge eating, and eating disorders in adults and children. Studies related to the promotion of healthy eating patterns to treat or prevent medical conditions (e.g., hypertension, diabetes mellitus, cancer) are also acceptable. Two types of manuscripts are encouraged: (1) Descriptive studies establishing functional relationships between eating behaviors and social, cognitive, environmental, attitudinal, emotional or biochemical factors; (2) Clinical outcome research evaluating the efficacy of prevention or treatment protocols.

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