Escaping from body image shame and harsh self-criticism: Exploration of underlying mechanisms of binge eating

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Abstract

Shame has been highlighted as a key component of eating psychopathology. However, the specific impact of body image shame on binge eating and the mechanisms through which it operates remained unexplored.

The current study tests a model examining the role that body image shame plays in binge eating and the mediator effect of self-criticism on this association, while controlling for the effect of depressive symptoms, in 329 women from the general population and college students.

Correlation analyses showed that binge eating is positively associated with depressive symptoms, body image shame, and self-criticism, namely with a more severe form of self-criticism characterized by self-disgust, hating and wanting to hurt the self – hated self. Furthermore, results indicated that the path model explained 32% of binge eating behaviours and confirmed that body image shame has a significant direct effect on binge eating, and that this effect is partially mediated by increased hated self.

These findings suggest that binge eating may emerge as a maladaptive way to cope with the threat of being negatively viewed by others because of one's physical appearance and the consequent engagement in a severe critical self-relating style marked by hatred, disgust and contempt towards the self. This study contributes therefore for the understanding of the processes underlying binge eating. Also, these findings have important research and clinical implications, supporting the relevance of developing eating disorder treatments that specifically target shame and self-criticism, through the development of self-compassionate skills.

Key Words: Binge eating; Body image shame; Self-criticism; Mediator effect; Path analysis

1. Introduction

There is increased recognition that binge eating is a serious condition with significant implications for physical and mental health, being linked to the development and maintenance of overweight/obesity and psychiatric comorbidities (e.g., Kessler et al., 2013). Binge eating behaviours are a key feature in Binge Eating Disorder (BED) and also in the other eating disorders diagnoses, but evidence shows that they are also significantly prevalent among individuals without eating disorders (Johnson, Rohan, & Kirk, 2002; Kinzl, Trawegger, Trefalt, Mangweth, & Biebl, 1999). Binge eating involves the occurrence of episodes of overly excessive and rapid eating in a discrete period of time accompanied by a sense of lack of control that causes great distress. During these episodes one may eat until feeling uncomfortably full; gorging in the absence of hunger, engage in these behaviours in secrecy due to the embarrassment they generate, and feel disgusted with oneself, depressed or very guilty after eating (American Psychiatric Association, 2013).

Extant evidence converge on the notion that negative affect is the most common antecedent of binge eating (e.g., Haedt-Matt & Keel, 2011; Stice, 2001; Stice, Akatugawa, Gaggar, & Agraas, 2000). In particular, several studies suggest that depressive symptoms are important risk factors for binge eating (Meno, Hannum, Espelage, & Douglas Low, 2008; Saules et al., 2009; Spoor et al., 2006). Moreover, it has been suggested that binge eating may result from maladaptive emotional regulation processes, aiming at the avoidance or escape from disturbing thoughts or unstable and undesirable emotional states (Arnow, Kenardy, & Agras, 1992; Goldfield, Adamo, Rutherford, & Legg, 2008; Heatherton, & Baumeister, 1991). This attempt to control the internal experience may be effective in the short term, and may even be related to pleasant feelings (Del Parigi, Chen, Salbe, Reiman, & Tataranni, 2003). However, it subsequently increases negative affect and, simultaneously, more difficulties in controlling later eating behaviour. This process may be accompanied by greater shame and self-criticism, which, in turn, seem to further fuel the occurrence of these episodes, generating a self-sustained cycle (Goss & Gilbert, 2002; Jambekar, Masheb, & Grilo, 2003).

Several studies have shown that shame is a major component in several psychological difficulties, namely depressive symptoms (for a review see Kim, Thibodeau, & Jorgensen, 2011). There is also growing evidence showing the relevant role that shame plays in body image and

eating related psychopathology (e.g., Ferreira, Pinto-Gouveia, & Duarte, 2013; Gee & Troop, 2003; Goss & Allan, 2009; Murray, Waller, & Legg, 2000; Pinto-Gouveia, Ferreira, & Duarte, 2014). However, the specific role of this emotion in binge eating remains less investigated. Shame is a multifaceted, self-conscious and socially focused emotion, acting as a warning signal that others see and judge the self negatively, and may reject, exclude, or even harm the self (Gilbert, 1998, 2002, 2007). These evaluations can be internalized, in the sense that one may start to view the self in the same negative manner (Gilbert, 1998, 2002). According to an evolutionary biopsychosocial approach to shame (Gilbert, 1997, 1998, 2002, 2007) humans are a highly social species, whose survival and prospering depends on the relationship they establish with others and how others relate to them. Hence, throughout evolution we developed a set of social motivational systems to create in others a positive image of the self to form advantageous social relationships (e.g., to be chosen as a friend, lover, team member; Gilbert, 1997, 2005; Mikulincer & Shaver, 2005). Shame emerges therefore when an individual believes he/she is failing on creating such image or lacks qualities others value, and is, on the contrary, perceived as a defective, flawed, inadequate, unattractive social agent.

Physical appearance has always been a central domain to define how socially attractive one is to others. In this sense, the sociocultural context clearly defines what others will praise and what others will find negative or rejectable in terms of body weight and shape (Gilbert, 2002). In Modern western societies portraying a slender body shape became a synonym of positive and desirable personality features such as will power and determination (Strahan, Wilson, Cressman & Buote, 2006), while not fitting into this thin ideal became a highly stigmatized condition (e.g., Puhl & Heuer, 2009) with relevant pathogenic consequences, namely among women (Bessenoff & Snow, 2006; Castonguay, Brunet, Ferguson, & Sabiston, 2012). Actually, perceiving that one's body may somehow differ or be distant to what the social group considers to represent a socially attractive individual, may be linked to the emotion of shame and to the further engagement in disordered eating behaviours as a mean to avoid social inferiority (Ferreira et al., 2013; Pinto-Gouveia et al., 2014).

In this sense, one's physical appearance may be experienced as shaming. When feeling shame about one's body image one may perceive oneself as having unattractive, defective and rejectable physical attributes and thus that one may stand at risk of being put down, excluded, passed by, or even harmed by others (Gilbert, 1997, 1998). Body image concealment or

avoidance of situations of possible negative scrutiny by others may then be adopted as defensive outputs to protect the self of such presumed social threats, leading however to increased distress and invalidation in one's life (Gilbert, 2002).

In the face of such perceived shortcomings of the self, due to one's physical appearance, one may engage in critical and punitive responses towards the self. Self-criticism has been conceptualized as a form of self-to-self relating marked by negative judgments and evaluations that may be activated as a safety response in face of setbacks, failures or other threats to the self (e.g., Gilbert, Clarke, Kempel, Miles, & Irons, 2004). In this sense, self-criticism may be understood as a maladaptive defensive strategy, driven by shame (Gilbert & Irons, 2005; Gilbert & Procter, 2006), that aims at correcting and improving personal features or behaviours to protect the self (Gilbert & Irons, 2005). However, when one fails to defend against one's self-attacks this may often lead to states of defeat. In fact, research has shown that when individuals feel controlled and discouraged by their own harsh self-attacks they may develop submissive and defensive behavioural and emotional outputs, such as depressive symptoms (e.g., Gilbert & Irons, 2005). A more harsh self-attacking relationship characterized by self-hatred, disgust and contempt, has been particularly linked to severe psychological suffering (e.g., Gilbert et al., 2010; Castilho, Pinto-Gouveia, & Duarte, 2013).

There is also evidence showing that self-criticism may play an important mediator role on the association between shame and eating psychopathology (Pinto-Gouveia et al., 2014). The link between self-criticism, depressive symptoms and body image evaluation in BED patients has also been demonstrated (Dunkley & Grilo, 2007; Dunkley, Masheb, & Grilo, 2010). Although these studies suggest the relevance of shame and self-criticism in the vulnerability to and maintenance of disordered eating symptoms, little is known about the extent to which body image shame and self-criticism contribute for the engagement in binge eating. Thus, the current paper aimed to examine whether experiencing shame regarding one's physical appearance is a significant predictor of binge eating and whether this association is mediated by increased levels of self-criticism, while controlling for the effect of depressive symptoms as overall negative affect.

2. Material and methods

2.1. Participants

Participants in this study were 329 women, 221 college students attending different courses and grades, and 108 women from the general population working in private and public corporations. The participants' age ranged from 18 to 57 years old, with a mean of 23.30 (*SD* = 10.41), and their years of education ranged from 6 to 22, presenting a mean of 13.81 (*SD* = 2.40). Participants' Body Mass Index (BMI) mean was 22.85 (*SD* = 3.78). In regard to binge eating, 92.7% (*n* = 305) of the participants presented mild to no binge eating; 5.2% (*n* = 17) moderate binge eating; and 2.1% (*n* = 7) severe binge eating, which is in accordance to recent studies (Kessler et al., 2013).

2.2. Measures

Body Mass Index. Participants' BMI was calculated by dividing the weight (in kg) by height squared (in m).

Binge Eating Scale (BES; Gormally, Black, Daston, & Rardin, 1982; Duarte, Pinto-Gouveia, & Ferreira, 2013). The BES is a 16-item scale designed to measure the behavioural manifestations and emotional and cognitive factors associated with binge eating. Each item comprises three or four statements regarding which participants are asked to choose the one that best describes their eating behaviour. Each option reflects a rating of severity ranging from 0 (reflecting no difficulties with binge eating) to 3 (severe problems with binge eating). Higher scores denote more severe binge eating. The scale yields good internal consistency in both clinical samples (e.g., Gormally et al., 1982; Tapadinhas & Pais-Ribeiro, 2012) and nonclinical samples (Anton, Perri, & Riley, 2000; Duarte, Pinto-Gouveia, & Ferreira, 2013). The Cronbach's alpha of the scale in the current study was .88.

Body Image Shame Scale (BISS; Duarte, Pinto-Gouveia, Ferreira, & Batista, 2013). The BISS assesses the experience and phenomenology of body image shame. It comprises 14 items measuring an externalized dimension of body image shame involving the avoidance of social situations in which others may criticize the self because of one's body image; and an internalized dimension, comprising negative self-evaluations and consequent behaviours to control the exposure of one's body image (i.e., concealment). Respondents are asked to rate each item

according to the frequency they experience body image shame, using a 5-point Likert scale (ranging from 0 = *Never* to 4 = *Almost always*). Higher scores indicate higher levels of body image shame. In the original study the scale revealed high internal consistency with a Cronbach's alpha of .92. In the current study the scale also revealed a very good internal consistency with a Cronbach's alpha of .94.

Forms of Self-Criticizing & Self-Reassuring Scale (FSCRS; Gilbert et al., 2004; Castilho & Pinto-Gouveia, 2011). The FSCRS includes 22 items and assesses how respondents typically think and react when they face setbacks or failures. The scale assesses two forms of self-criticism: inadequate-self, which refers to feelings of inadequacy and inferiority; and hated-self, characterized by self-punishment and feelings of disgust, hatred and contempt for the self. This scale also measures the ability to self-soothe (reassured self), but for the purpose of this study only self-criticism subscales were considered. In regard to the probe statement "When things go wrong for me…" participants respond on a 5-point Likert scale (ranging from 0 = *not at all like me*, to 4 = *extremely like me*), according to how much each statement applies to their experience. Gilbert et al. (2004) found that the scale yielded good internal consistency (Cronbach's alphas were .86 for hated self and .90 for inadequate self). The scale's Portuguese version also revealed good internal consistency (Castilho & Pinto-Gouveia, 2011). The Cronbach's alphas for the subscales in the current study were .90 for inadequate self, and .75 for hated self.

Depression Anxiety and Stress Scales (DASS21; Lovibond & Lovibond, 1995; Apóstolo, Mendes, & Azeredo, 2006). The DASS21 is a short form of the Lovibond and Lovibond's (1995) 42-item self-report measure scale that includes 21 items measuring levels of depression, anxiety and stress symptoms. Respondents are asked to indicate the frequency in which they experienced each symptom over the past week using a 5-point Likert scale (0 = *Did not apply to me at all* to 4 = *Applied to me very much, or most of the time*). Higher results indicate higher levels of emotional distress. In the current study, depressive symptomatology was assessed through the depression subscale. The original as well as the Portuguese versions of DASS21 reveal adequate internal consistency (with the subscale depression presenting Cronbach's alpha values of .88 and .85, respectively). The Cronbach's alpha for the depression subscale in this study was .88.

2.3. Procedure

To conduct the current study all ethical requirements were met. Participants gave their informed consent after being fully informed about the voluntary nature of their cooperation and the confidentiality of the data collected. The author CD administered the set of self-report measures described above. Students completed the assessment protocol at the end of a lecture. The remainder participants comprised a convenience sample collected within the staff of distinct institutions (e.g., schools, private companies, retail services). Prior to data collection authorization was obtained from the Boards of the institutions involved.

2.3.1. Calculation

Product-moment Pearson Correlation analyses were conducted to examine the associations between binge eating, body image shame, self-criticism, depressive symptoms, and BMI (Cohen, Cohen, West, & Aiken, 2003). Descriptives and correlational analyses were conducted using the software SPSS (v.21 SPSS; Armonk, NY: IBM Corp.).

A path analysis was conducted to estimate the associations between the study variables hypothesized in the model (Figure 1). Path analysis is a particular type of Structural Equation Modelling (SEM) used to assess hypothesised causal relations between previously defined variables. It allows for the simultaneous analysis of structural relationships and direct and indirect effects between multiple exogenous and endogenous variables, while controlling for error (Byrne, 2010; Kline, 2005). The current study examined whether the association between body image shame (exogenous variable) and binge eating (endogenous variable) would be mediated by both self-criticism and depressive symptoms (endogenous mediator variables). The Maximum Likelihood estimation method was used to test for the significance of the regression coefficients and to compute fit statistics. The plausibility of the model was ascertained by the following goodness of fit indicators: Chi-square (χ^2), Tucker Lewis Index (TLI), Comparative Fit Index (CFI), Relative Fit Index (RFI) and Root-Mean Square Error of Approximation (RMSEA), with 95% confidence interval.

The significance of the direct, indirect and total effects was assessed by Chi-Square tests and the Bootstrap resampling method, with 2000 Bootstrap samples and 95% bias-corrected confidence intervals (CI) around the standardized estimates of total, direct and indirect effects, was further used to test the significance of the mediational paths. The effects were considered as

significantly different from zero ($p < .050$) if zero was not included in the interval between the lower and the upper bound of the 95% bias-corrected confidence interval (Kline, 2005).

The path analysis was examined through the software AMOS (Analysis of Momentary Structure, software version 18, SPSS Inc. Chicago, IL).

3. Results

3.1. Preliminary data analyses

Univariate and multivariate normality was assessed by the coefficients of skewness and kurtosis, which indicated that there was no severe violation of normal distribution (|Sk |< 3 and |Ku| < 8-10; Kline, 2005), with skewness values ranging from 1.13 (BISS) to 2.06 (hated self – FSCRS), and with kurtosis values ranging from 1.15 (BISS) to 5.09 (hated self – FSCRS).

3.2. Descriptives

The means and standard deviations of the study variables (Table 1) were similar to those obtained in previous studies with nonclinical samples (Anton et al., 2000; Castilho et al., 2013; Duarte, Pinto-Gouveia, & Ferreira, 2013; Duarte, Pinto-Gouveia, Ferreira, & Batista, 2013; Henry & Crawford, 2005). Furthermore, participants' BMI mean was within the normal weight range.

3.3. Correlations

Pearson product-moment correlations for the study variables are presented in Table 1. Binge eating is positively and highly correlated with body image shame. Also, binge eating is positively associated with the inadequate self form of self-criticism and, with a higher magnitude, with the hated self form of self-criticism. There was also a positive moderate association between binge eating and depressive symptoms.

Body image shame was also positively associated, with moderate correlations, with the inadequate and hated-self forms of self-criticism. Also, body image shame was positively and moderately associated with depressive symptoms. Positive and large significant correlations were also found between depressive symptoms and inadequate and, even higher, with hated self forms of self-criticism. BMI was positively and moderately associated with binge eating

symptoms and body image shame. A positive but small correlation was also found between BMI and hated self form of self-criticism. No significant correlations were found between BMI and inadequate self and depressive symptoms.

Even though the two forms of self-criticism present the same correlational pattern with the study variables, results showed that the hated self form emerged as the one presenting the strongest associations with binge eating and depressive symptoms. Taking this into account, hated self was selected as the self-criticism mediator variable in the tested path model.

Table 1
Descriptives and Pearson product-moment correlations between study variables (N = 329)

	M	*SD*	BES	BISS	InadequateS	HatedS	Depression
BES	7.45	6.81	1				
BISS	0.90	.76	.54***	1			
InadequateS	1.45	0.84	.40***	.50***	1		
HatedS	0.45	0.59	.44***	.50***	.67***	1	
Depression	3.77	4.10	.33***	.46***	.60***	.65***	1
BMI	22.85	3.78	.37***	.42***	.10	.18**	.04

Note:

** $p < .01$; *** $p < .001$

BES = Binge Eating Scale; BISS = Body Image Shame Scale; InadequateS = inadequate self FSCRS subscale; HatedS = hated self FSCRS subscale; Depression = DASS21 depression subscale; BMI = Body Mass Index

3.4. Path analysis

The initial model comprised 17 parameters. Initially, the path regarding the direct effect of depressive symptoms and binge eating exceeded the critical value for two-tailed statistical significance at the .05 level ($b_{depression}$ = -.02; SEb = .10; Z = -.21; p = .837; β = -.01) and was therefore eliminated.

The model was then recalculated and results indicated that all path coefficients were statistically significant ($p < .001$), accounting for 32% of binge eating variance. This parsimonious model revealed an excellent model fit, with a nonsignificant chi-square [$\chi^2_{(1)}$ =

.042 p = .837], and as supported by other recommended goodness-of-fit indices: TLI = 1.014; CFI = 1.000; RFI = .999; RMSEA = .000 (p = .891).

Results indicated that body image shame accounted for 25% of hated self form of self-criticism, with a direct effect of .50 ($b_{\text{body image shame}}$ = .39; SEb = .04; Z = 10.55; p < .001); and 22% of depression variance, with a direct effect of .46 ($b_{\text{body image shame}}$ = 2.51 ; SEb = .27 ; Z = 9.48; p < .001). Also, hated self directly predicted binge eating, with a direct effect of .22 ($b_{\text{hated self}}$ = 2.55; SEb = .61; Z = 4.20; p < .001), and was highly correlated with depression (r = .54).

Furthermore, body image shame presented a total effect of .54 over binge eating, with a direct effect of .43 ($b_{\text{body image shame}}$ = 3.82; SEb = .47; Z = 8.08; p < .001) and an indirect effect, mediated by hated self, of .11. All the examined effects were significant (p < .001) according to the Bootstrap resampling method. Specifically, the estimate of the indirect effect of body image shame on binge eating framed by a CI of .95% revealed an effect significantly different from zero (CI = .05, .19).

Figure 1 presents the nested model with the standardized estimates of the regression coefficients and the R^2 of the variables.

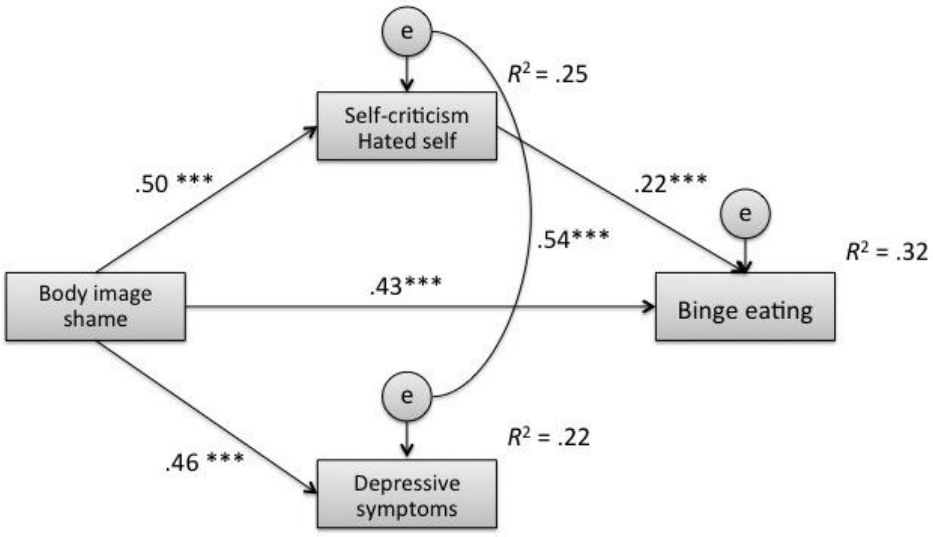

Figure 1. Path model showing the association between body image shame and binge eating, mediated by hated self form of self-criticism and depressive symptoms, with standardized estimates and square multiple correlations (R^2; N = 329).

Note:

*** p < .001

4. Discussion and conclusions

Substantial evidence highlights the impact of shame and self-criticism in eating psychopathology (e.g., Ferreira et al., 2013; Gee & Troop, 2003; Murray et al., 2000, Pinto-Gouveia et al., 2014). Nevertheless, the role of body image shame and the aforementioned associations in binge eating remained to be explored. The current study aimed at testing a model of binge eating, in women from the general population, conceptualized as resulting from a deleterious self-conscious emotion regarding one's physical appearance – body image shame – and a maladaptive way to cope with such perceived defective features of the self – self-criticism –, controlling for overall negative affect – depressive symptoms.

Findings corroborated that body image shame, self-criticism and depressive symptoms are significantly linked to binge eating symptoms. In particular, results confirmed that feelings of shame regarding one's physical appearance, with the inherent engagement in defensive outputs such as body image concealment and avoidance of social interactions (as assessed by the BISS), are highly associated with binge eating. Moreover, these data also suggested that perceiving that one's body image makes the self defective and thus that others will criticize and reject the self, seems to be, in women, highly associated with inner critical evaluations, namely with a more toxic form of self-criticism characterized by self-hatred and self-contempt (i.e., hated self; Gilbert et al., 2004). Furthermore, there was a significant association between body image shame and self-criticism and depressive symptomatology. Results also showed that it is the more destructive form of self-criticism of hated self that presented a stronger association with binge eating and depressive symptoms, in comparison to the inadequate self form of self-criticism.

Overall, these findings suggest the relevant linkages between these variables and how they may be related to the engagement in episodes of uncontrolled overeating.

The path model further examined these associations and clarified the specific role of body image shame and harsh self-criticism in binge eating, while simultaneously considering depressive symptomatology. Findings revealed an excellent model fit, with the model explaining 32% of binge eating's variance. When the model was first tested results indicated that in the presence of body image shame and self-criticism, depressive symptomatology did not directly predict binge eating. These findings are interesting in the sense that they add to current knowledge regarding the role of self-criticism and negative affect on binge eating (Dunkley &

Grilo, 2007; Stice et al., 2000). In fact, even though it is well-established that negative affect is an important predictor of binge eating symptoms (Meno et al., 2008; Saules et al., 2009; Spoor et al., 2006; Stice, 2001), the path model tested in the current study suggests that more than a general negative affectivity, it is the specific negative and painful emotion of shame related to one's body image that has a strong direct association with binge eating. Moreover, body image shame was shown to have a direct effect on depressive symptoms and the hated self form of self-criticism. This type of self-criticism emerged, in turn, as the mechanism partially through which body image shame impacted on binge eating, and was significantly associated with depressive symptoms. Actually, these results seem to support the hypothesis that the impact of depressive symptoms on binge eating is carried by the effect of hated self, a punitive and harsh self-to-self relationship, when one is dealing with perceived inferiority and feared rejection because of one's body image.

To sum up, this model revealed therefore that body image shame is strongly associated with binge eating and that the more pathogenic form of self-criticism of hated self partially mediates this association. This seems to suggest that binge eating may arise in the context of an increased sense that one's physical appearance is a source of social threat (e.g., of being criticized, excluded, or rejected by others (Gilbert, 1998, 2002, 2007). Furthermore, the engagement in a severe form of self-criticism in which the self criticizes and attacks the self as one believes others might, may emerge in this context as a maladaptive way to deal with body image shame, further increasing the pervasive impact of this emotion in binge eating. Thus, these findings corroborate that binge eating may be seen as a maladaptive avoidance or escape strategy in face of emotional distress (e.g., Heatherton, & Baumeister, 1991; Arnow et al., 1992; Goldfield et al., 2008), but highlight the specific role of body image shame and self-criticism that extend beyond above overall negative affect.

Even though this study contributes for a greater understanding of binge eating symptoms in women from the general population, supported by rigorous and sophisticated statistical analyses, these findings cannot be understood without considering some limitations. One important limitation is that the cross-sectional design precludes causal conclusions to be drawn. Indeed, the processes examined in the current study contribute for the conceptualization of binge eating as a mean to deal with painful internal experiences, but binge eating, in turn, is associated with increased emotional distress (Haedt-Matt, & Keel, 2011) and may be associated with

increases in shame and self-criticism (Gilbert, 2002; Goss & Gilbert, 2002), with these processes contributing therefore for a perpetuating cycle. Thus, studies with prospective and experimental designs are warranted to clarify these mechanisms and how they operate in the vulnerability to and maintenance of binge eating symptoms.

Also, since the main aim of the current study was to specifically address the role of body image shame and its association with self-criticism in binge eating symptoms, other relevant variables (e.g., developmental, interpersonal, physiological) that may contribute to the multidetermined phenomenon of binge eating were beyond this study scope and were not examined. Future research should then expand on this model considering such variables.

Furthermore, even though binge eating is more prevalent in females, men also experience these symptoms (for instance, there is evidence showing that in BED there is a higher proportion of men in relation to women, in comparison to other eating disorders diagnosis; e.g., Kessler et al., 2013). So, upcoming studies should investigate this model in male samples and explore gender differences in how body image shame impacts in binge eating symptoms. Future research should also investigate these associations in large-scale samples and, in particular, in clinical samples to further support the adequacy of this model.

Nevertheless, these findings seem to have important research and clinical implications at both prevention and intervention levels. In fact, even though the existent treatments for eating disorders, especially binge eating (with CBT being the most supported one), are effective in the remission and reduction of symptoms, results regarding the maintenance of improvements are variable (Brownley, Berkman, Sedway, Lohr, & Bulik, 2007; Wilson, Grilo, & Vitousek, 2007). This suggests the importance of considering the processes contributing for the aetiology and maintenance of these problems in order to prevent and target them more effectively to achieve sustained change. The current study seems therefore to be an important contribution by highlighting the relevance of considering body image shame and self-criticism in the conceptualization and intervention with BED and bulimic-type eating disorders. In this sense, this data supports the adequacy of treatment approaches (e.g., Compassion Focused Therapy for Eating Disorders – CFT-E; Goss & Allan, 2010) that focus on overcoming shame and self-criticism by helping individuals to develop abilities for warmth, kindness and compassion (Gilbert, 2005; Gilbert & Irons, 2005). Such competencies enable individuals to tone down

emotional distress through self-reassurance and self-soothing, thus promoting effective emotion regulation and disrupting the bingeing cycle.

In conclusion, the current study offers pertinent suggestions by demonstrating the effect of body image shame and the mechanisms through which it operates, namely self-criticism, on binge eating.

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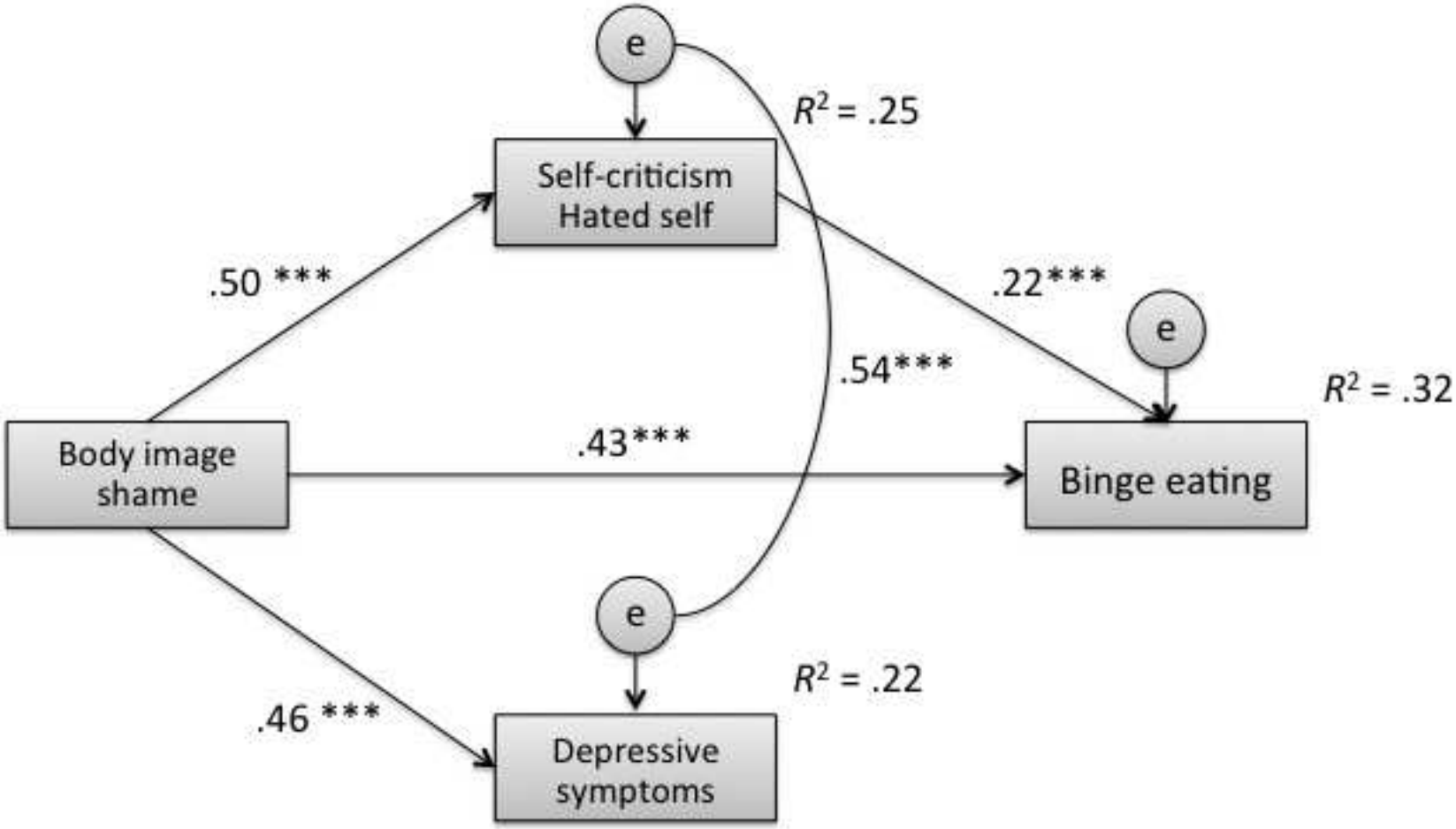

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Statement 1: Role of Funding Sources

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Statement 2: Contributors

Authors Cristiana Duarte and José Pinto-Gouveia designed the study and wrote the protocol. Author Cristiana Duarte recruited and assessed participants. Authors Cristiana Duarte and Cláudia Ferreira conducted literature research and provided summaries of previous research studies, conducted the statistical analysis and wrote the manuscript throughout its development stages. José Pinto-Gouveia supervised and contributed for these tasks and approved the final manuscript.

Statement 3: Conflict of Interest

The authors declare no conflicts of interest.