RUNNING HEAD: Shame memories and eating psychopathology

# Shame memories and eating psychopathology:

# The buffering effect of self-compassion

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**Shame memories and eating psychopathology:**

**The buffering effect of self-compassion**


## Abstract

Research suggests that self-compassion may protect against shame in eating disorders. This study examines the association between shame memories, self-compassion, self-judgment and eating psychopathology severity and tests the moderator effect of self-compassion on the relationships between shame memories and eating psychopathology.

Participants were 34 patients with the diagnosis of an eating disorder, who were assessed using Eating Disorder Examination and the Shame Experiences Interview and self-report instruments measuring the traumatic and centrality to identity features of shame memories, self-compassion and self-judgment.

Self-compassion was negatively correlated to shame memory features and eating psychopathology, and self-judgment was positively associated with such variables. Self-compassion had a moderator effect on the association between shame traumatic and central memories and eating psychopathology severity.

This is the first study to explore the buffering effect of self-compassion against the pathogenic effects of shame memories on eating psychopathology severity in eating disorders, with relevant clinical and research implications.



**Key-words**: Self-compassion; Eating Disorders; Shame traumatic memories; Centrality of shame memories; Moderator effect.

## Introduction

Recent research has consistently shown that early shame experiences entail a primary threat to one's social self and may function as threat-activating memories. Shame events involve self-other interactions where the self believes to exist negatively in the mind of the others as an unattractive social agent (e.g., defective, inferior, flawed) and perceives the self in the same devaluing manner. Being criticized, rejected, teased about one's physical appearance, bullied, or victim of physical or sexual abused are examples of potential shame experiences (Gilbert, 2007; Matos & Pinto-Gouveia, 2010; Matos, Pinto-Gouveia, & Costa, 2013). These experiences may occur early in life and become conditioned emotional memories. Research has demonstrated that such shame events occurring in childhood and adolescence may function as traumatic memories, in that they can elicit symptoms of intrusion, hyperarousal and avoidance (Matos & Pinto-Gouveia, 2010; Matos, Pinto-Gouveia, & Duarte, 2012), similar to memories of traumatic events (e.g., having a car accident). Also, consistent evidence suggests that these memories can structure autobiographical knowledge and become central to one's personal identity and life story, defining one's sense of self and deeply influencing one's social interactions (Pinto-Gouveia & Matos, 2011; Matos et al., 2012). In addition, these shame memories' traumatic features and centrality to identity qualities have been associated with several psychopathological indicators, such as depression, anxiety, paranoia and dissociation (Matos & Pinto-Gouveia, 2010; Matos et al., 2012; Matos, Pinto-Gouveia, & Gilbert, 2013; Pinto-Gouveia, & Matos, 2011).

These adverse early life interactions where one is allocated in an unwanted inferior social rank position may compromise one's affect regulation systems. According to evolutionary and neurosciences approaches, there are three evolved interacting affect regulation systems: threat-protection, drive-resource seeking, and

safeness-soothing (Depue & Morrone-Strupinsky, 2005; Gilbert, 2009, 2010). The threat system enables basic and quick threat detection and the rapid activation of defensive emotional and behavioural responses. This system operates through specific brain structures (e.g., the amygdala) and can by triggered by diverse threat-signalling stimuli, such as social cues and emotional memories. The drive system stimulates positive feelings of activation, pleasure and excitement, directing and motivating individuals towards important life goals (e.g., rewards and resources such as friendships and alliances), and is thought to operate through dopaminergic brain pathways (Gilbert, 2005, 2009). When such efforts are blocked or fail, individuals experience a loss of these positive feelings and this is perceived as a threat, activating threat-based emotions (e.g., shame, when one's social acceptance, status or self-identity are at stake). The safeness-soothing system is a distinct emotional regulation system, linked to endorphins/opiates and oxytocin, that evolved to register social safeness and is triggered by signals of care and compassion from others. So, positive social interactions stimulate this system by promoting feelings of affiliation, trust, safeness, and connectedness, and soothing overarousal and distress generated by threat. Contrastingly, negative early interactions, such as shame experiences may under stimulate the safeness-soothing system and sensitize one's threat-protection system (Gilbert, 2005, 2009).

Embedded in the safeness-soothing system is compassion, a concept rooted in Buddhist teachings, that involves motivation to care, capacity for sympathy, for tolerating unpleasant emotions, for empathic understanding and non-judging (Gilbert, 2005, 2009, 2010). When compassion is directed at the self is it referred to as self-compassion. Self-compassion comprises the ability to be kind and understanding toward oneself in instances of pain and failure rather than being harshly self-critical; to recognize that mistakes, failures and hardships are part of the common human

experience rather than seeing them as isolating; and to maintain a mindful and balanced awareness of painful thoughts and feelings rather than avoid, suppress or over-identify with them (Neff, 2003b).

Increasing research suggests that self-compassion is positively associated with many aspects of healthy psychological functioning (e.g., positive affect, psychological well-being, adaptive coping, social connectedness) and can be a powerful antidote to a variety of mental health difficulties (e.g., shame, self-criticism, rumination, avoidance, maladaptive perfectionism, negative affect; for reviews see, Barnard & Curry, 2011; Gilbert, 2005; Neff, 2009, 2011). Also, the cultivation of self-compassion, through the practice of skills, exercises or meditation (for a review see Barnard & Curry, 2011), can have powerful impacts on negative affect and promotes several mental and physical well-being indicators (Barnard & Curry, 2011; Fredrickson et al., 2008; Hutcherson, Seppala,& Gross, 2008; Kelly, Zuroff, Foa, & Gilbert, 2009; Pace et al., 2008; Raes, 2011).

In particular, preliminary evidence has been gathered on the relevance of self-compassion in eating psychopathology. In a recent study using nonclinical and clinical samples with eating disorders, Ferreira, Pinto-Gouveia and Duarte (2013) emphasized the role of self-compassion in eating disorders by showing that higher shame and body image dissatisfaction lead to increased pathological dieting when one has lower abilities to be self-compassionate. Moreover, another study conducted in a similar type of sample, tested a comprehensive model of eating psychopathology where it was demonstrated the importance of self-compassion as a buffer against the impact of shame and body image dissatisfaction on the severity of disordered eating symptoms (Pinto-Gouveia, Ferreira & Duarte, 2014).

Even though it has been suggested that developing self-compassion has a beneficial impact in patients with eating disorders (Goss & Allan, 2010), the research on self-compassion in the eating disorders is still in its early stages. In a study that introduced CFT into a standard treatment of eating disorders, results showed that patients revealed clinically reliable and significant improvements (Gale, Gilbert, Read, & Goss, 2012). Another recent study empirically supported that, over the course of a 12-week CBT-based eating disorders treatment, decreases in shame were associated with decreases in eating disorder symptoms, and that increases in self-compassion early in treatment were associated with faster decreases in shame (Kelly, Carter, & Borairi, 2014).

In fact, shame has for long been regarded as a central feature of eating psychopathology (Burney & Irwin, 2000; Goss & Gilbert, 2002; Pinto-Gouveia et al. 2012; Skårderud, 2007; Troop, Allan, Serpell, & Treasure, 2008; Troop & Redshaw, 2012). Furthermore, recent data have indicated that early shame experiences have an important impact on the severity of eating psychopathology in patients with eating disorders (Sweetingham & Waller, 2008), especially when these involve agents from the wider social domain, namely peers (Matos, Ferreira, Duarte, & Pinto-Gouveia, 2014). Despite the potential clinical implications of further investigating the impact of shame memories on eating psychopathology and how self-compassion operates in this relationship, this area remains unexplored.

Therefore, the present study aims at investigating the relationship between the traumatic and centrality to identity features of shame memories, self-compassion, self-judgment and the severity of core features of eating psychopathology in patients with eating disorders. It is expected that these traumatic and centrality features of shame memories would be positively associated with self-judgment and higher levels of eating

psychopathology severity, and negatively with self-compassion. In turn, self-compassion is predicted to be inversely linked to the severity of eating psychopathology, while self-judgment is expected to be positively related to such variable. In addition, the major goal of this research was to test the moderator effect of self-compassion on the relationship between the traumatic and centrality features of shame memories and eating psychopathology. It is hypothesized that self-compassion would buffer the impact of these shame memories variables on eating psychopathology.

## Materials and methods

### *Measures*

*Eating Disorder Examination 16.0D (EDE 16.0D; Fairburn, Cooper, & O'Connor, 2008; Psychometric properties of the Portuguese Population by Ferreira, Pinto-Gouveia, & Duarte, 2010)*. EDE is a standardized interview that can be used for diagnosing eating disorders based on the *DSM-IV-TR* (2000) criteria, and allows the assessment of the frequency and intensity of core behavioural and core psychological characteristics of eating disorders. It is considered a precise evaluation method with high values of internal consistency, of test-retest reliability, and of discriminative and concurrent validity (for a review see Fairburn, 2008).

*Shame Experiences Interview* (SEI, Matos & Pinto-Gouveia, 2006). The SEI is a semi-structured interview designed to assess the phenomenology of a shame experience fromchildhood or adolescence. It measures emotional, cognitive, behavioural, motivational and contextual components of shame and its autobiographical/traumatic memory characteristics. The interview begins with an introduction that explains its purpose and then explains the concept of shame and gives three examples of shame

experiences from childhood and adolescence. It is divided into three main parts: In the first part a significant shame memory from childhood or adolescence that involved peers, teachers, strangers, or other people, is elicited and assessed regarding its phenomenological and memory characteristics. In the second part participants are asked to recall a significant shame memory from childhood or adolescence involving an attachment figure (father, mother or other career), and its phenomenological and memory characteristics are evaluated. The third part measures the accessibility to positive and negative memories with attachment figures from childhood and adolescence. After each part, participants are asked to fill in a set of self-report questionnaires (described below) considering the shame memory elicited, measuring their traumatic memory characteristics and centrality to identity. According to prior evidence on the role of shame experiences involving agents from the wider social domain, namely peers, rather than attachment figures, in eating psychopathology (Matos et al., 2014), for the purpose of this study we will only consider the scores from the self-report measures applied to the shame memory with peers, teachers, strangers or other people.

*Impact of Event Scale – Revised* (IES-R) was developed by Weiss & Marmar (1997). The IES-R is a self-report instrument designed to measure current subjective distress for any specific life event. This scale has 22 items, 7 items having being added to the original 15-item IES (Weiss & Marmar, 1997), rated on a 5-point Likert scale (0–4). The IES-R is composed by three subscales that measure the three main characteristics of traumatic memories: avoidance (e.g., "*I stayed away from reminders of it*"), intrusion (e.g., "*Any reminder brought back feelings about it*") and hyperarousal (e.g., "*I was jumpy and easily startled*") that parallel the DSM-IV criteria for PTSD. In the original study, Cronbach alphas of the subscales ranged from .87 to .92 for

intrusion, .84 to .86 for avoidance and .79 to .90 for hyperarousal (Weiss& Marmar, 1997). The Portuguese version revealed a one-dimensional structure with sound psychometric properties (IES-R Cronbach's α = .96; Matos, Pinto-Gouveia, & Martins, 2011).

*Centrality of Event Scale* (CES; Berntsen & Rubin, 2006; Portuguese version by Matos, Pinto-Gouveia, & Gomes, 2010) assesses the extent to which a memory for a stressful event forms a reference point for personal identity and to attribution of meaning to other experiences in a person's life. This self-report questionnaire consists of 20 items, rated on 5-point Likert scale (1-5), that measure the three interdependent characteristics of highly negative emotional memories: reference points for everyday inferences ("*This event has coloured the way I think and feel about other experiences*."), turning points in life stories ("*I feel that this event has become a central part of my life story*.") and components of personal identity ("*I feel that this event has become part of my identity*."). In its original study, CESreported a high internal consistency (Cronbach α = .94). One-dimensional structure with good psychometric properties was found in the Portuguese version (CES Cronbach's α = .96; Matos et al., 2010).

*Self-Compassion Scale (SCS; Neff, 2003a; Portuguese version by Castilho & Pinto-Gouveia, 2011b*). This self-report instrument, with 26 items, comprises two main components: a positive one that includes self-kindness, common humanity and mindfulness subscales; and a negative one comprising self-judgment, isolation, and over-identification subscales. The SCS presents good internal reliability both in the original (.92; Neff, 2003a) and in the Portuguese versions (.89; Castilho & Pinto-Gouveia, 2011a). In this study, a composite measure gathering the 3 positive dimensions of this scale was computed and defined as Self-compassion, and a composite measure gathering the 3 negative dimensions was defined as Self-judgment.

The Cronbach' alphas for all study variables are reported in Table 1.

*Participants*

Thirty-four patients with the diagnosis of an eating disorder participated in this study. Their age ranged from 14 to 44 years old and they presented a mean age of 24.56 (*SD* = 7.61) and of 12.74 (*SD* = 3.58) years of education. Three clinical groups were formed according to participants' clinical condition: 29.4% (*n* = 10) patients presented Anorexia Nervosa, 44.1% (*n* = 15) Bulimia Nervosa, and 26.5% (*n* = 9) Eating Disorder Not Otherwise Specified. The patients' BMI ranged from 15.35 to 47.33, and the mean is 22.60 (*SD* = 8.31). No significant differences were found between the three clinical conditions regarding the overall score of eating psychopathology as measured by the EDE 16.0D, $F(1) = 1.040$, $p = .365$. Therefore, subsequent analyses considered only one group, which is in accordance with well validated current approaches to eating disorders (Fairburn, 2008).

*Procedures*

The sample of this study is part of a wider research investigating the contribution of a social rank mentality and shame in the aetiology of eating disorders.

The clinical sample was collected in outpatient mental health services, at an eating disorders Care Unit, after previous review and approval by the respective Ethics Committee Boards.

First, participants were informed about the purpose and procedures of the research, that their cooperation was voluntary and that the data were confidential, and gave their informed consent. Clinical diagnoses were established through the structured

clinical interview Eating Disorder Examination 16.0D (EDE 16.0D; Fairburn et al., 2008) which was administered by the authors. Those patients who met the criteria for an eating disorder diagnosis (DSM IV; APA, 2000) were asked to answer the measure of self-compassion (SCS). In a second session, the Shame Experiences Interview (SEI; Matos & Pinto-Gouveia, 2006) and respective self-report questionnaires (IES-R, CES) were administered and lasted on average 90 to 120 minutes. This second session took place approximately 1 to 2 weeks after the first one, depending on the patient's availability. With some patients presenting more severe symptomatology, an additional session was necessary to complete the SEI, in order to prevent bias due to fatigue or emotional activation.

*Data analysis*

Data analyses were performed using PASW (Predictive Analytics Software, version 18, SPSS Inc., Chicago, IL, USA).

Pearson correlation coefficients were performed to explore the association between shame memory variables, self-compassion, self-judgment and the severity of eating disorders symptomatology (Cohen, Cohen, West & Aiken, 2003).

A hierarchical regression was then conducted to examine the predictor effect of self-compassion and self-judgment on the severity of eating disorders symptomatology.

A series of hierarchical multiple regression analyses was conducted in order to analyse two moderator effects: first, the moderator effect of self-compassion on the relationship between the traumatic memory features of shame memory (IES-R) and eating psychopathology (EDE); secondly, the moderator effect of self-compassion on the relationship between centrality of shame memory (CES) and eating psychopathology (EDE). In such analyses the interaction of a continuous predictor was

considered (Cohen et al., 2003). In an attempt to reduce the error associated with multicollinearity, a standardized procedure was used, centering the values of the predictors (IES-R, CES) and the moderator (Self-compassion) and then obtained the interaction product by multiplying the created variables (Cohen et al, 2003). According to Miles and Shevlin (2001) recommendations, the sample size of the current study was adequate to achieve a large effect size when considering two predictors.

Finally, with the purpose of better understanding the relation between the independent variables (IES-R, CES) and eating psychopathology with different levels of the moderator variable (Self-compassion), two graphs were plotted considering low, medium and high levels of self-compassion. In this graphic representation, and since there were no theoretical cut points, the three curves were plotted taking into account the following cut-point values of the moderator variable on the x axis: less than one standard deviation below the mean (to represent low self-compassion), between one standard deviation below and above the mean (to represent medium self-compassion) and over one standard deviation above the mean (to represent high self-compassion), as recommended by Cohen and colleagues (2003).

## Results

*Preliminary Data Analyses*

The suitability of the current data for regression analyses was examined. The analysis of residuals scatter plots was conducted, providing a test of assumptions of normality, linearity and homoscedasticity between dependent variables scores and errors of prediction. Results showed that the residualswere normally distributed, had linearity and homoscedasticity. Besides, the independence of the errors was analysed and validated through graphic analysis and the value of *Durbin–Watson* (values ranged

between 1.121 and 1.220). There was no evidence of the presence of multicollinearity or singularity amongst the variables, since *Variance Inflation Factor (VIF)* values (*VIF* < 5) indicated the absence of β estimation problems. Overall, these data are adequate for regression analyses.

*Descriptives*

Means and standard deviations for the study variables are presented in Table 1.

*Correlations*

Pearson's correlation coefficients (two-tailed) are presented in Table 1. Results showed that the traumatic features of shame memory were significantly and moderately correlated with overall levels of eating psychopathology, and the centrality to identity of shame memory was strongly associated with this global indicator of eating psychopathology.

Moreover, the traumatic and centrality features of shame memory were strongly and inversely associated with self-compassion. The traumatic features of the shame memory showed a positive and moderate correlation with self-judgment, while the centrality of shame memory was strongly related to such variable.

Finally, self-compassion was inversely and strongly associated with overall levels of eating psychopathology severity and self-judgment was positively and moderately linked to EDE global score.

*Multiple regression*

Given the previous results, a multiple regression analysis was conducted in order to clarify which dimension, self-compassion or self-judgment, was a best predictor of the severity of eating psychopathology. Results showed that only the positive dimension of self-compassion emerged as a significant predictor ($\beta$ = -.84, $p$ < .001), with the model explaining 37.6% of eating psychopathology severity variance.

*The moderator effect of self-compassion on the relationship between shame memory variables and eating psychopathology*

Given the previous findings and the proposed hypotheses, we intended to explore whether the positive dimension of self-compassion, which emerged as the only significant predictor of eating psychopathology severity, was a moderator on the relationship between shame memory variables and the severity of eating psychopathology.

First, we examined a moderator model in which self-compassion was expected to attenuate the impact of the traumatic features of shame memory on eating psychopathology. These traumatic characteristics were entered as a predictor in the first step of the regression model (Table 2). On step two self-compassion was further included as a predictor variable. In both steps the predictors entered produced statistically significant models [Step 1: $R^2$ = .23, $F_{(1, 32)}$ = 9.67, $p$ = .004; Step 2: $R^2$ = .40, $F_{(1, 31)}$ = 8.35, $p$= .007]. The third step, where the interaction terms were entered, presented a $R^2$ of .53 [$F_{(1, 30)}$ = 8.405; $p$ = .007], showing a significant interaction of self-compassion and traumatic features of shame memory on predicting eating psychopathology.

The regression coefficients analysis (Table 2) revealed that the interaction between these two variables is significant [$\beta$ = .42; $t_{(30)}$ = 2.90; $p$ = .007], suggesting the

existence of a moderator effect of self-compassion on the association between the traumatic features of shame memory and eating psychopathology.

[Table 2 about here]

The same procedure was conducted to explore the relationship between centrality of shame memory and eating psychopathology moderated by self-compassion (Table 2). All three steps of the regression model were statistically significant. Centrality of shame memory was entered in step one as a predictor and self-compassion was further added as a predictor variable in step two. Only the first step produced a statistically significant model [Step 1: $R^2$ = .38, $F_{(1, 32)}$ = 19.79, $p$< .001; Step 2: $R^2$ = .42, $F_{(1, 31)}$ = .44 , $p$ = .058]. The interaction terms were entered on the third step and the model accounted for 51% of eating psychopathology variance ($F_{(1, 30)}$= 6.76, $p$ = .014). Hence, results confirm that there was a significant interaction of self-compassion and centrality of shame memory on eating psychopathology prediction.

Regression coefficients analysis (Table 2) showed that the interaction of the two variables was significant (β = .39; $t_{(30)}$ = 2.60; $p$ = .014), indicating that self-compassion has a moderator effect on the relation between centrality of shame memory and eating psychopathology.

Therefore, in both moderator analysis, when the interaction terms were entered on the regression models they produced asignificant increase in $R^2$, and also revealed an expressive and significant effect upon the severity of eating psychopathology.

These findings imply that in patients with lower levels of traumatic and centrality features, those who reveal higher levels of self-compassion present lower levels of eating psychopathology, in comparison to those with lower levels of self-

compassion. Therefore, an interaction effect between self-compassion and shame memories' traumatic and centrality features was corroborated suggesting that self-compassion moderates the effect of these shame memory characteristics on eating psychopathology.

To better understand the relation between the shame memory variables and eating psychopathology in the presence of different levels of self-compassion, two graphs were plotted (Figure 1 for traumatic characteristics of shame memory; Figure 2 for centrality of shame memory) considering each the three self-compassion levels (low, medium and high).

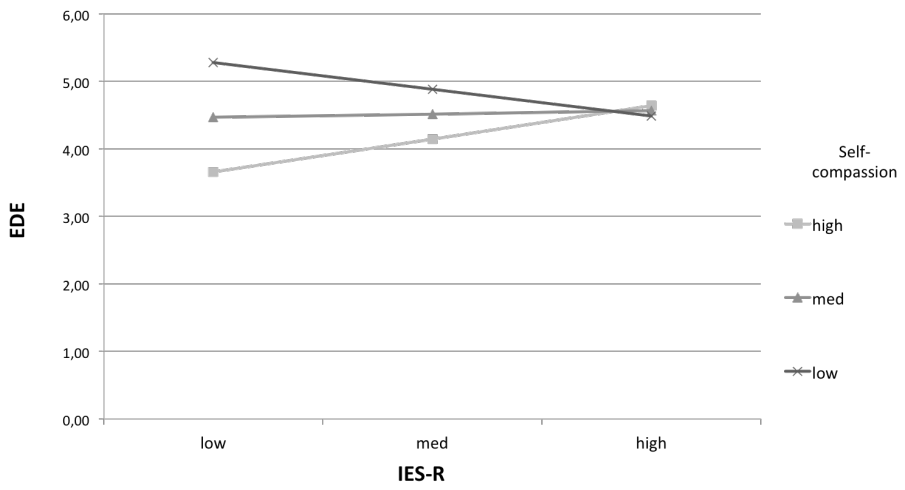


Figure_1. Graphic for the relation between traumatic features of shame memory (IES-R) and eating psychopathology (EDE) with different levels of self-compassion

The graphic representation of the moderation analyses results reveals that, in both cases, individuals presenting low to medium values of traumatic and centrality features of shame memory, those who score high on self-compassion reveal lower levels of eating psychopathology, in comparison to those with medium and low scores on self-compassion. In those individuals who present high levels of shame memory variables,

the effect of self-compassion is not expressive since regardless of self-compassion levels, the severity of eating psychopathology remains high.

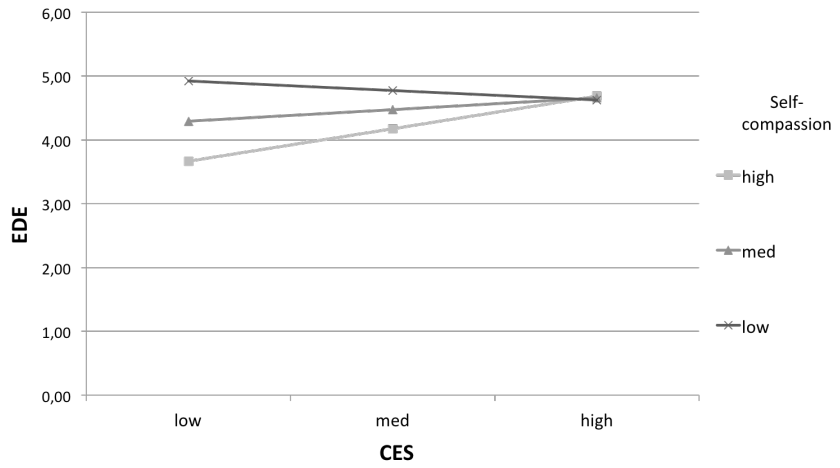


Figure 2. Graphic for the relation between centrality of shame memory (CES) and eating psychopathology (EDE) with different levels of self-compassion

So, it is only when individuals have low or medium levels of traumatic and centrality characteristics of shame memories that self-compassion buffers against the impact of these shame memory features on eating psychopathology. When traumatic and centrality to identity features of shame memories are high, the severity of eating psychopathology remains elevated regardless of individuals' levels of self-compassion.

## Discussion

Self-compassion has been pointed out as a possible protective factor against shame and body image dissatisfaction in women with and without eating disorders (Ferreira et al., 2013; Pinto-Gouveia et al., 2012). Furthermore, recent research has suggested that shame memories can operate as traumatic memories and become central to personal identity in patients with eating disorders (Matos et al., 2014). However, the role of self-compassion on the relationship between such shame memories' features and

eating psychopathology has never been investigated. Thus, the present study explores how self-compassion may act as a moderator between the traumatic and centrality characteristics of shame memories and the severity of eating disorders key features.

In accordance with the proposed hypotheses, results showed that the traumatic and centrality features of shame memories were significantly associated with overall levels of eating psychopathology. These findings are in line with recent evidence suggesting that early shame experiences can act as traumatic memories and structure autobiographical knowledge in women with eating disorders (Matos et al., 2014). This also corroborates extant research showing that these shame memories are related to several psychopathological indicators (Matos& Pinto-Gouveia, 2010; Matos, Pinto-Gouveia, & Gilbert, 2013; Matos et al., 2012) and, in particular, to the severity of their eating psychopathology (Matos et al., 2014; Sweetingham & Waller, 2008).

In addition, correlation analyses showed that self-compassion was inversely correlated such shame memories' features and, on the other hand, self-judgment was positively linked to such traumatic and centrality features of shame memories. These findings confirm our predictions and are in line with prior research highlighting the relationship between shame and self-compassion and self-judgment in eating disorders' patients (Kelly et al., 2014; Pinto-Gouveia et al., 2014). Furthermore, this is the first study to explore the relationship between the traumatic and centrality features of shame memories, self-compassion and eating psychopathology.

Moreover, even though correlation results revealed that both self-compassion and self-judgment were associated with the severity of eating psychopathology, regression analyses allowed us to confirm prior evidence in clinical samples (Ferreira et al., 2013) by showing that only self-compassion emerged as a significant predictor of core features of eating psychopathology.

Taken together these findings, we further examined whether self-compassion would moderate the relationship between traumatic and centrality features of shame memories and eating psychopathology severity. Results of two moderator analyses showed that the interaction between the traumatic characteristics of shame memory and self-compassion, and between centrality of shame memory and self-compassion, revealed an expressive and significant effect upon overall levels of eating psychopathology core features. This suggests that self-compassion moderates the impact of these shame memories' features on eating psychopathology. The same is to say that women who have higher levels of self-compassion and lower levels of traumatic and centrality features of shame memories, tend to present decreased severity of eating psychopathology, comparatively to those who reveal lower levels of self-compassion.

Additionally, the graphic representation of these data further clarified such finding, in that only when individuals show low or medium levels of traumatic and centrality characteristics of shame memories, self-compassion is able to ameliorate the impact of these shame memory' features on eating psychopathology. Interestingly, results seem to suggest that when these patients' shame memories become highly traumatic and central to their identities, self-compassion fails to buffer against their pathogenic effect on the current levels of eating psychopathology. This moderator effect of self-compassion seems to be a key finding that extends previous research (Ferreira et al., 2013; Matos et al., 2014; Pinto-Gouveia et al., 2014) and may have relevant clinical implications. Such results can be understood in light of the tripartite model of affect regulation (Gilbert, 2005, 2009) in the sense that shame memories may function as conditioned emotional memories and stimulate the threat system and compromise the development of the safeness-soothing system. In patients with eating disorders it is

possible that these threat memories trigger a range of defensive responses rooted in the drive system, linked to extreme behaviours of control over one's eating, body weight and shape, which may emerge as strategies to strive for a secure social rank position and avoid inferiority and shame. When such shame memory's traumatic and centrality features are low or mild, the activation of the threat system may be soothed by the safeness-soothing system, through one's ability to direct kindness and compassion towards oneself. However, when these shame memories become extremely central to identity and traumatic, with intense symptoms of intrusion and hyperarousal, they may become highly threatening, and overstimulate the threat system. The drive system may also become overactivated as a mean to regulate threat and to deal with strong feelings of shame and inadequacy and unattractiveness. This, in turn, seems to be linked to increased levels of overall eating psychopathology severity. In these cases, it seems that the safeness-soothing system is unable to soothe the over-activation of the threat and drive systems and regulate negative affectivity.

Therefore, these findings may have important clinical implications suggesting the relevance of developing self-compassion abilities in patients with eating disorders to help working with these patients' shame memories and their pathogenic effects. Compassion-focused therapy adapted for patient with eating disorders (Compassion Focused Therapy for Eating Disorders; Goss & Allan, 2010) may be particularly suited to address these patients' difficulties by focusing on the development of the affiliative soothing system, promoting a kind, warm and compassionate self-to-self relationship, which enables adaptive affect regulation. Nevertheless, the current study highlights that when shame memories are highly traumatic and central to identity it might be important to specifically address these threat-related memory features when working with patients with eating disorders. That is, in these severe cases it may not only be important to

cultivate self-compassion, but also to directly therapeutically target the traumatic nature and autobiographical meaning of these shame memories.

These results should be interpreted considering some methodological limitations. First, the small sample size constrains the generalization of these findings, and future research should therefore replicate this study using a larger sample. Furthermore, the transversal design of our study limits causal conclusions that can be drawn from our findings. In fact, there may be other alternative interpretations for our findings in that the severity of eating disorders' symptoms may influence the degree of traumatic and centrality characteristics of the shame memories. Nonetheless, the use of structured clinical interviews and the consistency of these findings with prior studies showing the impact of shame memories on current psychopathology (e.g., depressive and paranoid symptoms; Matos & Pinto-Gouveia, 2010; Matos et al., 2012), support the conclusions derived from our results.

To sum up, the current study offers preliminary evidence on the protective role of self-compassion against the negative impact of shame memories on eating psychopathology severity in patients struggling with eating disorders, with significant clinical and research implications.

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Table 1

*Means (M), Standard Deviations (SD), Cronbach alphas and Intercorrelation scores on self-report measures (N = 35)*

| Measures | *M* | *SD* | α | SCS_SC | SCS_SJ | IES-R | CES |
|---|---|---|---|---|---|---|---|
| SCS_SC | 2.25 | .71 | .90 | - | | | |
| SCS_SJ | 3.74 | .72 | .89 | -.76*** | - | | |
| IES-R | 6.18 | 2.71 | .94 | -.61*** | .49** | - | |
| CES | 69.91 | 20.21 | .97 | -.68*** | .60*** | .84*** | - |
| EDE | 4.25 | .94 | .85 | -.61*** | .34* | .48** | .62*** |

*Note.* * $p$ <.050. ** $p$ <.010. *** $p$ <.001. SCS_SC = Self-compassion dimension; SCS_SJ = Self-judgment dimension; IES-R = Shame traumatic memory; CES = Centrality of shame memories; EDE = Eating Disorder Examination global score.

Table 2

*Hierarchical multiple regression using shame memory variables (Model 1: Shame traumatic memory, IES-R; Model 2: Centrality of shame memory, CES) to predict eating psychopathology (EDE) having self-compassion (SCS_SC) as moderator (N = 35)*

| | Eating psychopathology | |
|---|---|---|
| Predictor | $\Delta R^2$ | b |
| Model 1 | | |
| Step 1 | .21** | |
| IES-R | | .48** |
| Step 2 | .16** | |
| IES-R | | .17 |
| SCS_SC | | -.51** |
| Step 3 | .13** | |
| IES-R | | .05 |
| SCS_SC | | -.39* |
| IES-RxSCS_SC | | .42** |
| Total $R^2$ | .53** | |
| Model 2 | | |
| Step 1 | .38*** | |
| CES | | .62*** |
| Step 2 | .07 | |
| CES | | .37* |
| SCS_SC | | -.36 |
| Step 3 | .10* | |
| CES | | .19 |
| SCS_SC | | -.32 |
| CESxSCS_SC | | .39* |
| Total $R^2$ | .55* | |

*$p < .050$. **$p < .010$. *** $p < .001$.