

**Thinness in the pursuit for social safeness: An integrative model of social rank
mentality to explain eating psychopathology**

José Pinto-Gouveia MD, PhD, jpgouveia@fpce.uc.pt¹

Cláudia Ferreira MS, Ph.D. claudiaferreira@fpce.uc.pt^{*1}

Cristiana Duarte M.S. Ph.D. Student cristianaod@gmail.com¹

¹University of Coimbra, Portugal

CINEICC – Cognitive - Behavioural Research Centre

* Correspondence concerning this article should be addressed to:

Cláudia Ferreira

CINEICC, Faculdade de Psicologia e Ciências da Educação,

Universidade de Coimbra

Rua do Colégio Novo, Apartado 6153

3001-802 Coimbra, Portugal

E-mail: claudiaferreira@fpce.uc.pt (Cláudia Ferreira)

Telephone: (+351) 239851450

Fax: (+351) 239851462

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Abstract:

The current study tests a model based on social rank mentality investigating whether women who feel inferior and believe others see them negatively, and feel under pressure to compete to avoid social inferiority, present increased body dissatisfaction and drive for thinness; and whether these associations are mediated by distinct emotional regulation processes. The predictions from the model proposed were examined through path analyses, in a sample of 125 women from the general population and 102 patients with eating disorders.

Results showed that the path model explained 51% of body dissatisfaction variance and 61% of drive for thinness and allowed us to confirm that social ranking variables increased drive for thinness through higher levels of self-criticism and lower levels of self-compassion.

The findings suggest that the nuclear eating disorders' features arise as a result of a more self-critical and less compassionate attitude with the self, in the context of a mentality focused on social ranking and competition.

Key Practitioner Points:

- The current study explores an innovative comprehensive model based on Social Rank Theory to understand eating disorders' symptoms in women.
- A mentality focused on ranking, shame and competition predicts body image dissatisfaction.
- This ranking-focused mentality, along with body image dissatisfaction, leads to drive for thinness through increased self-criticism and decreased self-compassion.
- These findings support the emergent psychotherapeutic approaches for eating disorders that target self-criticism and self-compassion.

Keywords:

shame; social comparison; self-compassion; self-criticism; eating disorders.

INTRODUCTION

Eating disorders are an important public health problem characterized by an overwhelming, consuming drive to be thin and a morbid fear of gaining weight and losing control over eating (Fairburn, 2008). These disorders most commonly occur in adolescent girls and young women. They involve great levels of psychological and social impairment, with significant psychiatric comorbidity with other DSM-IV disorders (particularly depression, anxiety and substance abuse; Hudson, Hiripi, Pope, & Kessler, 2007) and pose significant health risks, being linked to increased mortality (Fairburn & Harrison, 2003; Herzog, Deter, Fiehn, & Petzold, 1997). Even though eating disorders (according to *DSM-IV-TR* diagnostic criteria; APA, 2000) are not highly prevalent, many individuals suffer from sub-clinical eating disorders, or varying degrees of a disordered relationship with food and body image (Favaro, Ferrara, & Santonastaso, 2003).

The existent pressure in Western societies to achieve an extremely thin body shape may explain the significant rates of body image dissatisfaction and disordered eating behaviours among women. Furthermore, several theoretical and empirical accounts converge on the notion that for women, physical appearance is often used as a central self-evaluative dimension (Gilbert, Price, & Allan, 1995; Troop, Allan, Treasure, & Katzman, 2003) to estimate one's social position and to compete for social advantages (Burkle, Ryckman, Gold, Thornton, & Audesse, 1999).

According to an evolutionary perspective – Social Rank Theory (2000b, 2005a, 2010) – for humans the loss of acceptance and approval is a major social threat. In fact, the desire to appear attractive to others marked, along evolution, the establishment of humans' social ranking and social relationships (Gilbert, 1997). Being approved and accepted by others offered great advantages, since the establishment of close and safe

social relationships guaranteed one's prospering and survival (Baumeister & Leary, 1995). In this sense, humans have become highly sensitive to social cues and to the need to stimulate positive affect in the mind of others to be chosen to form attachment and cooperative relationships (Buss, 2003; Gilbert, 2005a, 2005b, 2010), developing specific competencies to learn, understand and enact social roles, and specific relationships (Gilbert, 2005a).

The need to compete for social acceptance and to be valued by others is thus a fundamental human motivation. However, in some individuals this type of social mentality focused on competition becomes prevailing in self-self and self-others processing. They need to constantly compare themselves with others, to estimate the power of the competitors and their threatening potential and one's status, fearing to not be as good or as attractive as them in valued domains. Their internal models become focused on power and control (Gilbert, 2005b; Leary, 1995), they constantly feel under pressure to demonstrate talent, ability, and other positive personality attributes, and have a great fear of failure – insecure striving (Gilbert et al., 2007). The perception of losing in this competition (i.e., experiencing self as an unattractive and rejectable person) is a major threat. That is, one's social world becomes unsafe and, as a consequence, a series of defensive emotional and behavioural outputs are activated (e.g., wanting to hide, conceal or submit to others). Such defenses are conceptualized as being incorporated in the painful affect of shame (Gilbert, 2000a).

Shame is a multifaceted self-conscious emotion that involves evaluations that certain personal characteristics (e.g., being less intelligent or boring), attributes (e.g., body shape or size), or behaviours (e.g., overeating) are seen as unattractive and might result in being ostracized or rejected by others (Gilbert, 2000a; Gilbert & McGuire, 1998; Lewis, 1992; Nathanson, 1992; Tangney & Fischer, 1995). Shame involves

different attentional foci and processing systems (Goss, Gilbert, & Allan, 1994). When this emotion is outwardly focused it is referred to as external shame (Gilbert, 2002), which involves evaluations of how others see the self, focused on aspects one believes others will reject or attack if they become public (Allan, Gilbert, & Goss, 1994). When this emotion is internalized – internal shame – the focus of attention, feelings and negative evaluations are self-directed (i.e., when one has negative views and feelings about one's own attributes or behaviours, and evaluates oneself as inferior, flawed, inadequate and globally bad; Goss & Allan, 2009). External and internal shame can be fused together, in a sense that experiencing that one is perceived negatively by others may fuel negative self-evaluations and a critical and hostile internal world. In this sense, shame is highly linked to self-criticism (Gilbert, 2000b; Gilbert, Baldwin, Irons, Baccus, & Palmer, 2006; Gilbert, Clarke, Hempel, Miles, & Irons, 2004; Gilbert & Irons, 2005; Gilbert & Miles, 2000; Pinto-Gouveia, Castilho, Matos, & Xavier, 2011).

Self-criticism may be understood as a maladaptive emotional regulation process that emerges to cope with shortcomings of the self as seen as inadequate or inferior (Gilbert & Irons, 2005; Gilbert et al., 2004), and that is highly linked to psychopathology (Blatt & Zuroff, 1992; Dunckley, Zuroff, & Blankstein, 2003; Gilbert, 2002; Gilbert et al., 2006; Gilbert et al., 2004). Overall, research have shown that the over-stimulation of a social rank mentality underlies a sense of inferiority, and promotes shame and a critical self-evaluation (Gilbert, 2005a, 2010), increasing the vulnerability to a wide range of emotional and psychopathological difficulties (Bellew, Gilbert, Mills, McEwan, & Gale, 2006; Gilbert, 1992, 2005a, Gilbert et al., 2007, Gilbert, McEwan, Bellow, Mills, & Gale, 2009).

In opposite to this critical self-to-self relationship is a relationship punctuated by a sense of care, warmth, and safeness (Gilbert, 2005b, 2010), and by the motivation to

alleviate one's and others' suffering (Gilbert, 2005b). Feeling compassion for oneself involves accepting in a caring manner one's failures, imperfections or life's negative aspects (e.g., not being able to reach an ideal body shape or to avoid overeating; Gilbert, 2000a). These compassionate competencies allow us to effectively regulate emotions, and to adaptively cope with difficult contexts (Gilbert, 2000b, 2005b, 2010; Isen, 2000; Neely, Schallert, Mohammed, Roberts, & Shan, 2009; Neff, 2003b, 2004; Neff, Kirkpatrick, & Rude, 2007), alleviating psychological distress and promoting a more adequate functioning (Leary, Tate, Adams, Allen, & Hancock, 2007). Furthermore, when treating oneself with compassion, undesirable emotions are not avoided but held in awareness with kindness, nonjudging, and with a sense of being part of a greater human experience (Neff, 2003b). Several studies support the strong link between self-compassion and psychological health and well-being (Neff, 2003a; 2003b).

Even though there is increasing empirical interest on the aforementioned variables for psychopathology and psychological adjustment, research integrating the role of the social rank and affiliation systems, as well as the emotional regulation processes involved in such systems, on eating disorders, is still scant.

According to Goss and Gilbert (2002) eating disorders symptoms may arise from a series of factors that give rise to shame and accentuate interpersonal sensitivities and the perception of being in an unsafe position in relation to one's social group. There are some evidence that competitive concerns linked to the fear of existing negatively as an inferior social agent in the mind of the others, and thus of being put down or rejected (Bellew et al., 2006; Burney & Irwin, 2000; Goss & Gilbert, 2002), are salient domains to understand eating psychopathology, both in nonclinical (e.g., Gee & Troop, 2003; Murray, Waller, & Legg, 2000; Sanftner, Barlow, Marschall, & Tangney, 1995) and clinical samples (Cooper, Todd, & Wells, 1998; Gee & Troop, 2003; Grabhorn,

Stenner, Stangier, & Kaufhold, 2006; Swan & Andrews, 2003). Furthermore, a growing body of research shed light on the role that unfavourable social comparisons play on the vulnerability for eating pathology, namely the over-evaluation of thinness and fear of gaining weight (Halliwell & Harvey, 2006; Krones, Stice, Batres, & Orjada, 2005; O'Brien et al., 2009; Strahan, Wilson, Cressman, & Buote, 2006). Particularly, Ferreira, Pinto-Gouveia, and Duarte (2011b) have found that when one's social rank is based on the physical appearance domain (by physically comparing oneself with others in relation to rank, attractiveness and judgments about fitting in the social group), mediates the link between feeling dissatisfied with one's current body image and an increased tendency to diet and seek thinness.

This study presents an innovate model of eating psychopathology, based on the Social Rank Theory (Gilbert et al., 2007; Gilbert et al., 2009). This study involves, therefore, a systematic and extensive research on the association between social rank variables – external shame, social comparison and insecure striving (the constant pressure to compete to avoid inferiority) – and their link to disordered eating. Specifically, this model suggests through which paths the variables related to a competitive rank mentality lead to increases in body image dissatisfaction and to the over-evaluation of the need to be thin, and the intense fear of gaining weight – drive for thinness (Garner, Olmsted, & Polivy, 1983). We expect that emotional regulation processes play a crucial role in these relationships. In fact, we hypothesize that women who perceive themselves as worse off than their competitors (e.g., feeling inferior when comparing themselves with others based on their physical appearance), that believe to be negatively evaluated by others (e.g., as a defective, devalued, unattractive, and inadequate social agent), and that feel under pressure to compete to avoid social inferiority (insecure striving), will present higher levels of body image dissatisfaction

and higher levels of the tendency to restrict eating and seek for a thin body shape, via the quality of the processes they adopt to regulate negative affect. We hypothesize that the ability to direct kindness and warmth towards the self (the affiliative emotional dimensions of self-compassion), even in face of perceived body inadequacies, will buffer the negative effect of a social rank mentality. In contrast, we expect that the dimensions of a social rank mentality (e.g., low social rank, external shame, and insecure striving) increase drive for thinness, through heightened levels of a self-self relationship punctuated by a sense of inadequacy and harsh criticism (self-criticism). These paths are represented in Figure 1.

Insert Figure 1 approximately here

METHOD

Participants

The sample of this study is part of a wider research that is being conducted to investigate the contribution of a social rank mentality and emotional regulation processes for the development and maintenance of eating disorders. As in previous studies, we opted for testing the study hypotheses in females because they are at much higher risk for presenting eating pathology than men (Stice et al., 2011; Hudson, 2007). Also, considering that disordered eating features are distributed along a gravity continuum ranging from normative concerns regarding body image and eating, to cases of clinical significance, the eating disorder patients and the participants from the general population were gathered in a single sample. Prior research (Ferreira et al., 2011b) and preliminary analyses confirmed that this option was statistically viable.

This study sample comprised 225 female participants. Of these, 123 are women from the general population and 102 are eating disordered patients. The sample from the general population presented an age mean of 23.54 ($SD = 6.89$), with ages ranging from 13 to 47 years old, and they presented a years of education' mean of 12.63 ($SD = 2.55$). Also, these participants BMI mean was 21.95 ($SD = 3.19$).

The eating disorders patients presented a mean age of 23.62 ($SD = 7.42$), with ages ranging from 13 to 44, a mean of 12.49 ($SD = 3.01$) years of education, and a BMI mean of 21.95 ($SD = 3.19$). The clinical diagnoses were established by a semi-structured interview (Eating Disorder Examination 16.0D; Fairburn, Cooper, & O'Connor, 2008). Thirty-three (32.4%) patients presented Anorexia Nervosa, with 22.5% ($n = 23$) of the restrictive subtype, and 9.8% ($n = 10$) are of the binge/purge subtype. The anorexic patients presented a BMI mean of 16.02 ($SD = 1.21$). Thirty-one (30.4%) were diagnosed with Bulimia Nervosa, with 17.6% ($n = 18$) included in the purge subtype and 12.7% ($n = 13$) of the nonpurging subtype. These patients BMI mean was 25.83 ($SD = 7.88$). Thirty-eight (37.2%) patients were included in the diagnostic category of Eating Disorder Not Otherwise Specified (EDNOS) and, of these, 22.5% ($n = 23$) were restricting patients and 9.8% ($n = 10$) were binge-purging patients, and 4.9% ($n = 5$) met the criteria for binge eating disorder. The EDNOS patients presented a BMI mean of 21.80 ($SD = 6.10$).

The nonclinical and the clinical sample did not present significant differences in the following demographic variables: age ($t_{(208,722)} = .084$; $p = .933$), years of education ($t_{(223)} = .366$; $p = .715$); and BMI ($t_{(223)} = 1.130$; $p = .260$).

Measures

Participants completed a battery of self-report questionnaires designed to measure shame, striving to avoid inferiority, social-comparison, self-criticism, self-compassion, and eating disorders' symptoms.

Demographic Data. Information included age and educational variables, as also current height and weight.

Other as Shamer Scale (OAS; Goss et al., 1994; Portuguese version by Matos, Pinto-Gouveia & Duarte, 2011). This scale measures external shame, that is, thinking that others look down on, and negatively evaluate the self (Goss et al., 1994). Participants are asked to rate the 18 items on a five-point Likert scale according to the frequency they make certain evaluations about how others judge them. In the original study, and in its Portuguese version, the scale showed good reliability, with a Cronbach's alpha value of .92 (Goss et al., 1994) and .91 (Matos et al., 2011). The value for the sample comprised in the present study was also high: .95.

Striving to Avoid Inferiority Scale (SAIS; Gilbert et al., 2007; Portuguese version by Ferreira, Pinto-Gouveia, & Duarte, 2011a). This scale was developed to assess the *strength of 'pressure to compete to avoid inferiority'* (Gilbert et al., 2007, p.635). In this study we used the dimension insecure striving (IS; 19 items), of the first part of the scale, designed to assess: i) beliefs about the need to compete to avoid feeling inferior (e.g., "If I don't strive to achieve, I'll be seen as inferior to other people"). Respondents are asked to rate in a five-point Likert scale (ranging from "Never" to "Always") the extent in which each item applies to their experience. In its original version (Gilbert et al., 2007) this subscale presents a Cronbach's alpha value of .92. In this study the value was .94, similar to the one found in the Portuguese version of the SAIS (.90).

Social Comparison through Physical Appearance Scale (SCPAS; Ferreira et al., 2011b). This scale was based on the original Social Comparison Rating Scale (SCRS; Allan & Gilbert, 1995) and assesses the subjective perception of women's attractiveness, social ranking and group fit, according to the way one compares herself with others, using physical appearance as a reference. The participants are instructed to select a number, using a Likert scale ranging from 1 to 10, which best translates the way they feel in relation to other people [e.g., 'When I physically compare myself with friends, colleagues and other known girls (proximal targets – Part A: Peers) /models, actresses or celebrities (distal targets – Part B: Models), I feel . . . Inferior/Superior, Left out/Accepted, Devalued/Valued']. Higher scores represent more favourable comparisons. The SCPAS presents a high internal reliability (.94 in Part A: Peers, and .96 in Part B: Models). In this study we used the Part B: Models, which revealed a Cronbach alpha of .98.

The Forms of Self-Criticizing & Self-Reassuring Scale (FSCRS; Gilbert et al., 2004; Portuguese version by Castilho & Pinto-Gouveia, 2011b). This scale, with 22 items, aims at measuring people's critical and reassuring evaluative responses to a setback or failure. Participants are asked to answer to the following statement "when things go wrong for me...", selecting, in a 5-point Likert scale (ranging from 0 = not at all like me, to 4 = extremely like me"), the extent to which each statement applies to their experience, tapping self-reassurance (e.g., "I am able to remind myself of positive things about myself") and self-criticism. The authors suggest two forms of self-criticism: inadequate-self, which refers to feeling inadequate and/or defeated (e.g., "I am easily disappointed with myself"); and hated-self, which focuses on a sense of disgust and anger with the self (e.g., "I have become so angry with myself that I want to hurt myself"). Additionally, this scale measures the ability to self-soothe (self-

reassurance scale). The Cronbach' alpha values were .90 for the inadequate-self and .86 for both the hated-self and self-reassurance (Gilbert et al., 2004). In the present study we used the inadequate-self subscale (Inad_S), which presented a Cronbach alpha of .93.

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 we assessed self-compassion by using a composite measure gathering the 3 dimensions of the positive component. This global measure (SC) presented a Cronbach's alpha value of .91.

Eating Disorder Inventory (EDI; Garner et al., 1983; Portuguese version by Machado, Gonçalves, Martins, & Soares, 2001). This scale is one of the most used and rigorous instruments to assess eating disorders dimensions and can be used as a diagnostic measure. It comprises 64 items subdivided in 8 subscales, assessing weight, shape and eating related attitudes and behaviours, and psychological characteristics common in patients with eating disorders. Using a 6-point Likert scale (ranging from "Always" to "Never") respondents rate how much each item apply to them. For the purpose of this study we only analysed the body dissatisfaction (BD) and drive for thinness (DFT) subscales, which present adequate internal consistency coefficients and are well-validated (Garner et al., 1983). The Portuguese version presents the following internal consistency values: BD = .91 and DFT = .91 (Machado et al., 2001). The coefficient alphas in the current study were .94 (BD) and .89 (DFT).

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 behavioural and psychological aspects of eating disorders, such as restriction habits, eating, weight, and shape concerns. It is considered a precise evaluation method with high values of internal consistency, of test-retest reliability, and of discriminative and concurrent validity (see Fairburn (2008) for a review).

Procedure

Participants were fully informed about the purpose of the study, the procedures involved, that their cooperation was voluntary and that the data was confidential. The assessment protocol was administered by the authors after previous approval by the Boards of the involved corporations and educational institutions and consent by the participants relatively to their voluntary and anonymous participation.

The patients with the diagnosis of an eating disorder were recruited in Portuguese public hospitals, and in private clinics, after the respective ethics' committee approval and after the patients' informed consent. The patients were screened by the EDE 16.0D (Fairburn et al., 2008), which was administered by clinical researchers with previous training and supervision. Afterwards the patients completed the above mentioned series of self-report questionnaires.

Analytic Strategy

Statistical analyses were conducted using PASW (v.18 SPSS; Chicago Inc.) and Path analyses were examined using the software AMOS (v.18 SPSS Chicago Inc.).

Product-moment Pearson Correlation analyses were conducted to examine the relationship between: social comparison through physical appearance, external shame, insecure striving, self-criticism (inadequate self), self-compassion, body image dissatisfaction, and drive for thinness.

Path analyses were conducted to estimate the presumed relations among variables in the proposed theoretical model (Figure 1). Path analysis is a particular form of Structural Equation Modelling (SEM) used to assess theoretically expected causality. It is a well-known and appropriate statistical methodology that allows for the simultaneous examination of structural relationships and direct and indirect effects between exogenous and endogenous variables controlling for error (Byrne, 2010; Kline, 1998; Maroco, 2010).

In the path model investigated in this study we examined whether social ranking variables would predict drive for thinness, mediated by body image dissatisfaction and adaptive and maladaptive emotional regulation processes. Social comparison, insecure striving and external shame were considered to be exogenous variables; body image dissatisfaction, self-compassion and self-criticism were hypothesized as the endogenous mediator variables; and drive for thinness was the dependent, endogenous variable. The Maximum Likelihood method was used to test for the significance of all the model path coefficients and to compute fit statistics. A series of goodness of fit measures was used to examine the plausibility of the overall model: Chi-square (χ^2), Normed Chi-square (CMIN/DF), Tucker Lewis Index (TLI), Comparative Fit Index (CFI), Normative Fit Index (NFI), 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, which is considered to be one of the most reliable and powerful procedure to test mediation effects (Maroco,

2010). This procedure, with 1000 Bootstrap samples, was used to create 95% bias-corrected confidence intervals around the standardized estimates of total, direct and indirect effects. Following the assumptions of the Bootstrap method, the effects were considered as significantly different from zero ($p < .05$) if zero was not on the interval between the lower and the upper bound of the 95% bias-corrected confidence interval (Kline, 1998).

Finally, to confirm the invariance of the structure of this model for the two samples (eating disorders' patients and nonclinical sample) we conducted a multi-group analysis to ascertain whether any statistically significant differences were evident between the two groups in the way the model fits them. The invariance of the model in both samples was tested by comparing a nonrestricted model (a freely estimated model that does not restrict the structural weights and variances/covariances) with a restricted model which restricts the structural weights and variances/covariances (Bollen, 1989). The statistical significance of the difference between the two models was achieved by the Chi-square difference test.

RESULTS

Preliminary analyses

The path model analysed in this study was tested in a combined sample that gathered the women from the general population and the clinical population ($N = 225$). Preliminary analyses were conducted to examine the viability of this option. First, we tested for the normality of the distribution of each variable and the visual inspection of the distributions showed that gathering the two samples did not result in a bimodal distribution. Furthermore, we analysed the values of Skewness and Kurtosis and

verified that the Skewness values ranged from .10 to 1.98 (in the insecure striving subscale and in the BMI, respectively), and that the Kurtosis values ranged from .01 to 5.8 (in the compassion subscale and BMI, respectively). Thus, according to Kline (1998), these values are acceptable and do not represent a severe violation of normal distribution ($|Sk| < 3$ e $|Ku| < 8-10$).

The relationship between social ranking, self-regulation, and eating psychopathology variables

Table 1 illustrates the *Pearson* correlations between the social ranking variables of external shame (as measured by the OAS), insecure striving (subscale of the SAIS), social comparison through physical appearance with models (SCPAS); the emotional regulation processes of inadequate-self (Inad_S subscale of the FSCRS), and self-compassion (dimension of the SCS); and the eating disorders-related variables of body dissatisfaction and drive for thinness (subscales of the EDI).

Table 1 around here

Social comparison based on physical appearance was negatively associated with external shame and with insecure striving. External shame and insecure striving, in turn, were positively associated with each other. Furthermore, an unfavourable social comparison, and higher scores of external shame and insecure striving, were linked to higher levels of self-criticism (inadequate self) and lower levels of self-compassion; as well as higher body dissatisfaction and drive for thinness. Self-criticism presented a

positive correlation with body dissatisfaction and drive for thinness, and, on the contrary, self-compassion was negatively linked to such indicators of eating psychopathology. These self-regulation processes were negatively associated with each other. Finally, as expected, higher scores of body dissatisfaction were positively associated with higher levels of drive for thinness (see Table 1).

Path analysis

The theoretical model was tested by a saturated model, that is, with zero degrees of freedom, which comprised 39 parameters. Given that saturated models produce a perfect fit to the data, model fit indices were not examined. The fully saturated model explains 62% of drive for thinness variance. The nonsignificant paths were: the direct effect of insecure striving on body dissatisfaction ($b_{IS} = .05$; $SEb = .04$; $Z = 1.17$; $p = .241$; $\beta = .08$), on self-compassion ($b_{IS} = -.02$; $SEb = .05$; $Z = -.41$; $p = .683$; $\beta = -.03$), on self-criticism ($b_{IS} = .07$; $SEb = .04$; $Z = 1.79$; $p = .074$; $\beta = .10$); the direct effect of external shame on drive for thinness ($b_{OAS} = .01$; $SEb = .04$; $Z = .16$; $p = .871$; $\beta = .01$); the direct effect of social comparison through physical appearance on drive for thinness ($b_{SCPAS} = -.03$; $SEb = .02$; $Z = -1.44$; $p = .150$; $\beta = -.09$); and the direct effect of insecure striving on drive for thinness ($b_{IS} = -.02$; $SEb = .028$; $Z = -.59$; $p = .559$; $\beta = -.033$). These nonsignificant paths were then progressively eliminated and the model was re-specified (see Figure 2).

The nested model was tested and the chi-square difference test (χ^2_D) was used to compare the initial model that included all direct and indirect paths and the reduced, testing for the statistical significance of the decrement in overall fit with the elimination of the nonsignificant paths. The nested model revealed a nonsignificant chi-square [$\chi^2_{(6)} = 7.164$; $p = .306$] and presented an excellent fit to the empirical data as evidenced by

the different well-known and recommended goodness-of-fit indices considered (CMIN/DF = 1.194; CFI = 0.999; TLI = 0.996; NFI = 0.993; RMSEA = 0.029).

Insert Figure 2 approximately here

The nested model, in which all the paths were significant, explains 61% of drive for thinness variance. Furthermore, 51% of body dissatisfaction was explained by social ranking variables in the model (OAS, SCPAS). In addition, 60% of the variance in self-criticism and 45% of the variance in self-compassion was explained by external shame, insecure striving, social comparison and body dissatisfaction.

External shame predicted self-criticism with an effect of .43 [$b_{OAS} = .29$; $SEb = .04$; $Z = 7.21$; $p < .001$], and self-compassion, with an effect of $-.26$ [$b_{OAS} = -.24$; $SEb = .05$; $Z = -5.00$; $p < .001$]. Also social comparison had a direct effect on self-criticism of $-.35$ [$b_{SCPAS} = -.12$; $SEb = .03$; $Z = -4.13$; $p < .001$] and self-compassion of .17 [$b_{SCPAS} = .08$; $SEb = .03$; $Z = 2.38$; $p = .017$]. Furthermore, body dissatisfaction directly predicted self-criticism, with an effect of .19 [$b_{BD} = .20$; $SEb = .07$; $Z = 3.08$; $p = .002$], and self-compassion with an effect of $-.24$ [$b_{BD} = -.26$; $SEb = .08$; $Z = 3.34$; $p < .001$].

Body dissatisfaction directly predicted drive for thinness with an effect of .44 [$b_{BD} = .34$; $SEb = .04$; $Z = 8.09$; $p < .001$]. Also, emotional regulation processes presented a direct effect on drive for thinness. Self-criticism increased drive for thinness with an effect of .28 ($b_{Inad_S} = .20$; $SEb = .05$; $Z = 4.32$; $p < .001$), whereas self-compassion decreased it with an effect of $-.17$ ($b_{SC} = -.12$; $SEb = .04$; $Z = -2.83$; $p = .005$).

The indirect effect analysis revealed that a favourable social comparison decreases drive for thinness, through higher levels of self-compassion ($b_{SCPAS} = -.33$, 95%; CI =

.03 a .15) and, in contrast, through lower levels of self-criticism ($b_{SCPAS} = -.33$, 95%; CI = $-.15$ a $-.03$). On the contrary, higher external shame increases drive for thinness through its effect on lower levels of self-compassion ($b_{OAS} = .37$, 95%; CI = $-.17$ a $-.03$) and higher levels of self-criticism ($b_{OAS} = .37$, 95%; CI = $.03$ a $.14$). Figure 2 presents the nested model with the standardized regression coefficients and R^2 of self-compassion, self-criticism, body dissatisfaction and drive for thinness.

Multi-group analysis

To test whether the path model had different effects for the eating disorders' sample and for the nonclinical sample, we performed a multi-group analysis. Results showed that the restricted model with constrained structural weights and variances/covariances fitted the data well (CMIN/DF = 1.187; CFI = 0.996; TLI = 0.986; NFI = 0.976; RMSEA = 0.029) and was not significantly worse than the freely estimated model (with free parameters) and the comparison between the two models resulted in a non-significant chi-square difference ($\Delta\chi^2_{(11)} = 11.006$; $p = .443$). Thus, the results indicate that it is appropriate to assume that the path model tested to explain drive for thinness is equivalent for both the clinical and the nonclinical samples.

DISCUSSION

The main aim of the present study was to examine the suitability of a new theoretical model to understand body image dissatisfaction and the over-evaluation of a thin body shape, which are emphasized in the literature as central features and major vulnerability and maintenance factors of eating disorders (Fairburn, 2008). This model, based on the Social Rank Theory (Gilbert, 2005a), intends not to replace the cognitive-behavioural model, but to contribute for a holistic knowledge of eating disorders.

Research has suggested that the engagement in disordered eating behaviours (e.g., dieting) may represent a way to compete for social resources (e.g., to reach or to avoid certain social rank positions; Bellew et al., 2006). Additionally, other investigations have demonstrated the role of social comparison processes (e.g., Ferreira et al., 2011b) and feelings of inferiority and shame (e.g., Gee & Troop, 2003; Murray et al., 2000) as important aspects in the vulnerability and maintenance of eating psychopathology. Nevertheless, there have been no systematic investigations integrating the different constructs comprised in a social ranking mentality – social comparison, shame, and striving to avoid inferiority – nor through which processes do these variables operate. Moreover, although there has been growing evidence showing the protective properties of self-compassion (Gilbert, 2005b, 2010; Neff, 2003b; Neely et al., 2009) and, contrastingly, the pervasive effect of self-criticism, on well-being (Dunkley et al., 2003; Gilbert, 2000b; Gilbert et al., 2006), it remains unclear the mediational role that these emotional regulation processes may have on the vulnerability to eating pathology. Accordingly, the present study presents a psychosocial model on the association between a social rank mentality and nuclear features of eating psychopathology – body image dissatisfaction and drive for thinness –, that incorporates, as mediators, adaptive and maladaptive – self-compassion and self-criticism, respectively – emotional regulation strategies.

First, our findings confirm that feeling inferior by comparison to others is linked to the perception that others look down on the self (external shame) and to feeling under pressure to compete (insecure striving). This is in line and adds to previous findings by Gilbert et al. (2007). Furthermore, these components are, as previously found (Nathanson, 1987; Neff, Kirkpatrick & Rude, 2007), linked to higher levels of self-criticism and decreased self-compassion. In addition, we confirmed the association

between a competitive mentality and higher scores of body image dissatisfaction and drive for thinness, extending the findings by Bellew et al. (2006) on the strong link between over concern about eating and body image, and judgments of inferiority and insecure striving.

As expected, self-criticism was positively linked to feeling dissatisfied with one's own body and with drive for thinness. In contrast, a self-self relationship based on kindness and warmth was found to be related to lower levels of such pervasive aspects related to body image and eating. This supports the literature emphasizing the importance of self-compassion in the conceptualization and treatment of eating disorders (Adams & Leary, 2007; Goss & Allan, 2010).

The current data confirm the empirically acknowledged existence of a strong link between external shame, the need to compete to avoid inferiority (insecure striving) and perceptions of being in an inferior social rank position (e.g., Bellew et al., 2006; Gilbert, 1992, 2005a; Gilbert, et al., 2007), namely when the social rank is based on the dimension of physical appearance (e.g., when one feels inferior or devalued as a social agent by comparing oneself physically with superior others, like models, actresses or celebrities that represent the ideal socially valued thin body shape; Ferreira et al., 2011b).

Simultaneously, our findings revealed that the perception of being in an inferior social rank, and that others see the self as unattractive, flawed and inadequate, significantly predicts higher dissatisfaction with the body image. In turn, body image dissatisfaction had a direct effect on drive for thinness, corroborating the large number of studies showing the association between these two concepts (e.g., Stice, & Shaw, 2002).

The key contribution of this study relies on the clarification of through which paths this social mentality based on ranking and competitiveness, along with body image dissatisfaction predict drive for thinness. In fact, our results confirm the relevance of emotional regulation processes on the association between a social rank mentality punctuated by unfavorable social comparisons and external shame, and drive for thinness. Hence, we verified that the association between higher levels of external shame and higher scores on drive for thinness is mediated by higher levels of self-criticism and lower levels of self-compassion. Likewise, unfavourable social comparisons, based on physical appearance, predicted higher levels of drive for thinness, via increased levels of criticism directed to the self, and via the scarcity of a kind and warmth self-relationship.

Although the need to compete to avoid inferiority in the social world, contrarily to what we expected, did not emerge as a significant predictor in the analyses, this variable is highly correlated with the other social ranking variables – social comparison and external shame –, and, thus, its effect is thought to be included in the paths of such ranking variables. This can be understood in light of the evolutionary model, since it seems that the perception that one holds certain personal features or behaviors that are judged by others as undesirable, devalued and unattractive, and that a perception of inferiority and inadequacy that derives from socially comparing to others (based on one's physical appearance), would associate to beliefs that one needs to compete with others to avoid inferiority. Conversely, these self-self and self-other competition-based strategies reinforce the inferiority/competition cycle that is further reflected on the endorsement on attitudes and behaviors of control of one's body image and eating pattern.

Our findings suggest, therefore, that the centrality of the “need to be thin” and of restrictive eating patterns, arises as a result of a maladaptive emotion regulation strategy (more self-critical and less compassionate with the self), in the context of a mentality focused on social ranking. In sum, taking into consideration that the need to be attractive and to evoke positive feelings in the others represent a matter of survival, realizing that one has lost attractiveness can be a major threat in face of which one activates a series of basic defensive strategies comprised in the emotion of shame (Gilbert, 2002, 2005a). Thus, our results may suggest that women with higher levels of external shame may feel under pressure to compete, to strive and to present themselves as desirable social agents, to avoid inferiority and the neglect and/or rejection by the members of their social groups. In this context, the control over their weight, over their body shape and over their eating pattern (e.g., drive for thinness) can emerge as strategies to assure social acceptance and as a way to compete for a safer social position.

To sum up, the theoretical model tested in this paper (that explained 61% of the variance of drive for thinness) allowed us to confirm that a social rank mentality is a crucial aspect to understand the maladaptive attitudes regarding one’s body and eating pattern, and also that the emotional regulation processes proposed have a fundamental role on eating psychopathology symptoms.

The present results should not be interpreted without taking into account some methodological limitations. First, one constraint is its transversal design. Future research should replicate this investigation testing for causal relationships using a longitudinal design. Other possible limitation is the use of self-report instruments, since their inherent subjectivity may limit the accuracy of our conclusions.

In addition, although the psychosocial model tested in this study incorporates central variables to understand eating disorders, future research should investigate its

adequacy and plausibility in other independent samples. Furthermore, since high levels of anxiety and depression are common in patients with eating disorders and, simultaneously, are closely related to the constructs assessed in this model (e.g., shame and competition; Gilbert et al., 2009) the lack of their assessment and incorporation in the model is an important limitation of the current study that future research should overcome. Also, other studies should incorporate other social ranking constructs (e.g., submission) that were not considered in the present model, but that could increase its predictive capacity. Also they might explore other mediator variables that may prove to be important to understand the relationship between an overstimulation of a ranking mentality and drive for thinness (e.g., social group attachment and sociocultural pressures related to thinness and feminine attractiveness). Besides, other emotional regulation processes (e.g., rumination, avoidance, or thought suppression), which were not explored here, could have an important mediator role in the abovementioned relationships.

In a therapeutic context, our results suggest the relevance of assessing and intervening on the type of emotional regulation strategies used by patients suffering with eating disorders in which the internal and social interactions are mostly based on a competitive mentality and that perceive themselves as inferior and unattractive in the social arena. Future research should test whether these social ranking variables and, especially, the emotional regulation processes of self-compassion and self-criticism, contribute to predict positive therapeutic outcomes, and relapse rates in eating disorders' patients. Specifically, prospective studies should investigate whether the development of a self-compassionate relationship would diminish the psychopathological effect of a social rank mentality. Nevertheless, this study offers relevant data that suggests that novel therapeutic approaches, namely compassion-focused therapy (Compassion

Focused Therapy for Eating Disorders; Goss & Allan, 2010), may be suitable for the treatment of eating disorders patients, since this therapy addresses affect regulation difficulties, shame, self-directed hostility, and pride.

In conclusion, although there is notable research on the role of social comparison, shame and striving to avoid inferiority in eating disordered behaviour, to date no study had yet integrated such aspects in a comprehensive model. The theoretical model tested in this research was able to incorporate such fundamental variables, and was found to be adequate to explain nuclear features of eating psychopathology – body image dissatisfaction and the endorsement on the importance of thinness. Thus, we believe that our findings, while not covering entirely the multidetermined nature of eating psychopathology, shed light on the complexity of the processes involved in it.

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Table 1

Pearson moment correlations between the studied variables

	OAS	IS	SCPAS_M	Inad_S	SC	BD	DFT
OAS	1						
IS	.68**	1					
SCPAS_M	-.66**	-.48**	1				
Inad_S	.72**	.57**	-.66**	1			
SC	-.62**	-.45**	.56**	-.71**	1		
BD	.64**	.49**	-.66**	.63**	-.57**	1	
DFT	.60**	.44**	-.62**	.68**	-.63**	.72**	1

Note:

**= $p < .01$

OAS: Other as Shamer; IS: Insecure Striving; SCPAS_M: Social Comparison through Physical Appearance with Models; Inad_S: Inadequate Self; SC: Self-Compassion; BD: Body Dissatisfaction; DFT: Drive for Thinness

Figure 1. Theoretical (full saturated) model

Figure 2. Nested model