UC/FPCE – 2018

University of Coimbra
Faculty of Psychology and Educational Sciences

Social rank pathways to disordered eating: exploring maladaptive regulation processes of the experience of threat and shame

Catarina Borralho Mendes
(e-mail: catarinaborralhomendes@gmail.com)

Masters' Dissertation in Clinical and Health Psychology (Area of expertise of Cognitive-Behavioural Interventions in Health and Psychological Disorders) supervised by Professor Cláudia Ferreira

Catarina Borralho Mendes

SOCIAL RANK PATHWAYS TO DISORDERED EATING: EXPLORING MALADAPTIVE REGULATION PROCESSES OF THE EXPERIENCE OF THREAT AND SHAME

Dissertation supervised by Professor Cláudia Ferreira and submitted to the Faculty of Psychology and Educational Sciences of the University of Coimbra to obtain the Masters' degree in Clinical Psychology, in the field of Cognitive-Behavioural Interventions

University of Coimbra

Faculty of Psychology and Educational Sciences

July 2018

Acknowledgements

To Professor Cláudia Ferreira, for accompanying my academic journey with great interest, care and understanding. For making me believe in myself. I look up to you.

To all Professors I had throughout the course, especially those who made me dream about being a clinician, through their feelings towards patients. To those who showed me that rigorous clinical practice and investigation is the path to obtain professional credibility. I will never forget many of your classes.

To Ana Laura Mendes, for the contagious enthusiasm about empirical investigation. For the sympathy, availability and support.

To my dearest friend Mafalda, for teaching me the true meaning of friendship. Our connectedness is unexplainable. You know that I would never have gone through this year without you.

Inevitably, to my caring parents, who made this world easier for me, even at times where it felt chaotic. Growing with you as role models was a privilege. I couldn´t have more admiration for you.

To my beloved sister, for teaching me how to simply live… For becoming the big sister several times, for all the undeserved years of standing out of the spotlight. For giving me reason to strive. I just hope you are proud. That is my goal.

To my grandma, whose eyes betray great pride when looking at me. I will never be half the woman you are.

To Nazar, for loving me even when I didn't deserve his love… For noticing the unnoticeable. How can I ever thank you enough for all the times you let me cry in your arms? How can I ever thank you enough for feeling safe in your arms? Safeness is love.

Social rank pathways to disordered eating: exploring maladaptive regulation processes of the experience of threat and shame

Abstract

The multidetermined and complex nature of eating psychopathology is consensually recognised among researchers. However, recently, the investigative focus has been placed on a set of factors linked to shame proneness and to interpersonal hypersensitivities.

In line with evolutionary and sociocultural approaches, feeling accepted, valued and loved by others may be considered a fundamental human need. In fact, over evolution, the desire for interpersonal attachment and group belonging ensured survival, adaptation to environment and reproduction. On the contrary, isolated individuals were more vulnerable to several risks, compromising their need fulfilment and survival. In this way, being excluded or rejected by others may constitute a major threat and generate defensive responses as shame.

Shame, i.e., global judgements that the self is criticised and negatively evaluated by others, may be internalised when early shame experiences (e.g., rejection, criticism, abuse and neglect) with significant others are recurrent and/or significant in one's life. Under these circumstances, these experiences are associated with overstimulation of threat-based emotion regulation systems and simultaneously, understimulation of affiliative-based emotion regulation systems, as well as the development of negative beliefs and expectations about others' availability, the self as worthy of care, love and attention, and of the reception of compassionate feelings from others.

In effect, individuals with insecure attachment backgrounds may present fears, blocks or resistances to receiving compassion from others. As they experience the social

world as an unsafe place, they may feel the need to prove others that they deserve attention, approval and appreciation, through power, control and competition. Insecure striving is a specific form of competitive behaviour to avoid perceptions of inferiority and consequences of low rank, linked to several negative psychological outcomes and increased vulnerability for the development of several psychopathologies.

In modern culture, body image has become an important competitive domain for women. Therefore, women may experience their body image as a source of shame when they perceive that their body is negatively judged by others or is significantly in contrast with sociocultural beauty standards. Affective-defensive responses that compose the experience of body image shame paradoxically enhance the pathogenic effect of shame, being linked to disordered eating behaviours.

Empirical evidence has consistently shown that shame plays a central role on the development and maintenance of disordered eating attitudes and behaviours. Mediating and moderating mechanisms of this relationship remain to be clarified. Insecure striving and fears of receiving compassion from others appear to be important interacting mechanisms, as confirmed by few previous studies. Also, the specific impact of body image shame on the relationship between these constructs and disordered eating has been scarcely explored.

Following this line of research and considering the pathogenic effects of heightened levels of shame and fears of compassion, as well as of the maladaptive process of insecure striving on women's mental and physical health, two studies were conducted to explore the impact of a social rank mentality on the emergence and maintenance of disordered eating attitudes and behaviours. Specifically, Study I aimed at exploring the mediator roles of insecure striving and body image shame on the relationship between external shame, fears of compassion from others and disordered eating. The main purpose

of Study II was to explore the moderator role of insecure striving on the relationship between general feelings of shame and disordered eating.

Results of the first study confirmed the mediator role of insecure striving and body image shame on the relationships between shame, fears of compassion and disordered eating. These results showed that women who presented higher levels of shame and fears of receiving compassion from others, tended to express a greater need to strive to avoid inferiority and manifest higher levels of body image shame and disordered eating severity. The second study showed that insecure striving moderates the relationship between shame and disordered eating. Results indicated that for any level shame, women who felt a greater need to strive to avoid inferiority, presented a higher engagement with disordered eating attitudes and behaviours, in comparison to women who manifested lower levels of insecure striving.

In conjunction, the studies conducted revealed that insecure striving may act as both a mediator and moderator variable of the impact of general feelings of shame on disordered eating. Specifically, these studies support the consideration that disordered eating behaviours may emerge within a context that activates a social rank mentality, composed of perceptions of inferiority and general feelings of shame, fears of receiving compassion from others and maladaptive emotion regulation processes of these aversive experiences, such as insecure striving. In Western contemporary societies, that pressure women to possess an extreme thin body shape, the endorsement of eating, shape and weight control methods may be considered a form of striving to avoid perceptions of inferiority, feelings of shame and specific body image-related shame.

These studies are of great theoretic-practical relevance, with important implications supporting the application of compassion-focused therapy, particularly, the development of self-compassionate competencies as adaptive threat and shame

regulators, as well as investigation about contextual vulnerability and maintenance factors of eating-related difficulties.

Keywords: Shame; Fears of compassion; Insecure striving; Body shame; Disordered eating; Women

Trajetórias de *ranking* social no desenvolvimento de comportamentos alimentares perturbados: explorando processos maladaptativos de regulação da experiência de ameaça e vergonha

Resumo

A natureza complexa e multideterminada da psicopatologia alimentar é consensualmente aceite pela comunidade científica. No entanto, mais recentemente, a ênfase investigativa tem sido colocada no papel de um conjunto de fatores que desencadeiam a vivência de vergonha e acentuam sensibilidades interpessoais.

De acordo com as abordagens evolucionária e sociocultural, sentir-se aceite, valorizado e amado pelos outros poderá ser considerado uma necessidade humana fundamental. De facto, ao longo da evolução das espécies, o desejo de vinculação interpessoal e a pertença ao grupo garantiram a sobrevivência, reprodução e adaptação ao meio ambiente. Pelo contrário, indivíduos isolados estariam mais vulneráveis a vários riscos, comprometendo a satisfação das suas necessidades e sobrevivência. Desta forma, ser excluído ou rejeitado pelos outros poderá constituir uma ameaça significativa, gerando respostas defensivas, como a vivência de vergonha.

A vergonha, i.e., avaliações globais de que o próprio é negativamente julgado ou criticado pelos outros, poderá ser internalizada quando experiências precoces de vergonha (e.g., rejeição, crítica, abuso e negligência) com outros significativos são recorrentes e/ou significativas. Sob estas condições, estas experiências estão associadas à sobrestimulação de sistemas de processamento da ameaça e à subestimulação de sistemas de processamento de sentimentos afiliativos, assim como ao desenvolvimento de crenças e expetativas negativas acerca da disponibilidade emocional dos outros, do próprio como merecedor de cuidado, amor e atenção e da receção de emoções afiliativas e compassivas de outros.

Efetivamente, indivíduos cujos ambientes precoces foram marcados por estilos de vinculação insegura poderão apresentar medos e resistências de experienciar emoções afiliativas por parte dos outros. Como percecionam o mundo social como um lugar inseguro, estes indivíduos poderão sentir a necessidade de provar aos outros de que eles próprios são merecedores de atenção, aprovação e apreciação, através do estabelecimento de relações sociais baseadas no poder, controlo e competição. O *striving* inseguro é uma forma específica de competição para evitar perceções de inferioridade e consequências de possuir uma posição inferiores nas hierarquias sociais, estando relacionado com consequências psicológicas negativas e uma vulnerabilidade aumentada para o desenvolvimento de várias formas de psicopatologia.

Na cultura moderna, para o sexo feminino, a imagem corporal tornou-se um importante domínio de competição. As mulheres poderão experienciar sentimentos de vergonha em relação ao seu corpo quando percebem que este é avaliado negativamente pelos outros ou é significativamente contrastante com os padrões socioculturais de beleza. As respostas afetivo-defensivas que compõem a vivência de vergonha corporal aumentam

o impacto patogénico da emoção vergonha, estando este associado ao comportamento alimentar problemático.

Evidência empírica tem demonstrado consistentemente que a vergonha desempenha um papel central no desenvolvimento e manutenção de atitudes e comportamentos alimentares maladaptativos. Contudo, carecem ainda de clarificação, os mecanismos que poderão atuar como mediadores e moderadores desta relação. O *striving* inseguro e os medos de receber compaixão por parte de outros parecem constituir importantes mecanismos de interação na referida relação entre vergonha e comportamento alimentar perturbado, tal como confirmado por estudos conduzidos previamente. Adicionalmente, o impacto específico da vergonha corporal na relação entre estes construtos e comportamento alimentar problemático tem sido escassamente explorado.

No seguimento desta linha de investigação, e considerando os efeitos patogénicos de níveis elevados de vergonha, medos da compaixão e do processo maladaptativo de *striving* inseguro na saúde mental e física das mulheres, dois estudos foram conduzidos de modo a explorar o impacto de uma mentalidade de *ranking* social na emergência e manutenção de atitudes e comportamentos alimentares perturbados. Especificamente, o Estudo I procurou explorar os papéis mediadores do *striving* inseguro e da vergonha corporal na relação entre vergonha externa, medos de receber compaixão por parte de outros e comportamento alimentar problemático. O principal objetivo do Estudo II foi explorar o papel moderador do *striving* inseguro nas relações entre vergonha externa e atitudes e comportamentos alimentares maladaptativos.

Os resultados do Estudo I confirmaram o papel mediador do *striving* inseguro e da vergonha corporal nas relações entre vergonha, medos de receber compaixão de outros e comportamento alimentar problemático. Estes resultados demonstraram que mulheres

que apresentaram níveis mais elevados de vergonha e de medos de receber compaixão de outros, expressaram tendencialmente uma maior necessidade de competir para evitar a inferioridade e manifestaram níveis mais elevados de vergonha corporal e comportamento alimentar perturbado. O Estudo II demonstrou que o *striving* inseguro modera a relação entre vergonha e comportamento alimentar problemático. Os resultados indicaram que, para qualquer nível de vergonha externa, as mulheres que sentiram uma maior necessidade de competir para evitar a inferioridade, apresentaram um maior envolvimento em atitudes e comportamentos alimentares problemáticos, em comparação com as mulheres que expressaram níveis mais baixos de *striving* inseguro. ´

Em conjunto, os estudos conduzidos revelaram que o *striving* inseguro pode tanto mediar como moderar a relação entre vergonha e comportamento alimentar problemático. Especificamente, estes estudos apoiam a consideração de que comportamentos alimentares perturbados poderão emergir num contexto que ativa uma mentalidade de *ranking* social, caracterizada por perceções de inferioridade e sentimentos globais de vergonha, medos de receber compaixão de outros e processos maladaptativos de regulação emocional, como o *striving* inseguro. Em sociedades ocidentais contemporâneas, que pressionam as mulheres para possuir uma forma corporal magra, a adoção de medidas de controlo da alimentação, peso e forma corporal poderá constituir uma forma de competição para evitar perceções de inferioridade, sentimentos de vergonha e, especificamente, de vergonha corporal.

Estes estudos assumem uma relevância teórico-prática significativa, uma vez que os seus resultados possuem implicações importantes que suportam a aplicação da Terapia Focada na Compaixão, particularmente, no desenvolvimento de competências autocompassivas, enquanto reguladores adaptativos da ameaça e da vergonha, bem como

a investigação sobre fatores contextuais de vulnerabilidade e de manutenção de dificuldades relacionadas com a alimentação.

Palavras-chave: Vergonha; Medos da compaixão; *Striving* inseguro; Vergonha corporal; Comportamento alimentar perturbado; Mulheres

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Mendes, C. B., & Ferreira, C. (2018). *New contributions to disordered eating-related social rank theory: Exploring the mediator role of insecure striving and body shame.*

Manuscript submitted for publication on *Appetite*

New contributions to disordered eating-related social rank theory: Exploring the mediator role of insecure striving and body shame

Catarina Borralho Mendes, B.S.[2]

Cláudia Ferreira, PhD [1]*

[1] CINEICC – Centre for Research in Neuropsychology and Cognitive Behavioural Intervention

[2] FPCEUC – Faculty of Psychology and Educational Sciences of the University of Coimbra, Portugal

* Correspondence concerning this article should be addressed to:

Cláudia Ferreira

Email: claudiaferreira@fpce.uc.pt

CINEICC, Faculdade de Psicologia e Ciências da Educação, Universidade de Coimbra

Rua do Colégio Novo, Apartado 6153

3001-802 Coimbra, Portugal

Telephone: (+351) 239851450

Fax: (+351) 239851462

Declaration of conflict of interests: Authors declare no conflict of interests.

Abstract

The impact of social rank mentality on the emergence and maintenance of eating psychopathology has been recognised, although mediating maladaptive processes involved remain to be clarified. Therefore, the current study aimed at exploring the roles of insecure striving and body image shame on the relationships between shame and fears of receiving compassion from others and disordered eating attitudes and behaviours, while controlling for BMI effects. Participated in this study 335 women from the general population, aged between 18 and 62 years.

Results of correlational analyses showed significant intercorrelations between external shame, fears of compassion from others, insecure striving, body image shame and disordered eating. A path analysis, conducted to further analyse these relationships, indicated that, when controlling for BMI, besides the direct effect of shame on disordered eating, along with fears of compassion from others, shame presented an indirect effect on disordered eating, mediated by insecure striving and body image shame. The tested model explained 63% of disordered eating behaviours variance. These findings suggest that women who highly feel that others negatively evaluate the self and present elevated levels of fears of receiving compassion from others may endorse maladaptive strategies, as striving to avoid feelings of inferiority, which in turn seem to increase the experience of body image shame and disordered eating symptoms.

The present study is innovative in the field of body image, weight and eating difficulties, as it highlights the impact of scarcely explored maladaptive affect regulation processes and emotions, on the emergence and maintenance of disordered eating.

Keywords: Shame; Fears of compassion; Striving; Body shame; Eating psychopathology.

Introduction

Evolutionary and sociocultural approaches have long identified feeling accepted, desired, approved and valued as a fundamental human need (e.g., Gilbert, 2002). Throughout evolution, humans' innate motives to attach to carers (Bowlby, 1969; Cassidy & Shaver, 1999), belong to groups (Baumeister & Leary, 1995) and compete for favourable positions in social hierarchies (Gilbert, 2000), ensured survival, adaptation to environment and reproduction. In this way, the desire of interpersonal attachment may well be understood as one of the most integrative constructs currently studied to understand human nature (Baumeister & Leary, 1995).

According to attachment theory (Bowlby, 1969), an attachment style refers to the way individuals organise their relationships with significant others. Through continuous interactions with others, the growing child will develop internal working models, that include beliefs and expectations about the attachment figure's availability and the self as worthy of care, love and attention (Bowlby, 1969). These beliefs and expectations underlie future evaluations about the self and others and influence one's predictions and interpretations of others' and one's behaviour within the social context (Baldwin, 1997).

Early positive attachment relationships (e.g., with caregivers and peers) assume great importance in the development of a sense of social safeness, an ability to explore the environment and an effective engagement with others. In contrast, early interpersonal adverse experiences with significant others, mainly characterised by neglect, abuse, abandonment or rejection are powerful elicitors of stress responses and may compromise one's affect regulation systems, being associated with several physical and mental health problems (e.g., Gilbert, 2005).

Shame may emerge as an emotional response, in the abovementioned adverse social experiences, when individuals perceive that the self is negatively judged by others

(Gilbert, 1998). This painful emotion exerts an adaptive function, in the context of competition for social attractiveness, by acting as a signal that the self negatively exists in the minds of others and is at risk of being rejected or excluded (Gilbert, 2002). According to Gilbert (e.g., 2000), when this emotion is focused on the social world or others is defined as external shame. Nevertheless, these social negative evaluations can become internalized as negative self-judgments and perceptions of the self as inferior, flawed, inadequate and unworthy of care, love and affection, as well as perceptions of others as rejective, critical and emotionally unavailable, strengthening threat-based affect regulation systems and reinforcing shame, anxiety, anger, and negative beliefs about the reception of affiliative emotions from others (Matos, Duarte, & Pinto-Gouveia, 2017).

In effect, clinical observations and attachment literature have shown that some individuals, especially those with early aversive attachment backgrounds, may present fears and resistances to affiliative and compassionate feelings (Gilbert, 2007). Although the origins of such fears have been scarcely explored, theorists have increasingly outlined important potential explanations, such as the reactivation of emotional memories of abuse, rejection and neglect, as well as grief feelings of desiring but not receiving love and affection, evoked by present cues of kindness, affection and compassion from self and others (Gilbert, McEwan, Catarino, Baião & Palmeira, 2013; Gilbert, McEwan, Catarino, & Baião, 2014). Beliefs and feelings that one does not deserve compassion or is weak and submissive if compassionate expressions are accepted by the self, have also been pointed out as reasons for some individuals' experience of compassionate and affiliative emotions as aversive or threatening (Gilbert, McEwan, Matos & Rivis, 2011). Fears of receiving compassion from others, along with fears of self-directed compassion, have been associated with several psychopathological indicators, such as increased depressive, anxious and stress symptomatology (Gilbert et al., 2011, 2013), shame and

eating disorders (Kelly, Carter, Zuroff, & Borairi, 2013), and physiological stress response (Duarte, McEwan, Barnes, Gilbert, & Maratos, 2015). Lastly, a recent study specifically showed the association between fears of receiving compassion from others and pathological eating attitudes and behaviours (Oliveira, Ferreira, Mendes, & Marta-Simões, 2017).

Insecurely-attached and shame-prone individuals may further perceive their connectedness to others as something they should endeavour, by demonstrating their value and social attractiveness (Gilbert, McEwan, Bellew, Mills & Gale, 2009). As they constantly feel scrutinised by others, they may become extremely sensitive to cues of criticism and rejection, and therefore search for signs that they are accepted, valued or approved, in order to feel reassured. Conversely, as others are viewed by them as more attractive in respect to several life domains, their self and interpersonal internal models are focused on social ranking dimensions, such as power, control and competition (Gilbert et al., 2009).

According to Gilbert (2005), feeling insecure and unsafe in respect to social relationships may motivate individuals to compete to avoid undesired inferiority and shame feelings. This form of competition is termed as insecure striving and is different from competitive behaviour as a means of fitting internal values and obtaining pleasure from achievement and success (Bellew, Gilbert, Mills, McEwan, & Gale, 2006). Insecure striving may be conceptualised as a defensive strategy, which may have matured in the context of early dysfunctional relationships characterised by critical or perfectionistic styles. In this way, individuals resorting to this strategy, feel under constant pressure to prove others that they possess valued characteristics and attributes, that make them worthy of being accepted and desired. In turn, avoiding the consequences of being allocated to low social rank positions through the establishment of highly competitive

relationships is associated with constant social comparison, shame, concerns with dominance and submissiveness, difficulties of feeling social satisfaction, acceptance and safeness and several negative psychological outcomes **(**Gilbert et al., 2007, 2009**)**. Specifically, the need to strive to avoid inferiority has been associated with women's body image and eating-related difficulties (Bellew et al., 2006; Ferreira, Pinto-Gouveia, & Duarte, 2011b; Ferreira, Pinto-Gouveia, & Duarte, 2013; Pinto-Gouveia, Ferreira, & Duarte, 2014). These findings suggested that a competitive mentality, within a context that pressures women to pursue extreme thin ideals and strict physical appearance standards, may increase vulnerability for the development of eating disorders (e.g., Burckle, Ryckman, Gold, Thornton, & Audesse, 1999; Pinto-Gouveia et al., 2014**).**

In fact, contemporary Western societies detain clear and objective patterns of who is accepted and will prosper or, alternatively, who will be overlooked, disregarded and rejected (Arrindell, Steptoe, & Wardle, 2003). For women, the emphasis has long been placed on physical appearance and, particularly, on an extremely thin body shape, culturally associated with positive physical and psychological characteristics, such as beauty, success, power, health and happiness (e.g., Strahan, Wilson, Cressman, & Buote, 2006). Women's physical appearance has therefore become a central self-evaluative dimension and a means to obtain desired social attention, acceptance and appreciation (Ferreira, Pinto-Gouveia, & Duarte, 2011a). This association between self-worth and body image is particularly important for women who present higher levels of shame and feelings of inferiority (e.g. Goss & Gilbert, 2002), and experienced social situations with increased levels of anxiety (Hinrichsen, Wright, Waller, & Meyer, 2003).

In this context, the perception of personal failure in the attainment of these valued sociocultural patterns composes a significant threat for women and may be associated with the experience of their body image as a source of shame (Duarte, Pinto-Gouveia,

Ferreira, & Batista, 2015; Pinto-Gouveia et al., 2014). Body image shame is an affective-defensive response activated in the face of negative evaluations about one's body image, to protect the self from loss of social attractiveness (Duarte et al., 2015). Paradoxically, this defensive attitudinal and behavioural output is associated with heightened levels of shame and disordered eating (Duarte et al.., 2015).

Previous studies have suggested that the adoption of extreme weight and body shape control methods may constituted, for women, a way of competing in a socially valued domain (i.e., body image), and, ultimately, enhancing one's social status, avoiding feelings of shame, obtaining social approval and being chosen for meaningful social roles (Burckle et al., 1999; Ferreira et al., 2013; Matos, Ferreira, Duarte, & Pinto-Gouveia, 2014).

The present study aimed at extending existing evidence respective to the impact of a social rank mentality on the emergence of body image shame and eating psychopathology. Although the importance of shame and competitive attitudes on the development of specific forms of psychopathology, particularly eating psychopathology, has been increasingly recognised (Ferreira et al., 2013), previous literature has not conceived fears of compassion as a construct that may compose a social rank mentality, nor studied the specific role of body image-focused shame in these relationships. Therefore, the main purpose of the current study was to explore whether experiencing shame and fears of receiving compassion from others explain disordered eating and whether these associations are mediated by insecure striving and body shame. Accordingly, it was hypothesised that women who feel that others look down on or negatively judge the self and simultaneously fear receiving compassion from others, would feel a greater need to prove their social attractiveness and value, by investing in contextually valued dimensions, such as body image, via weight control methods.

Material and Methods

Participants

The present study included a sample of 335 Portuguese female participants, university students and women from the general population. Participants presented ages between 18 to 62 years (*M* = 28.70; *SD*=11.54) and a mean of 14.14 (*SD* =2.50) years of education. Participants' Body Mass Index (BMI) mean was 22.86 (*SD* = 3.91). According to the WHO (1995) BMI classification system, 25 (7.5 %) participants were underweight, 227 (67.8 %) presented a normal weight, 64 (19.1 %) were overweight and 19 (5.7 %) were obese, which portrayed the female BMI distribution in the Portuguese population (Poínhos et al., 2009).

Measures

Body Mass Index (BMI) was calculated by dividing self-reported weight (in kilograms) by squared self-reported height (in meters).

Other As Shamer Scale - 2 (*OAS - 2*; Matos, Pinto-Gouveia, Gilbert, Duarte, & Figueiredo, 2015). OAS -2 is an 8-item self-report measure of external shame, i.e., a global judgment that others look down on or negatively judge the self (e.g., "I think that other people look down on me" or "Other people see me as defective as a person"). These items are answered on a five-point scale (ranging from 0=''Never'' to 4=''Almost always''), according to the frequency that the participants experienced these negative evaluations. In the original study, OAS-2 showed very good internal consistency (α = 0.82; Matos et al., 2015).

Striving to Avoid Inferiority Scale (*SAIS*; Gilbert et al., 2007; Ferreira et al., 2011b). SAIS is a self-report scale composed of three parts. The present study solely made use of the insecure striving subscale (with 19 items), that measures beliefs about the need to strive and compete to avoid feelings of inferiority (e.g., "I struggle to achieve things so that other people don't look down on me" or "If I don't strive to achieve, I'll be seen as inferior to other people"). Participants are requested to rate each item on a five-point scale (ranging from 0="Never" to 4="Always"). This subscale presented very good internal consistency, in the original study (α = 0.92; Gilbert et al., 2007) and in the Portuguese version (α = 0.91; Ferreira et al., 2011b).

Fears of Compassion Scales (*FCS*; Gilbert et al., 2011; Matos, Pinto-Gouveia, Duarte, & Simões, 2016). FCS is a self-report measure that integrates three scales assessing fear of compassion (*i*) for others (with 10 items that assess fear of demonstrating sensitivity and compassionate attitudes for others), (*ii*) for self (with 15 items that measure fears and resistance of expressing compassion for the self in face of mistakes or when things go wrong), and (*iii*) from others (with 13 items that evaluate fears of receiving kindness and compassion from others). Considering its aims, the current study only used Fears of Compassion from others scale (e.g., "Feelings of kindness from others are somehow frightening"). Items are rated on a five-point scale, (ranging from 0="Don't agree at all" to 4="Completely agree"). In the original study (Gilbert et al., 2011) and Portuguese validation study (Matos et al., 2016), this scale presented good internal consistency, as it revealed a Cronbach's alpha of 0.85 and 0.91, respectively.

Body Image Shame Scale (*BISS*; Duarte et al., 2015). BISS is a 14-item self-report measure of the experience and phenomenology of body image-related shame. The BISS

comprises two dimensions of body image shame: an externalized (i.e. perceptions that one is negatively evaluated or judged by others due to one's physical appearance) and an internalized dimension (i.e. negative self-devaluations and self-criticism because of one's physical appearance). Items (e.g., "My physical appearance makes me feel inferior in relation to others") are rated on a five-point scale (ranging from 0="Never" to 4="Almost always"), according to the frequency respondents experienced body image-related shame. For the purpose of this study, the authors solely used the BISS total score, which has revealed good psychometric properties (α = 0.92; Duarte et al., 2015).

Eating Disorder Examination Questionnaire (EDE-Q; Fairburn & Beglin, 1994; Machado et al., 2014). EDE-Q is a self-report version of the Eating Disorder Examination interview, that allows the assessment of the frequency and severity of disordered eating attitudes and behaviours, over the past 28 days**.** This measure includes 36 items and comprises 4 subscales: restraint, eating concern, weight concern and shape concern. A global score may be obtained by calculating the mean of the scores of the subscales. Items are rated for frequency of occurrence (items 1–15; from 0="None" to 6="Every day") or for severity (items 29–36; from 0="None" to 6="Extremely") using a 7-point scale, with higher scores expressing higher levels of eating psychopathology. EDE-Q presented good psychometric properties in the original (α = 0.94; Fairburn & Beglin, 1994**)** and Portuguese version (α = 0.94; Machado et al., 2014). Cronbach's alphas for all study measures are presented in Table 1.

Procedures

The present study is part of a wider research project about the impact of emotion regulation processes on women's mental health and well-being.

Participants were recruited via an approved online data collection website (Lime Survey), using a snowball sampling recruitment method. The internet link used for the data collection was sent to potential participants, through social media or e-mail, in conjunction with a brief message explaining the purposes and process of the study, aspects of confidentiality, voluntary participation and opportunity of withdrawal. The individuals that accepted to participate in this study provided their written informed consent previously to answering an online version of the questionnaires. In accordance with the aims of the present study, participants were excluded from the study if they: (a) were male; (b) presented ages under 18 years or over 65 years; (c) did not have a Portuguese nationality; or (d) exhibited significant difficulties on the completion of the self-report measures.

Data relating to race, religion, personal life or illicit activities was not collected, nor taken into consideration in the selection of the sample, analyses or result interpretations. During the whole investigative process, all ethical and deontological requirements associated with empirical investigation were guaranteed.

Data analyses

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

Descriptive statistics (means and standard deviations) were conducted in order to assess the characteristics of the sample. In addition, Pearson product-moment correlations were performed to examine the associations between age, BMI, external shame, fears of receiving compassion from others, insecure striving, body image shame, and disordered eating severity (Cohen, Cohen, West, & Aiken, 2003). The magnitude of these correlations was interpreted following Cohen's guidelines, in which magnitudes between

0.10 and 0.29 are considered weak, between 0.30 and 0.49 moderate, and between 0.50 and 0.80 strong ($p < 0.05$; Cohen et al., 2003).

Path analyses were conducted to estimate presumed theoretical relationships among the study variables. Using this particular form of structural equation modelling, direct and indirect effects between exogenous and endogenous variables were analysed, while controlling for error (Byrne, 2010; Kline, 2005). The path model examined whether external shame and fears of compassion from others (exogenous variables) and disordered eating severity (endogenous variable) would be mediated by both insecure striving and body image shame (endogenous mediator variables), while controlling BMI effects (Figure 1).

The Maximum Likelihood estimation method was used to test the significances of the coefficients and fit statistics of the path model, with a 95% confidence interval. Importantly, prerequisites with regard to model complexity and sample size were met to conduct the analyses and to attain robust and valid results (Hair, Black, Babin, & Anderson, 2010). In order to assess the overall adequacy of the model to the empirical data, the following goodness of fit indices were calculated: chi-square (χ^2), normed chi-square (CMIN/DF), Tucker Lewis Index (TLI), Comparative Fit Index (CFI) and Root-Mean Square Error of Approximation (RMSEA), using a 95% confidence interval. Moreover, significance of the mediational paths was further analysed resorting to the Bootstrap resampling method, with 5000 Bootstrap samples and 95% bias-corrected confidence intervals (Kline, 2005) around the standardized estimates of direct, indirect and total effects. A significant mediation effect was established when zero was not included in the interval between the lower and upper thresholds of the confidence interval (Kline, 2005). All effects that presented a level of significance corresponding to $p<0.05$ were considered statistically significant.

Results

Descriptive and correlation analyses

Means, standard deviations and Cronbach's alphas (N = 335) for the study measures are displayed in Table 1.

Results showed that external shame was positively and strongly correlated with fears of compassion from others, insecure striving and body image shame, as well as moderately associated with disordered eating severity. Fears of compassion from others were also positively and strongly linked to insecure striving, and moderately to body image shame and disordered eating severity. Positive and moderate correlations were also found between insecure striving and body image shame and disordered eating severity. Body image shame and disordered eating severity were strongly and positively related to each other. Lastly, BMI presented a positive, albeit weak association with fears of receiving compassion from others and a moderate relationship with body image shame, disordered eating severity and age.

Table 1

Cronbach's alpha (α), Means (M), Standard Deviations (SD) and correlations between the study measures (N = 335)

Measures	*α*	*M*	*SD*	1.	2.	3.	4.	5.	6.
1. OAS-2	0.92	9.58	6.24	1	-	-	-	-	-
2. FCS_from others	0.88	13.43	9.14	0.60***	1	-	-	-	-
3. IS	0.93	31.90	14.55	0.60***	0.50***	1	-	-	-
4. BISS	0.95	15.68	12.77	0.51***	0.43***	0.42***	1	-	-
5. EDE-Q	0.95	1.40	1.28	0.46***	0.37***	0.42***	0.75***	1	-
6. BMI	-	22.86	3.91	0.04	0.20***	0.10	0.35***	0.46***	1
7. Age	-	28.70	11.54	-0.16**	0.02	-0.04	-0.06	0.08	0.34***

Note. OAS-2 = Others As Shamer Scale-2: FCS_from others= Fears of Compassion Scale (Fears of Compassion from others subscale); IS = Striving to Avoid Inferiority Scale (Insecure-striving subscale); BISS = Body Image Shame Scale (global score); EDE-Q=Eating Disorder Examination Questionnaire (global score); BMI = Body Mass Index

** p <0.010; *** p <0.001

Path Analysis

The hypothesised model was firstly tested through a fully saturated model (i.e., with zero degrees of freedom) with 27 parameters. This initial model explained a total of 63% of the variance of disordered eating symptomatology. Nonetheless, several path coefficients were not statistically significant: the direct effect of BMI on insecure striving (b_{BMI}= 0.15; SEb = 0.16; Z = 0.90; p = 0.368); the direct effect of fears of compassion from others on disordered eating symptomatology ($b_{FCS\_from\ others}$= -0.01; SEb = 0.01; Z = -1.00; p = 0.315); and the direct effect of fears of compassion from others on body image

shame ($b_{FCS\_from\ others}$= 0.11; SEb = 0.08; Z = 1.38; p = 0.169). These paths were progressively removed, and the re-specified model was then tested (Figure 1).

The final model accounted for 63% of EDE-Q variance and presented an excellent fit to the empirical data [$\chi^2_{(3)}$ = 3.71; p = 0.30, CMIN/DF = 1.24; TLI = 1.00; CFI= 1.00; RMSEA = 0.03; p = 0.603; 95% CI = 0.00 - 0.10] (Hu & Bentler, 1999). Specifically, external shame and fears of receiving compassion from others explained 38% of the variance of insecure striving and of body image shame.

Results showed that external shame exhibited positive direct effects of 0.46 ($b_{external\ shame}$= 1.08; SEb =0.13; Z = 8.63; p <0.001), of 0.41 ($b_{external\ shame}$= 0.85; SEb = 0.11; Z = 7.73; p <0.001), and of 0.10 ($b_{external\ shame}$= 0.02; SEb = 0.01; Z = 2.23; p =0.026) on insecure striving, body image shame, and disordered eating, respectively. Fears of receiving compassion from others presented a direct positive effect of 0.22 ($b_{fears\ of\ compassion\ from\ others}$= 0.35; SEb = 0.09; Z = 4.11; p <0.001) on insecure striving. Additionally, insecure striving revealed positive direct effects of 0.14 ($b_{striving}$= 0.13; SEb = 0.05; Z = 2.67; p =0.008) on body shame and of 0.09 ($b_{insecure\ striving}$ = 0.01; SEb = 0.00; Z = 2.21; p =0.027) on EDE-Q. Body shame presented a positive and direct effect of 0.57 ($b_{body\ image\ shame}$ = 0.06; SEb = 0.00; Z = 13.44; p <0.001) on EDE-Q.

Also, the analysis of indirect effects revealed that shame presented positive indirect effects of 0.07 on body shame, mediated by insecure striving (95% CI = 0.02 to 0.13; p = 0.011); and of 0.32 (95% CI = 0.24 to 0.40; p <0.001) on EDE-Q, partially mediated by insecure striving and BISS. This analysis further indicated that FCS_from others exhibited positive indirect effects of 0.03 on BISS, mediated by insecure striving (95% CI = 0.01 to 0.07; p = 0.010); and of 0.04 (95% CI = 0.01 to 0.08; p = 0.002) on EDE-Q, totally carried by insecure striving and BISS. Lastly, insecure striving showed a

positive indirect effect of 0.08 on EDE-Q, carried by BISS (95% CI = 0.02 to 0.15; p = 0.015).

In conclusion, results showed that the impact of both general feelings of shame and fears of receiving compassion from others on EDE-Q was partially mediated by insecure striving and body image-related shame.

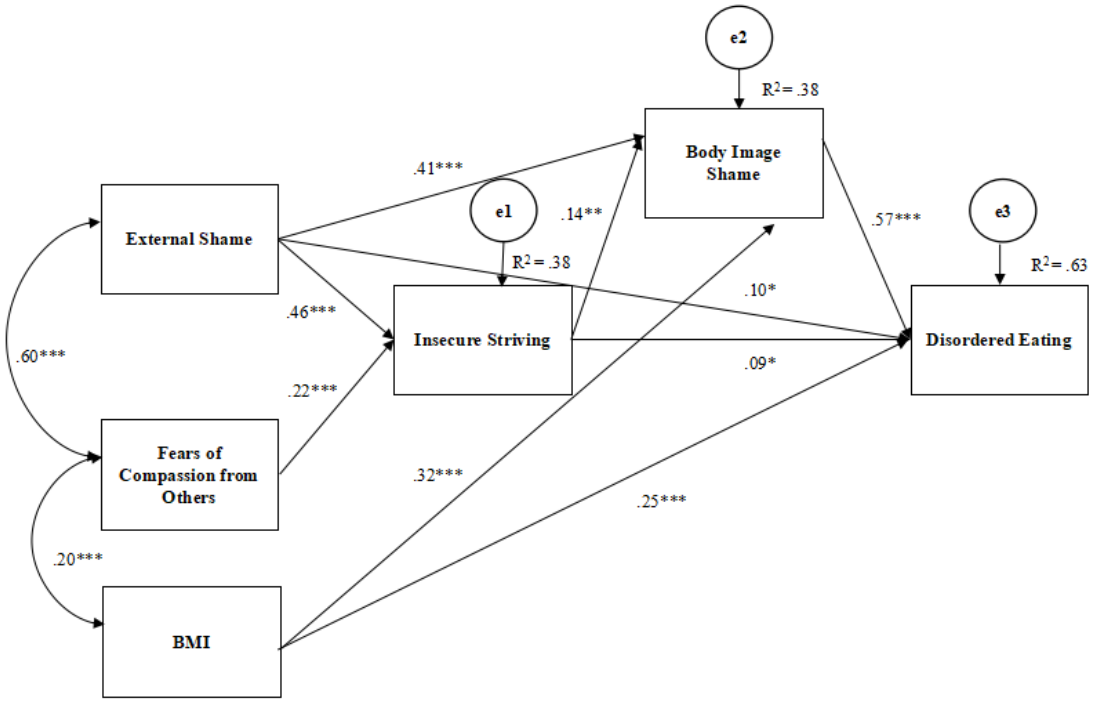

Figure 1. Path model showing the associations between external shame and fears of compassion from others and disordered eating, mediated by insecure striving and body image shame, while controlling for BMI effects, with standardized estimates and squared multiple correlations (R^2=0.63*; N* = 335).

Note. * p <0.050; ** p <0.010; *** p <0.001

Discussion

Research has increasingly emphasised the impact of general feelings of shame on the emergence and maintenance of eating psychopathology, in clinical (e.g., Pinto-Gouveia et al., 2014) and non-clinical samples (e.g., Ferreira et al., 2013; Goss & Gilbert, 2002). Moreover, increases of competitive behaviour in contemporary Western societies

have been associated with rising rates of specific forms of psychopathology, such as disordered eating attitudes and behaviours (Ferreira et al., 2013; Bellew et al., 2006). Effectively, empirical evidence shows that the need to compete to avoid undesired inferiority is linked to both general feelings of shame and problematic eating (Ferreira et al., 2011a; Pinto-Gouveia et al., 2014). Although fearing the reception of compassion from others has been previously associated with several psychopathological indicators, its relationships with shame and disordered eating have been scarcely explored. Additionally, the impact of the specific experience of body image shame on the associations between shame and fears of compassion from others and eating psychopathology remain to be clarified.

Thus, the present study aimed at exploring whether the impact of general feelings of shame and fears of receiving compassion from others on the severity of disordered eating, is influenced by the need to strive to avoid inferiority and body image-related shame.

Consistent with prior studies, results indicated that general feelings of shame are associated with fears of compassion from others (Gilbert et al., 2011, 2014) and insecure striving (e.g., Gilbert et al., 2007, 2009). In addition, fears of compassion from others was strongly associated with the need to strive to avoid inferiority, an association that has not been identified before. Jointly, these results shed light into the shared adverse backgrounds that may underlie the emergence of deep feelings of inferiority, shame and fears of compassion, and the development of maladaptive processes as insecure striving. Particularly, these backgrounds may include experiences of shame, neglect, abandonment and abuse, that appear to be related with the overstimulation of threat-based emotional processing systems and, simultaneously, the understimulation of affiliative-based emotional processing systems (Matos et al., 2017). Considering these results and

extrapolations, fears of compassion from others are therefore conceived, in the present study, as a construct that could compose a social rank mentality.

In line with extant research, general feelings of shame furtherly showed strong and moderate positive associations with body image shame and disordered eating, which were also strongly correlated with each other. In conjunction, these results emphasise the central roles of shame and body image shame on the engagement with disordered eating attitudes and behaviours (e.g., Duarte et al., 2015; Ferreira et al., 2013; Pinto-Gouveia et al., 2014).

Moreover, higher levels of fears of receiving compassion from others appeared to be linked to greater body image shame and disordered eating attitudes and behaviours, suggesting that women who experience compassionate feelings from others as threatening, tend to highly perceive their body as a source of others' negative evaluations and manifest greater engagement with problematic eating attitudes and behaviours. This might be due to related difficulties in feeling secure in the relationship with others, assuming the investment on body image and weight dimensions, a way of seeking social acceptance and approval, as well as avoiding rejection and criticism (e.g., Matos et al., 2014).

Interestingly, this study found additional moderate associations between insecure striving and body image shame and disordered eating, outlining the importance of conceptualising the adoption of weight and body image control methods as a competitive strategy to avoid general perceptions of inferiority and feelings of shame focused on body image (Ferreira et al., 2011a).

The associations reported above were further analysed through path analysis, to assess the role of the need to strive to avoid inferiority and body image-related shame on the relationships between external shame and fears of compassion from others and eating

psychopathology, while controlling for BMI effects. The final path model explained 63% of disordered eating symptomatology variance and clarified the pervasive effect of insecure striving and body shame on disordered eating, within a context of a social rank mentality.

Findings suggested that, in women, general feelings of shame directly explain higher levels of insecure striving, body image shame and disordered eating. Moreover, results seem to suggest that women who present higher levels of fears of receiving compassion from others tend to greatly adopt a striving to avoid inferiority strategy, which is positively linked to body image shame and disordered eating attitudes and behaviours. Taken together, these results revealed that, in women, shame and fears of compassion from others impact on disordered eating attitudes and behaviours, partially through insecure striving and body image shame. These findings suggest that when women overly perceive others' negative evaluations about the self and simultaneously present higher levels of fears of receiving compassion, care and affection from others, they tend to excessively adopt body image, weight and eating-related control strategies. As women with high levels of shame and fears of compassion from others may feel insecure in respect to their interpersonal relationships and to their capacity to generate in the minds of others, positive images and affects about the self, they may become more vulnerable to the internalisation of sociocultural norms and stereotypes, such as the thin ideal (Ferreira et al., 2011a). In this way, in societies where women are encouraged to pursue the presentation of a thin body shape and avoid personal mismatch to this pattern (i.e., being overweight), in order to attain social approval and acceptance, the overvaluation of thinness and investment on dietary restraint, excessive physical activity, purging and other weight control methods may be understood as a form of striving to avoid inferiority (Bellew et al., 2006; Ferreira et al., 2013).

In addition, the mediational analysis appears to strengthen the notion that disordered eating behaviours may be regarded as an escape strategy from negative private events, such as overall feelings of shame and, in specific, body image shame (Duarte et al., 2015). Particularly, findings of this analysis reinforce the consideration that the well-established direct impact of global judgements that others negatively view and judge the self on eating psychopathology is dependent on the perception of body image as the source of those negative evaluations, with consequent generation of defensive responses (Duarte et al., 2015). Although the investment on weight control strategies aims at correcting what is perceived as shaming (i.e. body image) and therefore, seeking a secure social rank position, their maladaptive use is associated with several negative outcomes and reduced physical and psychological well-being (e.g., Pinto-Gouveia et al., 2014).

However, limitations to this study must be considered when establishing these promising extrapolations from the abovementioned findings. Firstly, the cross-sectional design of the study limits the interpretation of causal relationships between variables. Therefore, the need to explore the associations between the study variables over time, in future studies using longitudinal designs, is acknowledged. Furthermore, due to the composition of the study's sample, findings are only applicable to women from the general population and university students. In this way, the tested path model should be replicated in distinct samples, specifically, inpatient and outpatient clinical samples with an eating disorder diagnosis, vulnerable groups, where competitive attitudes focused on body image may be promoted (e.g., gyms, modelling agencies, *ballet*, gymnastic and other team or individual sports, etc.) and men samples.

Lastly, the present study solely tested a possible trajectory to the development of disordered eating attitudes and behaviours, not entirely covering the multidetermined nature of eating psychopathology. Accordingly, other maladaptive processes and

outcomes, highly linked to the constructs included in this study, such as self-criticism, perfectionistic self-presentation, social comparison (through physical appearance) and body dissatisfaction, should be further analysed. Future research should also assess the differential role of sociodemographic variables (e.g. rural-urban area of residence) and other relevant cultural factors on the identified associations.

Despite the limitations inherent to the current study, the empirical value and clinical implications of the reported findings should not be underestimated. In fact, this study demonstrated that women with high levels of shame and fears, resistances or blocks to receiving compassionate feelings from others, both associated with experiencing the social world as an unsafe place, may endorse maladaptive eating behaviours as a strategy to compete for social attention, approval and acceptance, while avoiding negative evaluations from others, particularly related to the self's body image. In this way, apart from enlightening current literature related to the development and maintenance of disordered eating symptomatology, results of the current study support the clinical application of strategies derived from Compassion Focused Therapy, in order to promote compassionate attributes and actions, enhancing the role of self-generated compassion as an adaptative threat-regulator, alternative to competitive and rank-focused processes. These therapeutic strategies should be cautiously adopted by clinical psychologists, when treating individuals with elevated fears of compassion from others, as they may, in the face of the therapist's expression of compassion, recall experiences of abuse, rejection and neglect, as well as moments where they desired but didn't receive love and affection from significant others (Matos et al., 2017). Notwithstanding, fears of compassion for self and from others, as well as significant shame memories, especially those focused on eating, weight and body image dimensions, should be intervention targets, to allow the development of blocked affiliative-based emotional processing systems and facilitate the

experience of social safeness. These implications should be taken into account, when developing future preventive and interventive programs for preadolescent and adolescent girls, other groups vulnerable to the emergence of disordered eating behaviours and women with differential levels of eating psychopathology. In conclusion, this is the first study to conceptualise fears of compassion from others as an important social rank construct, supported by its strong associations with general feelings of shame and the need to strive to avoid inferiority, and analyse the specific role of body image-related shame in the relationship between these social rank constructs and the emergence of disordered eating.

Acknowledgements

The authors declare no conflicts of interest. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

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PAPER II

Ferreira, C., & Mendes, C. B. (2018). *Insecure striving as an exacerbator of the toxic effect of shame feelings on disordered eating*

Manuscript submitted for publication on *Eating and Weight Disorders*

Insecure striving as an exacerbator of the toxic effect of shame feelings on disordered eating

Cláudia Ferreira, PhD [1]*

Catarina Mendes, B.S.[2]

[1] CINEICC – Centre for Research in Neuropsychology and Cognitive Behavioural Intervention

[2] FPCEUC – Faculty of Psychology and Educational Sciences of the University of Coimbra, Portugal

* Correspondence concerning this article should be addressed to:

Cláudia Ferreira

Email: claudiaferreira@fpce.uc.pt

CINEICC, Faculdade de Psicologia e Ciências da Educação, Universidade de Coimbra

Rua do Colégio Novo, Apartado 6153

3001-802 Coimbra, Portugal

Telephone: (+351) 239851450

Fax: (+351) 239851462

Declaration of conflict of interests: Authors declare no conflict of interests.

Abstract

Empirical evidence has consistently shown the impact of general feelings of shame on the development and maintenance of eating psychopathology. Although less explored by previous studies, insecure striving has also been associated with disordered eating behaviours. However, interactions between these social rank variables and severity of pathological eating remain unclear. In order to enlighten these specific associations, the main purpose of the present study was to explore the moderator effect of insecure striving on the relationship between shame and disordered eating, while controlling for BMI effects. In a sample of 458 female participants, shame, insecure striving and disordered eating were significantly intercorrelated.

Regression analyses revealed that insecure striving and shame explained 20.5% of disordered eating. The exacerbating role of insecure striving on the relationship between shame and disordered eating was further confirmed through path analysis and a graphical representation. The tested moderator model explained 38% of disordered eating severity and the plotted graph revealed that, for any level of shame, women who manifested a greater need to strive to avoid inferiority, expressed higher levels of disordered eating severity, in comparison to those who felt a lower pressure to prove others that they are attractive through the achievement of excellence goals.

These results support the notion that eating psychopathology may be conceived as a form of striving to avoid perceptions of inferiority and shame feelings, establishing an important avenue for disordered eating-related investigation and clinical practice directed at women with body image and eating-related difficulties.

Keywords: Shame; Striving; Eating psychopathology; Body image; Women; Moderation

Introduction

Over evolution, humans have become extremely sensitive to generating positive impressions about the self in the minds of others, in order to be chosen for meaningful social roles (e.g., ally, sexual partner or leader) [18]. As belonging to a social group ensured survival and reproduction, being an attractive social agent, able to promote others' interest, may be considered a fundamental human need [4]. In fact, social attractiveness, as a social strategy, played an important role in the competition for fundamental social resources [13, 15, 16]. Consequently, individuals viewed as unattractive lost in this competition and were rejected, ostracised or excluded.

Being criticised and excluded from the group constitutes a major social threat and may generate defensive responses as shame [13]. Shame is a painful, self-conscious emotion that emerges in the competition for social attractiveness, as an alarm signal that certain personal characteristics, attributes and/or behaviours may be perceived as undesirable and negatively judged by others [15]. When this emotion is focused on others' negative evaluations about the self and consequences of being socially rejected or attacked, is referred to as external shame. When internalised as negative self-evaluations (e.g., as inferior, flawed, inadequate) and emotions, it is conceptualised as internal shame [15]. Although the adaptive function of shame may be recognised, elevated levels of this emotion have been linked to several negative psychosocial outcomes and psychopathological indicators [e.g., 13]. Studies conducted with clinical [e.g., 25, 23] and non-clinical samples [e.g., 11, 12] have emphasised the central role of shame on eating psychopathology.

Individuals who feel uncapable of stimulating others' approval, acceptance and appreciation, perceiving themselves as inferior and unattractive social agents, may tend to establish interpersonal relationships based on power, control and competition [14]. In

fact, certain types of competition may be understood as defensive coping strategies to avoid perceptions of inferiority and shame feelings, as well as consequences of low rank, i.e., social rejection and exclusion [14]. Gilbert and colleagues [17] developed the term insecure striving to describe a form of competitive behaviour, present in individuals who feel under permanent pressure to strive and compete to prove others that they are likeable and acceptable. Insecure striving may be rooted in early dysfunctional relationships, associated with insecure attachment styles [5], that may have contributed to the development of a constant need to secure one's place in the social world and related concerns with dominance, social comparison, inferiority and shame [14]. Notwithstanding its protective functions, this form of competitive behaviour may make individuals vulnerable to certain forms of psychopathology, being associated with depression, anxiety, stress, self-harm [19]; fears of rejection, feelings of inferiority, submissive and validation-seeking behaviours [17]; body and eating-related difficulties [e.g., 10, 11, 25, 5]. Effectively, theorists have increasingly demonstrated interest on the associations between rising rates of competitive behaviour in the Western culture and vulnerability to several psychopathological conditions [3, 6]. They have suggested that this competitive context, focused on extrinsic objectives, as individualism, competitiveness and materialism, activates a social rank mentality, oriented to the establishment of dominant/submissive relationships with others and centred on the enhancement or maintenance of one's social rank [14, 21].

Modern western societies clearly and objectively define who will succeed, be accepted, chosen and valued or, alternatively, who will be rejected, excluded and criticised [3]. In order to avoid these negative consequences of being allocated to a low social rank, individuals must be aware of socially valued characteristics and attributes and adapt self-presentation and behaviours accordingly [13].

For women, being physically attractive, and in specific, presenting an extremely thin body shape, has continuously been culturally associated with positive characteristics and desired outcomes, such as intelligence, beauty, power, happiness, health and success [e.g., 27]. In these societies, control over physical appearance, weight and eating has been socially promoted, becoming an important criterion for defining women's self-worth and determining their social rank position [e.g., 11, 13]. Similarly, investing in this culturally valued domain may represent, for the female gender, a way of attaining desired social attention and enhancing one's social status [e.g., 9, 11, 25]. In this way, in a context where thinness is representative of female attractiveness, the endorsement of weight and body image control methods may assume a competitive function, to obtain important social resources, i.e., social approval and appreciation, and surpass feelings of shame, inferiority and negative judgements from the self and others [e.g., 11]. Otherwise, eating psychopathology may be conceptualised as a way of competing or striving to avoid inferiority [10, 11, 25]. Although originally adaptive, when this strategy is continuously used in response to different contextual factors, it becomes maladaptive and self-destructive [1].

The main purpose of the current study is to clarify existent literature about the role of a social rank mentality on the development of disordered eating attitudes and behaviours. Specifically, the study aimed at exploring the moderator role of insecure striving on the relationship between general feelings of shame and disordered eating. Considering that external shame is a universal human experience, it was hypothesised that women who deal with this experience in a competitive manner would manifest greater disordered eating severity. The same is to say that an insecure striving strategy was expected to amplify the pathogenic effect of shame on the engagement in weight and shape control methods.

Material and Methods

Participants

The sample of the present study comprised 458 Portuguese women from the general population, whose ages ranged between 18 and 65 years old (*M* = 30.74; *SD* = 12.15). Participants presented a mean of 14.00 (*SD* =2.57) years of education and a Body Mass Index mean of 23.14 Kg/m^2 (*SD* = 3.99). Considering the WHO [28] BMI classification system, 32 (7.0 %) participants were underweight, 311 (67.9 %) presented a normal weight, 86 (18.8 %) were overweight and 29 (6.3 %) were obese, reflecting BMI distribution in the Portuguese female population [26].

Measures

Body Mass Index (BMI) was calculated using the Quetelet Index (Kg/m^2), based on self-reported current weight (in kilograms) and height (in meters).

Other As Shamer Scale - 2 (*OAS-2)* [24]. OAS-2 is a self-report measure composed of 8 items, that assess external shame, i.e., perceptions that the self is negatively judged, evaluated or looked down by others (e.g., "I think that other people look down on me" or "Other people see me as defective as a person"). Each item is rated on a 5-point scale (from 0=''Never'' to 4=''Almost always"), according to the frequency participants perceive others' negative evaluations about the self. This measure presented very good internal consistency, in the original study, as indicated by a Cronbach's alpha of 0.82 [24].

Striving to Avoid Inferiority Scale (*SAIS)* [17, 10]. SAIS is a self-report instrument with three parts, among which only the insecure striving subscale of Part one was used in

the present study. This subscale consists of 19 items (e.g., "People judge you by how well you perform in comparison to others") that evaluate beliefs about the "pressure to compete to avoid inferiority" [17]. Participants are asked to rate each item on a five-point scale (ranging from 0="Never" to 4="Always"), depending on the extent in which the items reflect their beliefs. SAIS presented very good internal consistency in both its original ($\alpha = 0.92$) [17] and Portuguese versions ($\alpha = 0.91$) [10].

Eating Disorder Examination Questionnaire (EDE-Q) [8, 22]. EDE-Q is a 36-item self-report scale, developed to overcome the limitations of the Eating Disorder Examination interview. This scale measures the frequency and severity of eating psychopathology, in the past 28 days, and is composed of 4 subscales: restraint, eating concern, weight concern and shape concern. Items are rated using a 6-point scale, depending on the frequency of occurrence (items 1-15, from 0="None" to 6="Every day") or severity (items 29-36, items 29–36; from 0="None" to 6="Extremely") of disordered eating symptomatology. Higher scores on this scale reflect higher levels of eating psychopathology. According to its purpose, the present study only used a global EDE-Q score, attained by calculating the mean of the four subscales. EDE-Q presented a Cronbach's alpha of 0.94, in the original [8] and Portuguese studies [22], demonstrating good psychometric properties.

Cronbach's alphas for all study measures are presented in Table 1.

Procedures

The current study is part of a wider research project about the role of emotion regulation processes on women's eating behaviour.

The sample of this study was obtained through a snowball sampling recruitment method, in which a message explaining the aims and procedure of the study, with an online link of an approved online data collection website (Lime Survey) was sent to potential participants, via social networks and e-mail invitations, requesting their voluntary participation and contribution to recruit other participants. If participants sought to participate in the study, previously to answering the online investigation protocol, they provided an informed written consent. Considering the aims of the present study, participants were excluded from this study if they (a) did not have a Portuguese nationality; (b) were male; (c) presented an age over 65 years old; (d) or did not fully complete the investigation protocol. All ethical and deontological requirements inherent to empirical investigation were guaranteed throughout the whole investigative process.

Data analyses

Descriptive and correlational analyses were carried out using SPSS (v.22; IBM Corp. Armonk NY) and path analysis was executed with the software Analysis of Momentary Structure (AMOS, v.22, SPSS Inc., Chicago, IL).

In order to characterise the final sample, descriptive statistics (means and standard deviations) were calculated. Pearson product-moment correlations were conducted to explore the associations between age, BMI, external shame (OAS-2), insecure striving (IS), and global disordered eating symptomatology (EDE-Q_total) [7]. Taking into consideration Cohen's guidelines, the magnitudes of these correlations were interpreted as weak, if they ranged between 0.10 and 0.29; moderate, between 0.30 and 0.49; and strong, between 0.50 and 0.80 ($p < 0.05$) [7].

A hierarchical regression was performed to analyse the predictor effect of insecure striving and shame on the disordered eating symptomatology.

Presumed theoretical relationships between the study variables were further tested through path analysis, using the software AMOS. Specifically, the theoretical path model explored the moderator effect of insecure striving on the relationship between external shame (predictor variable) and disordered eating (dependent variable), while controlling for BMI (Figure 1). This model exhibits three causal paths to EDE-Q: external shame; insecure striving; and the interaction between external shame and insecure striving. When the interaction is significant ($p<0.05$), the moderator effect is corroborated.

Resorting to the Maximum Likelihood estimation method, significances of the coefficients of the path model were tested, and fit statistics were computed, using a 95% confidence interval. The adequacy of the model to the empirical data was assessed by analysing the following goodness of fit indices: chi-square (χ^2), normed chi-square (CMIN/DF), Tucker Lewis Index (TLI), Comparative Fit Index (CFI) and Root-Mean Square Error of Approximation (RMSEA), with a 95% confidence interval. In addition, error associated with multicollinearity was reduced by standardising the continuous variables and centring the predictor (OAS-2) and moderator (IS) variables. The interaction variable was calculated through the product of these latter variables [2]. Effects with a level of significance of $p<0.05$ were considered statistically significant.

Finally, in order to better comprehend the association between predictor and outcome variables, shame and EDE-Q, a graph was plotted, with different levels of the moderator (IS) – low, medium, high. Following Cohen and colleagues' [7] recommendations, the three curves of this graph were plotted considering the moderator's cut-point values on the x axis: the value of one standard deviation below the mean, the mean, and the value of one standard deviation above the mean.

Results

Descriptive and correlation analyses

Means, standard deviations and Cronbach's alphas (*N*=458) for the study variables are given in Table 1. Results of the correlation analysis indicated that external shame is positive and strongly associated with insecure striving; moderately linked to disordered eating symptomatology and weakly correlated with BMI and age. Insecure striving was positive and moderately related to disordered eating severity, and weakly associated with BMI. Moreover, disordered eating symptomatology presented positive correlations of moderate magnitude with BMI. Lastly, BMI and age were positive and moderately associated.

Table 1

Cronbach's alpha (α), Means (M), Standard Deviations (SD) and correlations between the study measures (N = 458)

Measures	*A*	*M*	*SD*	1.	2.	3.	4.
1. OAS-2	0.92	9.75	6.22	1	-	-	-
2. IS	0.93	33.82	15.04	0.58***	1	-	-
3. EDE-Q_total	0.95	1.29	1.20	0.43***	0.37***	1	-
4. BMI	-	23.14	3.99	0.11*	0.15**	0.45***	1
5. Age	-	30.74	12.15	0.12*	0.03	0.03	0.34***

Note. OAS-2 =Others As Shamer Scale-2; IS=Striving to Avoid Inferiority Scale (Insecure-striving subscale); EDE-Q_total=Eating Disorder Examination Questionnaire (global score); BMI = Body Mass Index;

* p <0.050. ** p <0.010. *** p <0.001.

Multiple regression

A multiple regression analysis was performed in order to clarify the impact of insecure striving and shame on the severity of disordered eating. Results showed that both insecure striving (β =0.17, p=0.001) and shame (β =0.33, p<0.001) emerged as significant predictors, accounting for 20.5% of disordered eating severity variance

.

Path Analysis

The path model was firstly analysed through a fully saturated model (i.e., with zero degrees of freedom), composed of 20 parameters. A final model was then obtained, by progressively deleting two non-significant paths: the effect of external shame ($b_{\text{external shame}}$= 0.01; SEb = 0.02; Z = 0.50; p = 0.620) and of insecure striving ($b_{\text{insecure striving}}$= -0.00; SEb = 0.01; Z = -0.50; p = 0.619) on disordered eating. This model accounted for 38% of the variance of EDE-Q and showed an excellent fit to the empirical data, as indicated by the computed goodness of fit indices [$\chi^2_{(2)}$ = 0.87; p = 0.65, CMIN/DF = 0.43; TLI = 1.00; CFI= 1.00; RMSEA = 0.00; p = 0.860; 95% CI = 0.00 - 0.07] [20].

Results of the moderation analysis revealed that only the interaction between external shame and insecure striving presented a significant direct effect of 0.42 ($b_{\text{external shame x insecure striving}}$= 0.00; SEb =0.00; Z = 11.28; p <0.001) on disordered eating attitudes and behaviours. This result appears to confirm insecure striving's moderator effect on the relationship between external shame and disordered eating severity.

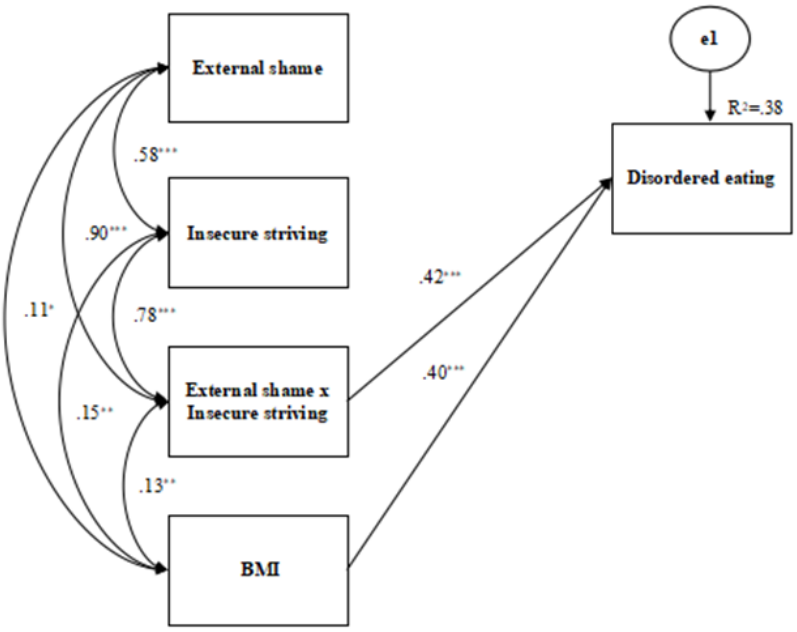

Figure 1. Final path model showing the association between external shame and disordered eating, moderated by insecure striving, with standardized estimates and square multiple correlations (R^2=0.038; N = 458).

Note. * p <0.050. ** p <0.010. *** p <0.001.

A graph (Figure 2) was further plotted to better explain the relationship between shame and EDE-Q, with differential levels of insecure striving. In the graphical representation, external shame is presented on the x axis and disordered eating severity on y axis, while three different levels of insecure striving (low, medium, high) are represented by the three curves. The graph showed that women who presented a greater pressure to strive to avoid inferiority expressed higher severity of disordered eating, for any level of shame, in comparison to women who presented a lower need to compete to avoid inferiority. In this way, insecure striving appeared to amplify the impact of shame on EDE-Q.

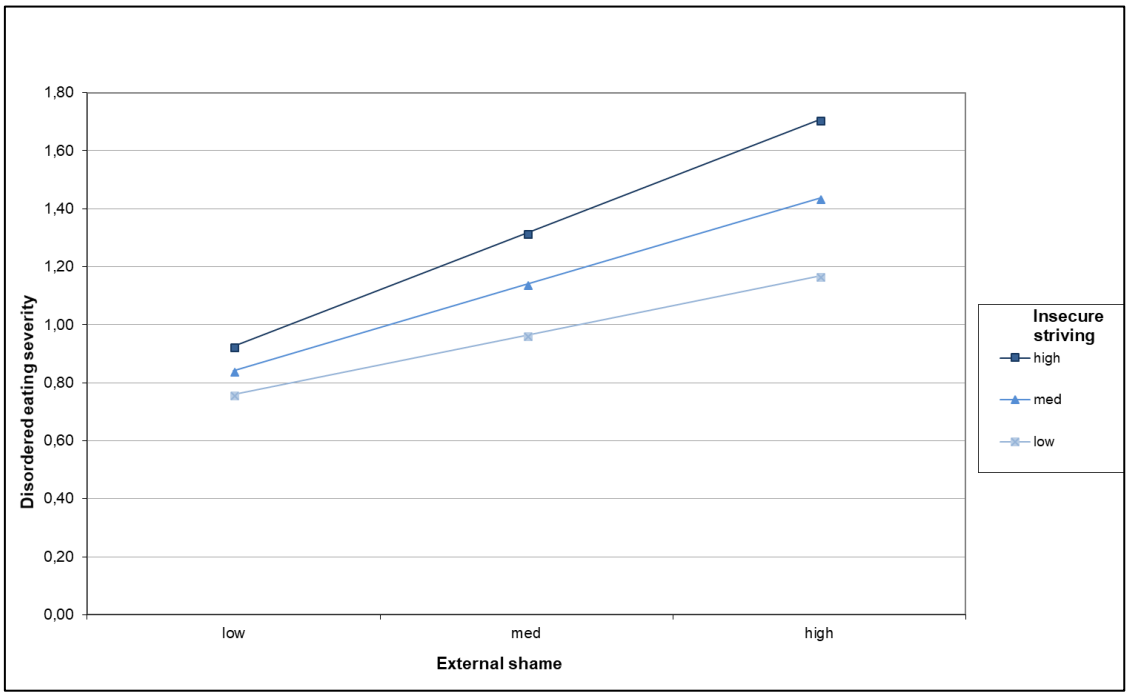

Figure 2. Graphical representation of the relation between external shame and disordered eating, with different levels of insecure striving.

Discussion

Emotional regulation processes and emotions developed within a social rank mentality (e.g., insecure striving, social comparison through physical appearance, external shame, self-criticism) have been consistently associated with the development and maintenance of disordered eating symptomatology [e.g., 23, 9, 10, 11, 25]. Particularly, a specific form of competitive behaviour termed as insecure striving has been previously linked to shame [e.g., 17, 19] and eating psychopathology [5, 10, 11, 25], however, its exacerbating effect on these relationships has been scarcely explored.

Following this line of research, the present study explored the moderator role of insecure striving on the relationship between general feelings of shame and eating psychopathology, while controlling for BMI. In general, results of the correlational analysis were consistent with previous literature. Shame presented a strong association with insecure striving [17, 19] and was moderately linked to general disordered eating [e.g., 23]. Along with confirming the function of this form of competitive behaviour, i.e. avoiding or surpassing feelings of shame, inferiority and consequences of being allocated to low rank positions in social hierarchies [14, 17, 19], the reported results emphasise the centrality of shame on the emergence and maintenance of disordered eating attitudes (e.g., concerns with eating, weight and shape) and behaviours (e.g., dieting). Furthermore, particularly interesting correlations of moderate magnitudes were found between insecure striving and general disordered eating symptoms, which reinforce a hypothesised consideration by previous studies that control over weight, shape and eating may represent an important competitive criterion among women in contemporary Western societies [10, 11].

Regression analysis results showed that both insecure striving and shame emerged as significant predictors of disordered eating severity, with the model explaining 20.5%

of disordered eating severity. These results seem to suggest that engaging in problematic eating may constitute a way of regulating shame feelings and perceptions of inferiority, as well as a form of competition to obtain important social resources, such as others' approval and acceptance [e.g., 25].

The moderator effect of insecure striving on the relationship between external shame and disordered eating severity was further confirmed by path analysis and elucidated by a graphical representation. In respect to the moderation analysis, the final path model accounted for 38% of disordered eating symptomatology and showed that, only the interaction term between shame and insecure striving had a significant effect on disordered eating severity. Importantly, when jointly considering results of the regression and moderation analyses, striving and shame explained a minor percentage of disordered eating severity variance than the interaction between these variables, included in the path model. These findings seem to suggest that the pressure to strive and compete to avoid feeling inferior and ashamed paradoxically exacerbates the pathogenic impact of shame on disordered eating.

The plotted graph indicated that for any level of shame, women who felt a higher need to strive to avoid inferiority expressed greater disordered eating severity, in comparison to women who presented lower levels of insecure striving. As outlined before, this finding suggests that general feelings of shame have a negative effect on disordered eating severity when women feel a greater need to strive and compete to avoid undesired inferiority and shame.

In this way, in Western culture, where women are pressured to achieve an idealized thin body shape, a hypercompetitive attitude to avoid feelings of shame may potentialize pathological eating [6]. Although shame may stimulate the engagement in disordered eating behaviours, the need to compete to avoid inferiority may further

contribute to an excessive self-focus and rigidification of one's control over weight, eating and body image domains. Paradoxically, as the current thin ideal is difficultly attained by the majority of women, these attempts at pursuing extreme thinness may generate a sense of personal failure, shame and perceptions of a low rank, associated with increased vulnerability to the development of severe eating psychopathology.

The interpretation of these findings should consider few methodological limitations to this study. Firstly, causality between variables cannot be derived from these results as the current study used a cross-sectional design. Therefore, results should be corroborated by future longitudinal or experimental studies. Secondly, results may be susceptible to several biases, in particular, due to the participants' recruitment method, via an online data collection website, and the exclusive use of self-report measures. These biases should be taken into consideration in future research, by using other methods of recruitment and assessment (e.g., interviews). Furthermore, the sample of this study was exclusively composed of women from the general population, making it impossible to generalise the reported relationships to other populations. In this way, upcoming investigations should replicate findings of this study using male samples, patients with an eating disorder diagnosis, vulnerable groups to the development of maladaptive eating attitudes and behaviours (e.g., modelling agencies, gym, *ballet*, gymnastic, culturism and other sport practitioners). The inclusion of shame as a study variable, that can be conceptualised as an emotional state, variable across distinct situations and contexts may compromise data validity and robustness, acknowledging the need to further explore the interaction between shame experiences and striving to avoid inferiority in experimental designs, where shame levels are manipulated.

Notwithstanding the relevance of the abovementioned limitations and suggestions for future research conducted within the realm of eating psychopathology, results

reinforced the notion that general disordered eating symptoms may emerge as a competitive strategy to avoid shame feelings. Along with establishing an important investigative avenue towards understanding contextual and sociocultural developmental and maintenance factors of eating psychopathology, the confirmed moderator effect of insecure striving on the relationship between shame and disordered eating supports clinical practice and the implementation of preventive and interventive group programs based on Compassion Focused Therapy. Clinical psychologists should therefore promote important emotion regulation processes as compassion, self-compassion and acceptance of negative private events, alternative to maladaptive competition. In a validating and compassionate therapeutic stance, early shame experiences, particularly those related to eating, weight and body image, competitive attitudes and behaviours, as well as sociocultural pressures exerted on western women to conform to the thin ideal should be explored.

To sum up, this is the first study to explore the specific amplifying effect of the need to strive to avoid inferiority on the relationship between general feelings of shame and eating psychopathology. Importantly, insecure striving was found to exacerbate the pathogenic impact of shame on disordered eating, providing relevant theoretical and practical contributions to eating psychopathology, women's mental health and well-being domains.

Compliance with ethical standards

Conflict of interest: The authors of this manuscript declare no conflict of interest.

Ethical approval: All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional research committee and

with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent: Informed consent was obtained from all individual participants included in the study.

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APPENDICES

APPENDIX A

Submission information of Paper I

- Instructions for authors of *Appetite*

APPETITE

AUTHOR INFORMATION PACK

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ISSN: 0195-6663

DESCRIPTION

Appetite is an international research journal specializing in cultural, social, psychological, sensory and physiological influences on the selection and intake of foods and drinks. It covers normal and disordered eating and drinking and welcomes studies of both human and non-human animal behaviour toward food. Appetite publishes research reports, reviews and commentaries. Thematic special issues appear regularly. From time to time the journal carries abstracts from professional meetings.

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INTRODUCTION

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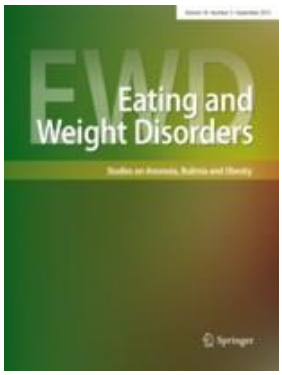
APPENDIX B

Submission information of Paper II

- Instructions for authors of *Eating and Weight Disorders*



Eating and Weight Disorders - Studies on Anorexia, Bulimia and Obesity

Editor-in-Chief: Massimo Cuzzolaro
Co-Editor: Lorenzo Maria Donini
ISSN: 1590-1262 (electronic version)
Journal no. 40519

About this Journal

- Official journal of the Italian Society for the Study of Eating Disorders (SISDCA) and of the Italian Society of Obesity (SIO)
- An international, interdisciplinary forum devoted to the sectors of eating disorders and obesity and the significant relations between them
- Covers reviews, original research, brief and case reports on eating and feeding disorders and weight-related problems
- Benefits professionals from psychiatrists to nutritional scientists, psychologists, dietitians, bariatric surgeons and others dealing with eating disorders and obesity
- Eating and Weight Disorders - Studies on Anorexia, Bulimia and Obesity is a scientific journal whose main purpose is to create an international forum devoted to the several sectors of eating disorders and obesity and the significant relations between them. The journal publishes basic research, clinical and theoretical articles on eating disorders and weight-related problems: anorexia nervosa, bulimia nervosa, subthreshold eating disorders, obesity, atypical patterns of eating behaviour and body weight regulation in clinical and non-clinical populations.

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Conclusions

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Smith J, Jones M Jr, Houghton L et al (1999) Future of health insurance. N Engl J Med 965:325–329

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Slifka MK, Whitton JL (2000) Clinical implications of dysregulated cytokine production. J Mol Med. doi:10.1007/s001090000086

- Book

South J, Blass B (2001) The future of modern genomics. Blackwell, London

- Book chapter

Brown B, Aaron M (2001) The politics of nature. In: Smith J (ed) The rise of modern genomics, 3rd edn. Wiley, New York, pp 230-257

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Cartwright J (2007) Big stars have weather too. IOP Publishing PhysicsWeb. http://physicsweb.org/articles/news/11/6/16/1. Accessed 26 June 2007

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