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Striving for a perfect body:

Stuck in a labyrinth of disordered pathways

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Master's Dissertation in Cognitive-Behavioural Interventions in Psychological and Health Disorders supervised by Professor Cláudia Ferreira

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STRIVING FOR A PERFECT BODY:

STUCK IN A LABYRINTH OF DISORDERED PATHWAYS

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

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Striving for a perfect body: Stuck in a labyrinth of disordered pathways

Abstract

Early positive experiences from childhood and adolescence, when capable of providing memories of warmth, safeness and affection, play a key role on the subsequent individual's emotional regulation, serving, on adulthood, as a protective factor from several mental health conditions. In fact, the absence of such experiences is associated with negative consequences on one's experience of the self and of others (i.e., seeing the self as inferior, believing that others see the self as inferior). Research suggests that the lack of early positive experiences and the presence of early negative experiences (e.g. abuse, neglect) is associated with a greater susceptibility to psychopathology and, when occurring within the peer group, hold a significant role upon the severity of eating psychopathology.

Shame, a powerful emotion which emerges in the social context from the perception of being seen by others as flawed, inferior, inadequate and powerless, is regarded, under the evolutionary perspective, as an adaptive emotion, since it signals a possible threat to the individual's social rank, motivating the adoption of defensive responses. However, high levels of shame are associated to the development and maintenance of psychopathology.

In line with the evolutionary perspective, belonging to a group is essential to human survival and development, turning the promotion of other's interest and approval into a particularly hard demand, when in the presence feelings of inferiority. When facing the primary need of social acceptance, individuals often adopt strategies such as perfectionistic self-presentation, with the purpose of concealing the public display of flaws and actively promote qualities socially considered as perfect. However, given the high relevance of the body image domain in self and social evaluations in the current Western cultures, and the notorious discrepancy between one's actual body image and the socially idealized body shape, the need to present one's body image in a perfectionistic way may entail an increase of shame levels and feelings of inferiority, considered to be associated to eating psychopathology.

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As a possible strategy to cope with a perceived low rank position, submission appears as a defensive response used to avoid conflict and social rejection. However, the involuntary adoption of submissive behaviours (e.g., complying with requests and opinions to appease others, against one's own will) is associated, in literature, with psychopathology. In fact, to what concerns the specific domain of eating psychopathology, research has shown that eating disordered patients, even when recovered, report themselves as being more submissive than to non-ill women.

Taking into account previous literature, the present studies aimed, firstly, to explore the moderator role of perfectionistic self-presentation focused on body image, on the association between external shame and psychopathology, specifically depressive and eating psychopathology symptomatology. Secondly, path analysis was conducted in order to understand how early memories of warmth and safeness with peers associates with eating psychopathology severity, and also to explore the role of submissiveness and of the need to present one's body image in a perfectionistic way on this association. Studies were performed in two different samples, with age and sex characteristics that match the risk population's features for body image and eating difficulties.

The main results of the first study suggested that body image-related perfectionistic self-presentation holds a paradoxical effect on the association between shame and psychopathology, exacerbating the pathological impact of shame both on depressive and disordered eating symptomatology. To what concerns the second study, data showed that the lack of early positive memories within peer relationships associates significantly with a higher proneness to eating psychopathology, especially when mediated by defensive responses, such as the adoption of submissive and body image-related perfectionistic self-presentation strategies.

Taken together, results seem to offer important insights for the research in the field of eating psychopathology, contributing to a greater understanding of the impact of compensatory mechanisms on body image and eating difficulties. Also, these findings suggest targeting and assessing body image-related perfectionistic self-presentation strategies, as well as submissiveness, when developing programs of mental health promotion among women.

Keywords:; Early positive memories; peers; shame; submission; perfectionistic self-presentation; body image; depression; eating psychopathology.

Lutando por um corpo perfeito num labirinto de comportamentos perturbados

Resumo

As experiências positivas precoces, que ocorrem na infância e adolescência, quando provedoras de memórias de calor, segurança e afeto, desempenham um papel fundamental na regulação emocional subsequente do indivíduo, protegendo-o em idade adulta de várias dificuldades ao nível da saúde mental. Efetivamente, consequências negativas ao nível da experiência do próprio self e dos outros (i.e., ver o self como inferior, acreditar que os outros vêm o self como inferior), têm sido associadas à ausência de tais experiências e memórias positivas. Neste sentido, a investigação sugere que a ausência de experiências positivas ou a presença de experiências negativas (e.g., abuso, negligência) se associa a uma maior suscetibilidade para a psicopatologia e, quando no contexto relacional de pares, desempenha um papel relevante na severidade da psicopatologia alimentar.

A vergonha, emoção poderosa que emerge no contexto social a partir da experiência de se ser apercebido pelos outros como defeituoso, inferior, inadequado e incapaz, serve uma função adaptativa do ponto de vista evolucionário, já que alerta o indivíduo para uma possível perda de ranking social, motivando-o a adotar respostas defensivas. Contudo, quando em níveis elevados, a vergonha associa-se ao desenvolvimento e manutenção de psicopatologia.

Sob a perspetiva evolucionária, a pertença ao grupo é essencial à sobrevivência e ao desenvolvimento humanos, fazendo com que a tarefa de promover o interesse e a aprovação alheios se torne particularmente árdua quando na presença de sentimentos de inferioridade. Perante a necessidade primária de aceitação social, é frequente a adoção de estratégias como a

autoapresentação perfecionista, com o intuito de atenuar a exibição pública de defeitos e promover ativamente qualidades consideradas socialmente como perfeitas. Porém, dada a elevada relevância, em culturas Ocidentais, do domínio da imagem corporal em avaliações sociais e do self, e a marcada discrepância entre o padrão de beleza feminina sustentado socialmente e a imagem corporal real da maioria das mulheres, a tentativa de apresentar uma imagem corporal perfeita acarreta consigo níveis elevados de vergonha e sentimentos de inferioridade, associados a sintomas de psicopatologia alimentar.

Como estratégia possível para lidar com a perceção de perda de estatuto social, o comportamento submisso é uma forma de defesa, usada com o intuito de evitar o conflito e a rejeição alheia. Contudo, a adoção involuntária de comportamentos submissos (e.g., concordar com pedidos e opiniões alheias contra a própria vontade) é associada na literatura à psicopatologia. De facto, no que concerne ao domínio específico da psicopatologia alimentar, a investigação tem demonstrado que pacientes com perturbação alimentar, mesmo após recuperação, reportam mais comportamentos submissos do que indivíduos sem perturbação alimentar.

Tendo em consideração a literatura apresentada, os presentes estudos pretenderam, em primeiro lugar, explorar o papel moderador da autoapresentação perfecionista da imagem corporal, na associação entre vergonha externa e psicopatologia, especificamente a sintomatologia depressiva e o comportamento alimentar perturbado. Em segundo lugar, através de uma *path analysis*, tentou compreender-se de que forma memórias precoces de calor e segurança com pares se associam à severidade da psicopatologia alimentar, e ainda explorar o papel desempenhado, nesta associação, pela submissão e pela necessidade de apresentar uma imagem corporal perfeita. Estes estudos usaram duas amostras diferentes, com caraterísticas de idade e género análogas às da população de risco para dificuldades aos níveis da imagem corporal e do comportamento alimentar.

Os principais resultados do primeiro estudo sugeriram que a autoapresentação perfecionista da imagem corporal apresenta um efeito paradoxal na relação entre a vergonha e a psicopatologia, na medida em que exacerba o efeito patológico da vergonha, tanto na

sintomatologia depressiva, como na severidade da perturbação alimentar. Em relação ao segundo estudo, os dados obtidos permitiram concluir que a escassez de memórias precoces positivas em relação aos pais se associa a uma maior propensão para a perturbação alimentar, sendo esta associação mais significativa quando mediada pela adoção de comportamentos submissos e a autoapresentação perfecionista da imagem corporal.

De modo geral, os resultados deste trabalho parecem oferecer dados relevantes para a investigação na área da psicopatologia alimentar, contribuindo para uma maior compreensão do impacto de mecanismos compensatórios na imagem corporal e no comportamento alimentar perturbado. Adicionalmente, estes achados sugerem uma melhor avaliação do uso de estratégias de autoapresentação perfecionista da imagem corporal, e também de comportamentos submissos, no desenvolvimento de programas de promoção da saúde mental feminina.

Palavras-chave: Memórias precoces positivas; pares; vergonha; submissão; autoapresentação perfecionista; imagem corporal; depressão; psicopatologia alimentar.

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Seeking a perfect body look:

Feeding the pathogenic impact of shame?

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Abstract

Shame feelings often lead individuals to adopt compensatory mechanisms, such as the minimization of the public display or disclosure of mistakes and the active promotion of perfect qualities, conceptualized as perfectionistic self-presentation. Although perfectionism is considered a central characteristic of disordered eating, the investigation on the specific domain of body image-related perfectionistic self-presentation and on its relationship with psychopathology is still scarce.

The main aim of the present study was exploring the moderator effect of body image-related perfectionistic self-presentation on the associations of shame with depressive symptomatology, and with eating psychopathology, in a sample of 487 women.

Results revealed that body image-related perfectionistic self-presentation showed a significant moderator effect on the relationships of external shame with depressive symptomatology, and with eating psychopathology severity, exacerbating shame's impact on this psychopathological indices. These findings appear to offer important clinical and investigational implications, highlighting the maladaptive character of such body image-focused strategies.

Keywords: Shame; perfectionistic self-presentation; body image; depression; eating disorders.

Introduction

In light of the biopsychosocial model, shame is a self-conscious emotion which emerges in the social context, from the experience of being perceived by others as flawed, inferior, inadequate, or powerless [e.g., 1-3]. These negative evaluations about

the way others see the self are conceptualized as external shame, and involve the unsafe feeling of being ignored, criticized or rejected by others [e.g., 4, 5]. Shame may also be internalized, to the extent that individuals view and feel their own attributes or behaviour as inferior and unattractive [6].

According to Gilbert [7], shame is a socially-focused emotion of great evolutionary significance, which serves a defensive function to interpersonal threat. In this line, shame is elicited as a warning signal of unattractiveness, powerlessness and undesirableness [8-10], motivating defensive responses (e.g., to hide, escape, conceal or submit) in order to maintain the individual's social rank and avoid rejection and possible damages to self-representation [e.g., 7, 9].

Notwithstanding the consideration of shame as an adaptive emotion, high levels of shame are associated with severe social difficulties, and have been consistently linked to the development and maintenance of different mental health conditions, specifically depression [e.g., 4, 11] and eating psychopathology [12-15].

To what concerns eating psychopathology, shame has been regarded as a central feature [14, 16, 17]. In fact, recent studies have shown that eating disorder patients, when compared to nonclinical groups, report higher levels of shame even after treatment [14, 16, 18, 19]. Additionally, literature suggests that pathological dieting and drive for thinness can function as a threat regulation strategy used to face shame, in order to avoid rejection and to feel safe in social contexts [13, 20].

Furthermore, there is consistent evidence on the role of shame on depression vulnerability [e.g., 21-23]. Actually, several studies have reported the association between depressive symptoms and both internal [e.g., 24] and external shame [e.g., 4, 11]. These data are in line with the evolutionary model, which conceives depression as a

defensive response to loss events and perceptions of low rank, inferiority and powerlessness [e.g., 22, 25].

According to the evolutionary perspective, belonging to a group is essential to human survival and development [22]. Therefore, social acceptance is a primary need which implies being capable of promoting other's interest and approval [26]. When dealing with feelings of inferiority, and in order to be accepted by others, individuals may adopt compensatory mechanisms to minimize or avoid the public display of mistakes and to actively promote perfect qualities. This mechanism, conceptualized as perfectionistic self-presentation [27], has been associated with various forms of psychological distress [26] and different clinical conditions, namely depression [e.g., 28, 29] and eating disorders [30-33].

Body shape has always been an important domain in self and social evaluations for women [34] and a particularly used dimension to attain acceptance and positive attention inside the social group [26]. Several studies have documented that, in the current Western cultures, the ideal standard of beauty and feminine attractiveness is based on a progressively leaner figure [e.g., 35], which appears to be associated with positive qualities of personality, power, and happiness [e.g. 36]. However, this current beauty standard is hardly attainable [35-17], increasing body dissatisfaction in the majority of Western women [e.g., 38]. Since physical appearance constitutes a crucial evaluative dimension to women [13], this perception of discrepancy between one's actual and the socially idealized body shape can generate considerably high levels of body dissatisfaction [e.g., 39, 40], which tends to promote feelings of inferiority and inadequacy, and subsequently increased levels of shame. In this context, physical appearance may be the women's preferred domain to invest in, with the purpose of being accepted and valued by others [20]. However, such investment may entail

extreme control over eating habits, in order to reach perfection concerning body shape and weight [20; Ferreira, Duarte, Pinto-Gouveia, & Lopes, 2015]. This need to present a perfect physical appearance – body image-related perfectionistic self-presentation – seems particularly relevant due to its paradoxical effects, namely the increase of body dissatisfaction and drive for thinness [20].

The current study aimed at clarifying the relationship between external shame, body image-related perfectionistic self-presentation, and the severity of depressive symptomatology and of eating psychopathology. Additionally, the main purpose was to test a model in which it is predicted that perfectionistic self-presentation focused on body image moderates the association of external shame either with the severity of depressive symptomatology and with eating psychopathology. Considering theoretical and empirical knowledge on shame and its association with psychopathology, and on the pervasive role of perfectionistic self-presentation in women, it was expected that the adoption of body image-related perfectionistic self-presentation would play a moderator role, exacerbating the relationship between shame and psychopathology. However, this effect has never been empirically tested.

Material and methods

Participants

Participants in this study were 487 females, 318 (65.3%) college students and 169 (34.6%) from the general population. The sample's mean age was 24.38 (*SD* = 6.14) years, with ages ranging from 18 to 40 years, and the mean of education years was 14.20 (*SD* = 2.56). This sample presented a Body Mass Index (BMI) mean of 22.25 (*SD* = 3.37), 77.41% of the participants reported normal BMI values, 6.16% were

underweight, and 16.43% were overweight [41], which reflects the BMI distribution of the female Portuguese population [42].

Procedures

The present study is part of a wider research project about the eating behaviour and emotion regulation processes in the Portuguese population, in which 863 individuals, comprising both college students and subjects from the general population, participated. The ethical requirements were respected: the Ethic Committees and boards of the institutions involved approved the research, and all participants were fully informed about the nature and objectives of the study, the voluntary nature of their participation and the confidentiality of the data, which was exclusively used for research purposes. Individuals who agreed to participate in the research gave their written informed consent before completing the self-report questionnaires, with an approximate time duration of 15 minutes. The student sample was obtained in the classroom context, after authorization by the professor in charge, and in the presence of one of the researchers. To what concerns the general population, a convenience sample was collected on various enterprises and institutions, during a break authorized by the boards.

In accordance with the aims of this study, data were cleaned in order to exclude (*i*) male participants, (*ii*) participants who were older than 40 years old, and (*iii*) the cases in which more than 15% of the responses were missing from a questionnaire. This process resulted in the final sample of 487 female participants.

Measures

Other as Shamer Scale (OAS) [5; Matos, Pinto-Gouveia, & Duarte, 2011]. This self-report measure evaluates external shame, i.e. the way how one believes others see the self. The scale consists of 18 items, rated on a five-point Likert scale, ranging from 0 ("never") to 4 ("almost always"), such as "Other people see me as not measuring up to them", according to the frequency of the participant's perceptions about the negative way others judge the self. The OAS showed excellent internal consistency, in both the original (α = .92) and the Portuguese versions (α = .91).

Perfectionistic Self-Presentation Scale – Body Image (PSPS-BI) [Ferreira et al., 2015]. This scale evaluates the need to present a perfect body image to others, by displaying a flawless physical appearance and occulting perceived body imperfections. It consists of 19 items (such as "It is very important for me to present myself (my physical appearance) perfectly in social situations" or "I strive so that others do not become aware of certain characteristics of my body") presented in a seven-point Likert scale, ranging from 1 ("Completely disagree") to 7 ("Completely agree"). The PSPS-BI showed good psychometric characteristics in the original study, with a high level of internal consistency (α = .88).

Depression, Anxiety and Stress Scales (DASS-21) [45, 46]. The DASS-21, a short version of DASS-42, is a self-report measure that accesses three negative emotional symptoms: (1) depression (DEP), (2) anxiety, and (3) stress, composed of 21 items. The items are rated on a four-point Likert scale, ranging from 0 ("Did not apply to me at all") to 3 ("Applied to me very much, or most of the time"). The original scale has shown good internal consistency (α = .94, .87, .91, for the depression, anxiety and stress subscales, respectively), as well as the Portuguese version (α = .84, .80, and .87, respectively). In this study's analysis we only used the depression subscale.

Eating Disorder Examination Questionnaire (EDE-Q) [43, 44]. The EDE-Q is a self-report measure developed in the interest of overcoming the limitations of the Eating Disorder Examination interview. The EDE-Q has 36 items, comprising four subscales: restraint, eating concern, shape concern, and weight concern. The items are rated for the frequency of occurrence or for the severity of eating psychopathology symptoms, within a 28-day time frame. In this study, we only used the global EDE-Q score, obtained by calculating the mean of the four subscale's scores. EDE-Q demonstrated good psychometric properties ($\alpha = .94$, for both the original and the Portuguese versions).

Cronbach's alphas of these measures for the current study are reported in Table 1.

Data analysis

Statistical analyses were conducted using IBM SPSS (v.22; SPSS Inc., Chicago, IL).

Product-moment Pearson correlations analyses were conducted to explore associations between: external shame, body image-related perfectionistic self-presentation, depressive symptomatology, and the severity of eating psychopathology [47].

In order to test the moderator effect of body image-related perfectionistic self-presentation (PSPS-BI) in the relationship between external shame (OAS) and eating psychopathology severity (EDE-Q), and also in the relationship between OAS and depressive symptoms (DEP), a path analysis was performed to estimate the supposed relations of the suggested theoretical model (Figure 1), using the software AMOS (Analysis of Momentary Structure, v.22, SPSS Inc., Chicago, IL). The moderator model shows three causal paths to the dependent variables (DEP and EDE-Q): external shame;

perfectionistic self-presentation focused on body image; and the interaction of these two variables. The moderation effect is corroborated if the interaction is significant. The Maximum Likelihood method was used to estimate all model path coefficients, and effects with $p < .050$ were considered statistically significant. A standardised procedure was used in order to reduce the error related to multicollinearity, centering the values of both the predictor and the moderator (OAS and PSPS-BI) and then the interaction variable was obtained through the product of these variables [48].

Lastly, two graphs were plotted to better understand the relationships between the predictor (OAS) and outcome variables (DEP and EDE-Q), with different levels – low, medium, and high - of the moderator (PSPS-BI). In these graphical representations, and since there were no theoretical cut points for PSPS-BI, the three curves were plotted taking into account the following cut-point values of the moderator variable on the x axis: less than one standard deviation below the mean, between one standard deviation below and above the mean, and over one standard deviation above the mean, as recommended by Cohen and colleagues [47].

Results

Descriptives

Means and standard deviations are presented in Table 1.

Correlations

Results showed that external shame (OAS) was positively and moderately correlated with body image-related perfectionistic self-presentation (PSPS-BI) and with the global score of the EDE-Q, and strongly linked to depressive symptomatology (DEP). Also, PSPS-BI was significantly and moderately correlated with DEP, and

strongly associated with EDE-Q. Furthermore, significant and positive associations with moderate magnitudes were found between these two indicators of psychopathology, DEP and EDE-Q.

Partial correlation analyses of all variables in study was, also, conducted controlling for age and BMI. Results showed that the direction and strength of the study variables' correlations remained the same. For this reason, age and BMI weren't included in the subsequent analyses.

Table 1. Cronbach's alphas (α), means (*M*), standard deviations (*SD*), and intercorrelation scores on self-report measures (*N* = 487)

Measure	α	*M*	*SD*	1	2	3
1. OAS	.93	21.35	11.22	-	-	-
2. PSPS-BI	.95	76.25	24.06	.45***	-	-
3. DEP	.91	3.63	4.33	.59***	.35***	-
4. EDE-Q	.95	1.30	1.15	.44***	.68***	.35***

Note. OAS = Other as Shamer Scale; PSPS-BI = Perfectionistic Self Presentation Scale – Body Image; EDE-Q = Eating Disorder Examination – Questionnaire (global Score); DEP = Depression subscale of the DASS-21.

***$p < .001$.

Moderation Analysis

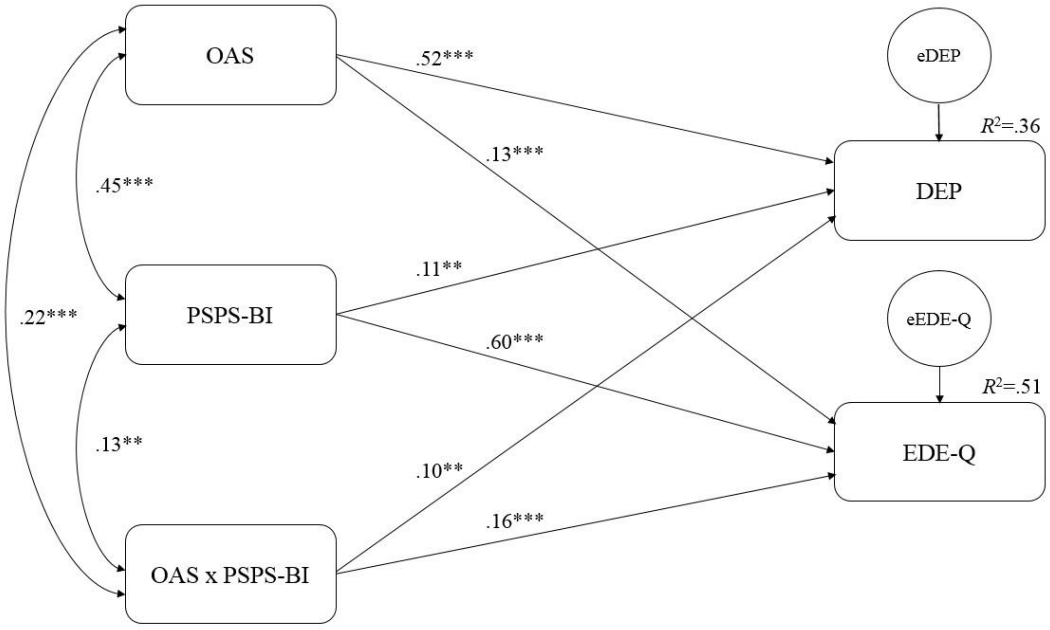
The purpose of the path analysis was to test whether body image-related perfectionistic self-presentation (PSPS-BI) moderated the impact of external shame (OAS) on depressive symptomatology (DEP) and on eating psychopathology severity (EDE-Q). The tested theoretical model was fully saturated (with zero degrees of freedom), and consisted of 21 parameters.

All path coefficients in the model were statistically significant and explained 36% of the depressive symptomatology's variance and 51% of eating psychopathology's variance (Figure 1).

First, the relationship between OAS, PSPS-BI and DEP was analysed. Both OAS (b_{OAS} = .200; SE_b = .016; Z = 12.523; p < .001; β = .517) and PSPS-BI ($b_{PSPS\text{-}BI}$ = .019; SE_b = .007; Z = 2.597; p < .010; β = .106) presented direct positive effects towards DEP. Furthermore, the interaction effect between the two variables was positive ($b_{OASxPSPS\text{-}BI}$ = .001; SE_b = .001; Z = 2.621; p < .010; β = .097). All of the analysed effects were highly significant and results seem to indicate the presence of a moderator effect of PSPS-BI on the association between OAS and depressive symptomatology.

To what concerns the association between OAS, PSPS-BI and EDE-Q, OAS presented a direct positive effect on EDE-Q (b_{OAS} = .014; SE_b = .004; Z = 3.663; p < .001; β = .132) and so did PSPS-BI ($b_{PSPS\text{-}BI}$ = .029; SE_b = .002; Z = 16.883; p < .001; β = .600). Results showed that the interaction effect between the two variables was significant ($b_{OASxPSPS\text{-}BI}$ = .001; SE_b = .000; Z = 5.011; p < .001; β = .163). All of the analysed effects were highly significant and suggested the existence of a moderator effect of PSPS-BI on the relationship between OAS and the severity of eating psychopathology symptomatology. Since this model was saturated, with all pathways statistically significant, the model fit indices were not examined.

Figure 1. The moderator role of PSPS-BI on the associations between OAS and DEP, and between OAS and EDE-Q.



OAS = Other as Shamer Scale; PSPS-BI = Perfectionistic Self Presentation Scale – Body Image; OAS x PSPS-BI = interaction between OAS and PSPS-BI; DEP = Depression subscale of DASS-21; EDE-Q = Eating Disorder Examination – Questionnaire (Global Score)

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

Finally, in order to better understand the relationships between OAS and DEP, and between OAS and EDE-Q, in the presence of different levels of PSPS-BI (low, medium and high), two graphic representation were plotted (Figures 2 and 3 respectively).

To what concerns depressive symptomatology (Figure 2), the graphic representation allowed to observe that of the individuals who presented medium to high levels of OAS, those who presented higher tendency to adopt perfectionistic self-presentation strategies in respect to their body image (PSPS-BI) tended to reveal higher levels of depressive symptomatology, in comparison to those with lower scores of

PSPS-BI. Therefore, results seem to demonstrate that when individuals experience medium to high levels of shame, PSPS-BI exacerbates the impact of OAS on DEP. Also, this moderator effect is more evident when the experience of OAS is more intense.

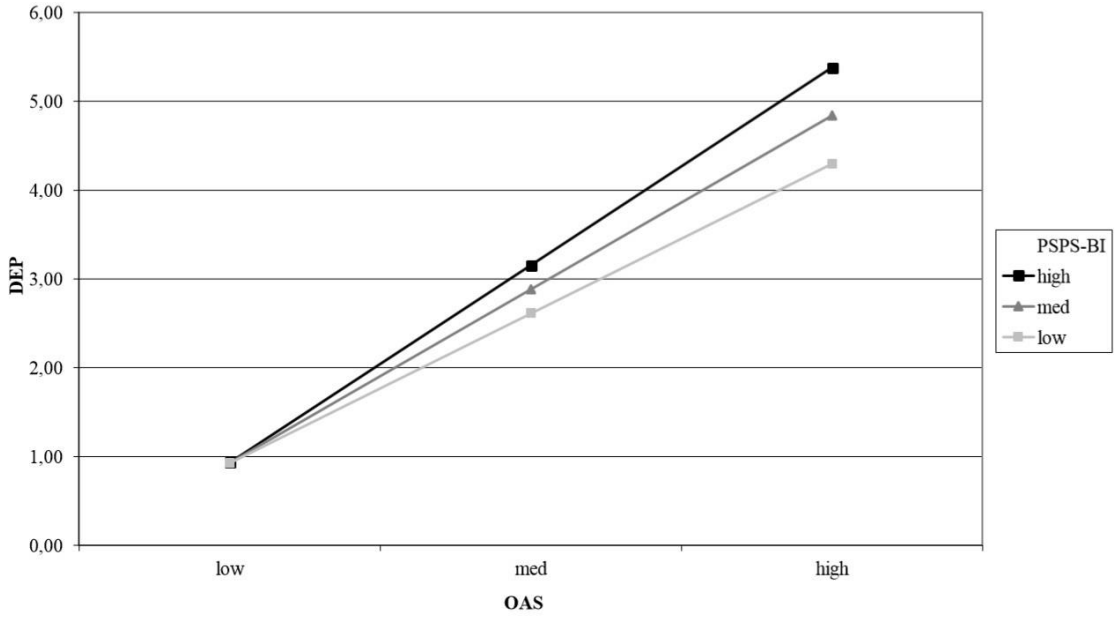


Figure 2. Graphic representation of the relation between external shame (OAS) and depressive symptomatology (DEP) with different levels of image-related perfectionistic self-presentation (PSPS-BI).

In respect to eating psychopathology, the graphic representation (Figure 3) revealed that for any level of shame, those individuals who presented higher levels of PSPS-BI tended to present higher levels of EDE-Q, comparing to those individuals who presented lower tendency to adopt a body image-related perfectionistic self-presentation. Also, it is interesting to note that individuals who displayed higher levels of shame, but with lower tendency to endorse a body image-related perfectionistic self-presentation, revealed a tendency to present lower levels of EDE-Q, comparing to those with lower OAS scores but moderate to high levels of PSPS-BI. Thus, PSPS-BI seems

to exacerbate the impact of OAS on EDE-Q, for any level of OAS experienced by the individuals.

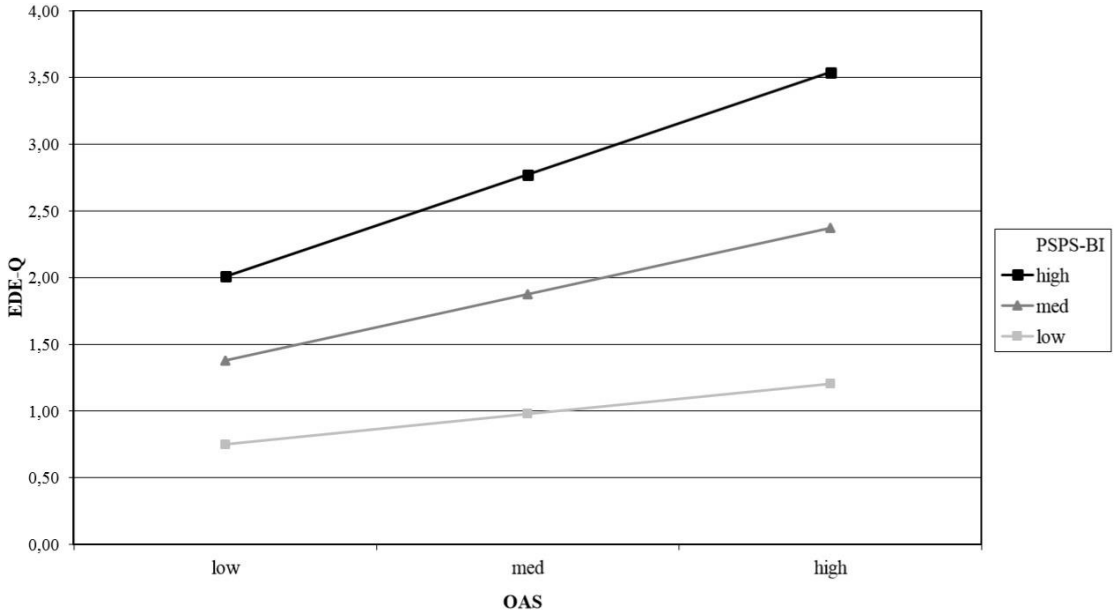


Figure 3. Graphic representation of the relation between external shame (OAS) and eating psychopathology (EDE-Q) with different levels of body image-related perfectionistic self-presentation (PSPS-BI).

Discussion

The present study underlines the pervasive effects of both shame and the use of a body image-related perfectionistic strategy on psychopathology, as it tested the exacerbation effect of this perfectionistic strategy on the association of shame with depressive and eating psychopathology severity.

Results were consistent with previous research, suggesting that external shame is linked to depressive symptomatology [4, 11], eating disordered psychopathology [e.g., 16], and also to perfectionistic self-presentation focused on body image [20]. Moreover, our study corroborated a positive and strong association between body image-related perfectionistic self-presentation and eating psychopathology severity [20; Ferreira et al.,

2015], and extended the literature revealing a positive and moderate correlation with depressive symptomatology. This finding is in line with previous studies on the effects of perfectionistic strategies on depression [28, 29] but also provides further information on the association between the specific domain of body image-related perfectionistic self-presentation and higher levels of depressive symptomatology.

The moderator effect of perfectionistic self-presentation related to physical appearance on the relationships between external shame and depressive symptomatology, and eating psychopathology severity, was tested through a path analysis, and results confirmed the hypothesis. The tested model accounted for 36% of the depressive symptomatology's variance and for 51% of disordered eating symptomatology's variance.

Results showed that both shame and body image-related perfectionistic self-presentation presented direct and positive effects on depressive symptomatology and on overall eating psychopathology. Data also suggested a significant moderator effect of body image-related perfectionistic self-presentation on shame´s positive association with depressive symptoms severity and with eating psychopathology. These results seem to suggest that on females who strive to present their body image in a perfectionistic fashion, the negative impact of external shame on depressive and eating psychopathology is exacerbated.

The graphic representations elucidated this moderator effect. Firstly, in respect to depressive symptomatology, the graphic shows that only for women who reported medium to high levels of shame, the ones with a higher tendency to engage in body image-related perfectionistic self-presentation strategies, revealed an increased level of depressive symptomatology, comparing to those in whom this strategy is less evident. Secondly, to what concerns disordered eating symptomatology, the graphic

representation reveals an evident moderator effect at any level of external shame. To this respect, it was interesting to note that women who displayed higher levels of shame, but with a lower tendency to endorse body image-related perfectionistic self-presentation, revealed lower eating psychopathology severity, comparing to those who presented lower external shame scores and moderate to high levels of perfectionistic self-presentation focused on body image.

Altogether, these results seem to suggest that physical appearance-related perfectionistic self-presentation may consist in a paradoxical strategy to deal with negative feelings of external shame (e.g., inadequacy, inferiority). In fact, the results of this study suggest that the adoption of strategies to achieve a perfect body through the concealment of body imperfections and the display of body perfection tends to enhance the pathogenic impact of shame experiences on psychopathology indices. A possible explanation to such pathogenic effect may be the hardly attainable character of the current Western idealized body image, which turns the pursuit for a perfect body image into a task of extreme self-focus and control over one's eating behaviors, with subsequent negative consequences on one's mental and physical health.

Nonetheless, some methodological limitations should be considered when taking these results into account. First of all, the cross-sectional design limits the causality that could be drawn from our findings, therefore future studies should be longitudinal in order to determine the directionality of the relations and to corroborate the moderation effect of body image-related perfectionistic self-presentation. Secondly, the use of self-reported measures may compromise the generalization of the data. Furthermore, since our sample only consists of women from the general population, future studies should be conducted using different samples (e.g., male and clinical samples). Finally, since eating psychopathology and depression have multi-determined and complex natures,

other variables may be involved. Nevertheless, the model's design was purposely limited in order to explore the specific role of body image-related perfectionistic self-presentation.

This is the first investigation examining the moderator effect of perfectionistic self-presentation focused on body image in the association between shame and psychopathological symptomatology. In fact, this study underlines the pervasive effects of striving for a perfect body look, highlighting how body image-related perfectionistic self-presentation feeds the pathogenic impact of shame. Our findings appear to offer important investigational implications, but also seem to be new avenue to the development of intervention programs of mental health promotion among community women.

Conflict of interest

The authors of this manuscript declare no conflict of interest.

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PAPER II

Ferreira, C., & Marta-Simões, J. (2015). *Defensive responses to early memories with peers: A possible pathway to disordered eating.*

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Defensive responses to early memories with peers:

A possible pathway to disordered eating

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Abstract

Childhood and early adolescence experiences, specifically those that provide an adulthood enriched with memories of warmth, safeness, and affection, are consistently stated in literature as powerful emotional regulators. When facing the harmful consequences of the lack of such positive experiences, individuals may begin to experience the self as inferior, believing that others see the self as inadequate and unattractive. Consequently and with the purposes of coping with a perceived loss of social desirability and achieving others acceptance, individuals may engage in submissive behaviors, set to avoid conflict, through the compliance with or the appeasement of others against their true own will. Women, in particular, may also resort to the presentation of a perfect body image, as a way of concealing flaws and promoting perfect qualities. Both mechanisms are defensive responses suggested to be associated with mental health difficulties, particularly to disordered eating behaviors.

Therefore, the present study aimed at exploring the association between early memories of warmth and safeness with peers and eating psychopathology, and specifically investigate the mediator role played by submissiveness and perfectionistic self-presentation focused on body image on this association, in a sample of 342 young-aged female students.

Results revealed that the absence of early positive memories with peers holds a significant effect over eating psychopathology severity, and also that this relationship is mediated through submissive and body image-related perfectionistic self-presentation defence responses.

These findings seem to suggest the relevance of targeting these defensive responses on mental health promotion programs among female students.

Highlights

- Absence of positive early memories with peers (EMWSS-P) was explored.
- EMWSS-P impacts on eating psychopathology severity (EDE-Q).
- The maladaptive character of defense responses on EDE-Q was verified.
- Novel and integrative mediator model explained 51% of EDE-Q.

Keywords: Early positive memories; peers; submission; perfectionistic self-presentation; body-image; eating psychopathology.

1. Introduction

Early experiences of warmth and safeness have been referred in literature as crucial to the subsequent individual's emotional and social development (Gilbert, 2005; Richter, Gilbert, & McEwan, 2009). In fact, these experiences seem to play a key role on emotional regulation, due to its association with self-reassurance and self-soothing abilities, useful when facing setbacks or failures (Baldwin & Dandeneau, 2005; Gilbert, Baldwin, Irons, Baccus, & Palmer, 2006; Richter et al., 2009). In contrast, research suggests that early adverse experiences with family and peers (e.g., abuse, rejection, neglect, criticism and bullying) may trigger defeat and threat-related emotional states (e.g., Cunha, Matos, Faria, & Zagalo, 2012). Additionally, these adverse experiences often motivate defensive responses, which have deleterious consequences on one's experience of the self and of others (e.g., Gilbert, 2003). In fact, the exposure to negative early experiences is associated to a higher vulnerability to psychopathology and maladjustment in adulthood (Gilbert et al., 2006; Irons, Gilbert, Baldwin, Baccus, & Palmer, 2006). Namely, research suggests that early shame experiences hold a relevant impact on the severity of eating psychopathology (Sweetingham, & Waller,

2008), specifically when such experiences involve peers (Matos, Ferreira, Pinto-Gouveia, & Duarte, 2014).

According to the evolutionary theory, submissive behavior is a form of defensive behavior enacted when individuals are under some kind of social threat from a more powerful other (Gilbert, 1989; Gilbert & Allan, 1994). In fact, literature consistently associates submissive behaviors with the distress from the perception of losing social status and being considered inferior or unattractive by others (e.g., Gilbert, 1992). In this perspective, submissive behavior is evolutionarily designed in order to assure acceptance and a sense of belonging to a social group (Gilbert, 1992, 1997, 2000), and, therefore, it is enacted to give up on the competition with others and signaling one's intention to avoid conflict (Allan & Gilbert, 1995, 1997; Gilbert & Allan, 1998). Among human submissiveness, whereas voluntary submissiveness (e.g. supporting others ideas) is not usually associated with psychological distress, involuntary submissive behaviors (e.g., complying with requests to appease others, appearing friendly, both against one's own will; Allan & Gilbert, 1997) are associated with several psychopathological conditions (Gilbert, 1992; Sloman, Price, Gilbert, & Gardner, 1994). To this concern, a particular investment has been made in the study of the link between involuntary submissiveness and eating psychopathology, showing an association between submissive behaviors, such as helplessness, avoidance and perceived lack of control, and disordered eating behaviors and attitudes **(**Troop & Treasure, 1997; Katzman, 1985). Specifically, Connan and colleagues (Connan, Troop, Landau, Campbell, & Treasure, 2007) replicated a previous study (Troop, Allan, Treasure, & Katzman, 2003), and corroborated that eating disorder patients report themselves as being more submissive than non-eating-disordered women, and extended

previous results, showing that even when recovered, women with a history of eating disorders appeared to be more submissive than non-clinical participants.

Also in line with the primary necessity of attaining others positive attention and approval (Gilbert, Price, & Allan, 1995), individuals may also engage in strategies of minimization of the public display or disclosure of mistakes and of active promotion of perfect qualities (Hewitt et al., 2003). These strategies, conceptualized as perfectionistic self-presentation, entail a maladaptive interpersonal style associated with several forms of psychological distress (Hewitt et al., 2003) and clinical conditions, particularly eating psychopathology (e.g., Cockell et al., 2002; Hewitt, Flett, & Ediger, 1996).

Given the historical relevance of the female body shape as a central domain in self and social evaluations (Gatward, 2007), the majority of women tend to invest in this dimension with the purpose of promoting attractiveness in the minds of others (Gilbert et al., 1995). However, such investment may demand extreme self-monitoring patterns and control over one's body weight, shape, and eating behaviors, in order to reach the "perfect" physical appearance (Ferreira, Trindade, & Ornelas, 2015). The need to present one's physical appearance in a perfectionistic way, conceptualized as body image-related perfectionistic self-presentation, has been associated with eating disorder's proneness, particularly to the increase of body dissatisfaction and drive for thinness (Ferreira, Duarte, Pinto-Gouveia, & Lopes, 2015; Ferreira, Trindade, et al., 2015).

The key goal of the present study was to test a novel and integrative model, which explores the impact and role of early memories of warmth and safeness with peers, submissive behaviors, and perfectionistic self-presentation focused on body image on eating psychopathology. It was hypothesized that the impact of the absence of such positive memories on the engagement in disordered eating attitudes and behaviors,

is mediated through defensive responses, such as submissiveness and perfectionistic self-presentation strategies.

2. Materials and methods

2.1. Measures

Demographic Data. Participants were required to report their age, completed education years, and also their current weight and height.

Body Mass Index (BMI). The Body Mass Index was calculated dividing self-reported current weight, in Kilograms, by the height squared, in Meters (kg/m^2).

Early Memories of Warmth and Safeness Scale – Peer version (EMWSS-P; Ferreira, Matos, Cunha, Duarte, & Pinto-Gouveia, 2014). EMWSS-P is a self-report instrument adapted from Early Memories of Warmth and Safeness Scale (EMWSS; Richter et al., 2009), used to specifically evaluate early positive memories of warmth and affect with peers. It consists of 21 items, such as "I felt understood by my peers/friends" or "I felt safe and secure with my peers/friends", rated on a five-point Likert scale that ranges from 0 ("No, never") to 4 ("Yes, most of the time"). This scale showed to be a reliable measure, with good psychometric qualities.

Submissive Behaviour Scale (SBS, Allan & Gilbert, 1997; Freitas, 2011). The SBS assesses the frequency of submissive behaviors within social situations. The self-report scale consists of 16 items such as "I agree that I am wrong even though I know I'm not" or "I avoid direct eye contact", rated in a five-point Likert scale, ranging from 0 ("never") to 4 ("always"). The original study reported a good internal consistency (Cronbach's alpha values of .82, and .85, for clinical and student samples, respectively), and well as the Portuguese validation study (Cronbach's alpha values of .85, and .90, for clinical and non-clinical samples, respectively).

Perfectionistic Self Presentation Scale – Body Image (PSPS-BI; Ferreira, et al., 2015). The PSPS-BI is a self-report scale designed to assess the need to present a perfect body image to others, by displaying a flawless physical appearance and by occulting perceived body imperfections. It consists of 19 items, such as "It is important to have an attractive physical appearance" or "I strive so that others do not become aware of certain characteristics of my body", rated in a seven-point Likert scale, ranging from 1 ("Completely disagree") to 7 ("Completely agree"). This scale showed good psychometric characteristics in the original study, with a high internal consistency (α = .88).

Eating Disorder Examination Questionnaire (EDE-Q; Fairburn & Beglin, 1994; Machado et al., 2014). The EDE-Q is a self-report measure that evaluates nuclear attitudes and behaviors associated with eating disorders, accessing the presence and severity of eating psychopathology. It comprises four subscales: (1) restraint (RESTR), e.g. "Have you tried to exclude from your diet any foods that you like in order to influence your shape or weight?"; (2) eating concern (EAT.C), e.g. "Have you had a definite fear of losing control over eating?"; (3) shape concern (SHA.C), e.g. "How dissatisfied have you been with your shape?"; and (4) weight concern (WEI.C), e.g. "How dissatisfied have you been with your weight?". The items (36) comprising these subscales are rated for the frequency of occurrence and for the severity of key attitudinal and behavioral features of eating psychopathology, within a 28-day time frame. The global EDE-Q score (EDE-Q) can also be obtained by calculating the mean of the four subscale scores. The scale showed good psychometric properties (α = .94, for both the original and the Portuguese versions).

Cronbach's alphas of these measures for the current study are reported in table 1.

2.2. Participants

The sample comprised 342 female students, with age ranging from 18 to 30 years old (*M* = 20.94; *SD* = 2.22), and a mean of 13.87 (*SD* = 1.59) of years of education.

2.3. Procedures

The present study is part of a wider project about eating behavior and emotional regulation processes in the Portuguese population. The initial sample was collected both in educational institutions and in the general population. The Ethic Committees involved gave their approval, and participants provided their written informed consent after being assured of the voluntary nature of their participation, data confidentiality, aims and procedures of the overall data collection process. Self-report questionnaires were administered and fulfilled for approximately 15 minutes, in the presence of one of the researchers.

According to the purposes of this study, data was cleaned, dismissing male participants, currently working women, and also the cases in which more than 15% of the responses were missing from a questionnaire.

2.3.1. Data analysis

The software IBM SPSS (v.22; SPSS Inc., Chicago, IL) was used to perform data analysis, and path analysis were examined using the software Amos (Analysis of Momentary Structure, v.22, SPSS Inc., Chicago, IL).

Descriptive statistics (means and standard deviations) were used to explore the characteristics of the sample in the study variables.

Product-moment Pearson correlation analysis were conducted to explore the association between early memories of warmth and safeness with peers (EMWSS-P), body mass index (BMI), submissive behaviors (SBS), body image-related perfectionistic self-presentation (PSPS-BI) and the severity of eating psychopathology (EDE-Q subscales and global score).

Finally, path analyses was conducted to explore presumed structural relations (direct and indirect effects) among the variables in the proposed theoretical model and, specifically, examine whether EMWSS-P would predict EDE-Q, when mediated by SBS and PSPS-BI, after controlling for BMI (Figure 1). Therefore, EMWSS-P and BMI were considered to be exogenous variables, SBS and PSPS-BI were hypothesized as the endogenous mediator variables, and EDE-Q was entered as an endogenous variable.

The model's path coefficients significances were tested, and fit statistic were computed, using the Maximum Likelihood estimation method, with 95% confidence interval. The significance of the direct, indirect and total effects was assessed by Chi-Square tests. Also, the Bootstrap resampling method was used to test the significance of the mediational paths, using 2000 Bootstrap samples and 95% confidence intervals (Kline, 2005). Several goodness-of-fit measures were used to assess the credibility of the overall model, such as Chi-Square (χ^2), Normed Chi-Square (χ^2/d.f.), Tucker Lewis Index (TLI), Comparative Fit Index (CFI), and the Root-Mean Square Error of Approximation (RMSEA) with 95% confidence interval.

3. Results

3.1. Descriptives

Means and standard deviations for all studied variables are presented in Table 1.

3.2. Correlations

Results showed that BMI did not correlate significantly with early memories of warmth and safeness with peers (EMWSS-P), and with submissive behaviors (SBS). However, BMI presented a significant positive, albeit weak, association with perfectionistic self-presentation – body-image (PSPS-BI). Also, a positive association was found between BMI and all the indicators of eating psychopathology.

EMWSS-P showed significant negative correlations with all studied variables. In contrast, SBS and PSPS-BI were found to be positively linked to higher levels of EDE-Q (subscales and global score). As expected, strong positive associations were found among all subscales and global score of EDE-Q.

Table 1. Cronbach's alphas (α), means (*M*), standard deviations (*SD*), and intercorrelation scores on self-report measures (*N* = 356)

Measures	α	*M*	*SD*	1	2	3	4	5	6	7	8
1. BMI	-	21.89	3.18	-	-	-	-	-	-	-	-
2. EMWSS-P	.99	62.36	18.35	-.04	-	-	-	-	-	-	-
3. SBS	.85	20.59	8.70	.01	-.36***	-	-	-	-	-	-
4. PSPS-BI	.95	77.99	23.04	.18***	-.31***	.36***	-	-	-	-	-
5. RESTR_EDE-Q	.81	0.94	1.14	.21***	-.15***	.15***	.40***	-	-	-	-
6. EAT.C_EDE-Q	.80	0.65	0.96	.25***	-.27***	.28***	.54***	.59***	-	-	-
7. WEI.C_EDE-Q	.84	1.61	1.39	.40***	-.22***	.24***	.64***	.59***	.74***	-	-
8. SHA.C_EDE-Q	.93	1.82	1.53	.30***	-.31***	.30***	.70***	.59***	.75***	.90***	-
9. EDE-Q	.95	1.33	1.16	.33***	-.28***	.28***	.68***	.75***	.85***	.94***	.96***

Note: BMI = Body Mass Index; EMWSS-P = Early Memories of Warmth and Safeness Scale – Peer version; SBS = Submissive Behaviour Scale; PSPS-BI = Perfectionistic Self-Presentation Scale – Body Image; EDE-Q = Eating Disorder Examination – Questionnaire (subscales and global Score).

***$p < .001$.

3.3. Path analysis

The theoretical model was tested through a fully saturated initial model consisting of 23 parameters. This initial model explained 13%, 19% and 51% of the SBS, PSPS-BI and EDE-Q's variances, respectively. However, some of the paths were not significant: the BMI's direct effect on SBS (b_{BMI} = -.01; SE_b = .14; Z = -.10; p = .92), the SBS's direct effect on EDE-Q ($b_{EDE\text{-}Q}$ = .01; SE_b = .01; Z = .99; p = .33), and the covariance between BMI and EMWSS-P (b = -2.28; SE_b = 3.32; Z = -.72; p = .47). According to these results, these paths were eliminated and the model was readjusted.

The recalculated model explained 13%, 19% and 51% of the SBS, PSPS-BI and EDE-Q's variances respectively, after controlling for BMI (Figure 1). All path coefficients were statistically significant, showing an excellent model fit [$\chi^2_{(3)}$ = 1.49, p = .69, CMIN/df = .50; TLI = 1.01; CFI = 1.00; NFI = 1.00; RMSEA = .00, p = .88, 95% CI = .00 to .07].

Firstly, to what concerns EMWSS-P, results showed a direct effect on SBS (β = -.36; $b_{EMWSS\text{-}P}$ = -.17; SE_b = .02; Z = -7.21; p < .001) and, in turn, SBS presented a direct effect on PSPS-BI (β = .28; b_{SBS} = .75; SE_b = .14; Z = 5.40; p < 001). Furthermore, EMWSS-P, results showed a total effect of -.30 on PSPS-BI, with a direct effect of -.20 ($b_{EMWSS\text{-}P}$ = -.25; SE_b = .07; Z = -3.80; p < .001; β = -.20), and an indirect effect of -.10 mediated by SBS (95% CI = -.16 to -.06). Also, EMWSS-P presented a total effect of -.27 on EDE-Q, with a direct effect of -.08 ($b_{EMWSS\text{-}P}$ = -.01; SE_b = .00; Z = -2.10; p < .05), and an indirect effect of -.18 (95% CI = -.25 to - .12) mediated by both SBS and PSPS-BI. Finally, PSPS-BI presented a direct effect of .61 on EDE-Q ($b_{PSPS\text{-}BI}$ = .03; SE_b = .00; Z = 15.13; p < .001).

Furthermore, BMI showed a direct effect on PSPS-BI (β = .17; b_{BMI} = 1.20; SE_b = .35; Z = 3.40; p < .001), and also a total effect of .33 on EDE-Q, with a direct effect of

.22 (b_{BMI} = .08; SE_b = .01; Z = 5.8; p < .001), and an indirect effect of .10 (95% CI = .04 to .16) mediated by PSPS-BI.

To sum up, the model accounted for 51% of EDE-Q's variance, revealing that the impact of early positive memories with peers on eating psychopathology severity is partially mediated through defensive responses (submissive behaviors and perfectionistic self-presentation – body-image), when controlling for BMI.

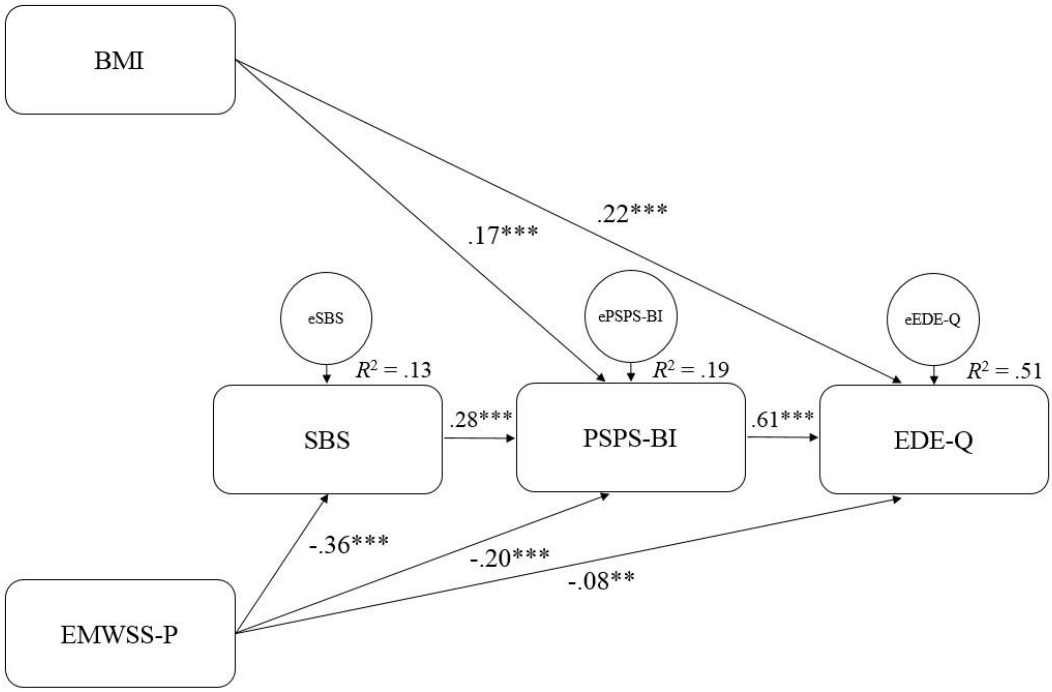

Figure 1. Final path model. Standardized path coefficients amongst variables are presented.

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

4. Discussion

The present study intended to explore whether early positive memories within the peer group impact on disordered eating attitudes and behaviors severity, and also whether submissiveness and the need to present a perfect body image mediate this relationship. This novel approach to eating psychopathology was based on previous

research (e.g. Gilbert et al., 2006; Richter et al., 2009; Sweetingham & Waller, 2008) on the role of early affiliative memories and defensive responses on adulthood adjustment and vulnerability to psychopathology (e.g., Hewitt et al., 2003; Sloman et al., 1994). In this line, the proposed model hypothesized that the absence of early positive memories with peers would predict higher levels of eating psychopathology severity, through an increase of submissive behaviors and a higher tendency to engage in body image-related perfectionistic self-presentation.

The model explained 51% of a global score of EDE-Q and corroborated our hypothesis, showing that submissive behaviors and perfectionistic self-presentation strategies focused on body image partially mediate the relationship between early affiliative memories with peers and eating psychopathology severity, when controlling for BMI.

This is the first study that tested the link between early positive memories with peers, submissive behaviors, and the tendency to adopt a perfectionistic self-presentation. Results showed a negative association between early positive memories with peers and submissive and body image-related perfectionistic self-presentation strategies. These findings suggest that the absence of warmth and safeness memories within the peer group may trigger feelings of inferiority and unattractiveness, and promote the adoption of defensive responses in order to assure acceptance by others.

Furthermore, our results are in line with previous literature which revealed that submissiveness is linked to higher levels of disordered eating (e.g., Katzman, 1985; Troop & Treasure, 1997). Also, our findings seem to be in accordance with previous research (Ferreira, Duarte, et al., 2015; Ferreira, Trindade et al., 2015) by highlighting body-image related perfectionistic self-presentation as a maladaptive strategy, linked to the assumption of disordered eating attitudes and behaviors. Moreover, this study seems

to extend previous knowledge since it displayed that this strategy fully mediated the link between submissiveness and eating psychopathology.

All together, these results appear to underline submissive and perfectionistic self-presentation strategies as maladaptive compensatory mechanisms used to cope with feelings of inferiority and a perceived loss of social status, associated with memories with peers absent of warmth and safeness.

These results should be interpreted considering some methodological limitations. Firstly, the cross-sectional nature of the data limits any causal inferences, which makes prospective studies necessary in order to validate the nature and direction of the tested model. Secondly, considering the use of a non-clinical student sample, future research should replicate these findings in different samples, namely eating disorder samples. Also, since eating psychopathology is a multi-determined complex phenomenon, other variables may be involved. However, the present model was designed and limited with the specific purpose of exploring the role of submissive and body image-related perfectionistic self-presentation defensive mechanisms on the impact of early positive memories with peers on eating psychopathology. Finally, it should also be taken into account that self-report measures may compromise the generalization of the data.

5. Conclusions

The present study was the first to explore whether submitting to others and striving to present a perfect body-image hold an impact on the tendency to adopt disordered eating attitudes and behaviors, when in the absence of early positive memories with peers. In fact, this study highlights the harmful effects of defensive responses and mechanisms, used to cope with feelings of inferiority, on eating psychopathology. These findings seem to offer important investigational implications,

suggesting also the relevance of targeting defensive behaviors on the development of mental health promotion programs among female students.

Contributors

Authors Cláudia Ferreira and Joana Marta-Simões designed the study and wrote the protocol, conducted literature searches and provided summaries of previous research studies, conducted the statistical analysis, and wrote the first draft of the manuscript. All authors contributed to and have approved the final manuscript.

Conflict of Interest

The authors declare no conflict of interest.

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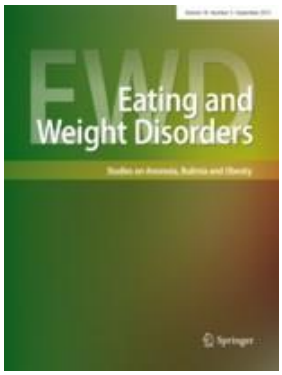
APPENDICES

APPENDIX A

Submission information of Paper I

- 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.

Journal Metrics

Source Normalized Impact per Paper (SNIP): 0.741
SCImago Journal Rank (SJR): 0.592
Impact Factor: 1.680
5-Year Impact Factor: 2.031

Instructions for Authors

TYPES OF PAPERS

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Overview papers on selected topics. Review articles are in general invited by the editors but suggestions by interested individuals may also be considered. Prospective authors should submit a formal and detailed proposal to the Editor, indicating the title and a brief outline of the content.

Manuscripts should provide an up-to-date and authoritative review and synthesis of existing literature. Review Articles should not exceed 7.500 words including an abstract of no more than 250 words, references, tables and figures. Keywords are requested.

- Original Articles

Accounts of research or clinical practice that should be based on original rather than confirmatory data. Typically, Original Articles will present new data derived from a sizable series of subjects or patients. Original Articles should not exceed 5.000 words including an abstract of no more than 250 words, references, tables and figures. Keywords are requested.

- Brief Reports

Short papers including data from preliminary studies, new approaches to clinical practice, replication studies that are primarily based on negative or confirmatory data. Brief Reports should not exceed 2.000 words, 1-2 illustrations and up to 3 references are permitted. Brief Reports should not have an abstract nor keywords.

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Short papers that illustrate either a previously unrecognized disorder or a new aspect of a known condition. Ethical and legal considerations require the protection of a patient's anonymity. Case Reports should not exceed 2.000 words including 3 references, 1-2 tables and figures. Case Reports should not have an abstract nor keywords.

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Brief letters (maximum of 500 words including references; no tables or figures, no abstract, no keywords) providing pertinent comments on published articles will be considered and the authors concerned will be given a right to reply. Letters raising problems of general interest will also be considered.

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Letters to the editors are published in the Correspondence section. They must not exceed 1000 words, 3 references and 3 authors. They should not have an abstract. They should be addressed to the Editor-in-Chief. Submitted letters will be subject to shortening and editorial revision.

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The journal publishes also Editorials. Authors who wish to submit an editorial should first consult the journal's Editor-in-Chief.

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MANUSCRIPT SUBMISSION

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The title page should include:
The name(s) of the author(s)
A concise and informative title
The affiliation(s) and address(es) of the author(s)
The e-mail address, telephone and fax numbers of the corresponding author

Abstract

Please provide a structured abstract of 150 to 250 words which should be divided into the following sections:
Purpose (stating the main purposes and research question)
Methods
Results
Conclusions

Keywords

Please provide 4 to 6 keywords which can be used for indexing purposes.

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Text Formatting**:**
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- Use a normal, plain font (e.g., 10-point Times Roman) for text.
- Use italics for emphasis.
- Use the automatic page numbering function to number the pages.
- Do not use field functions.
- Use tab stops or other commands for indents, not the space bar.
- Use the table function, not spreadsheets, to make tables.
- Use the equation editor or MathType for equations.
- Save your file in docx format (Word 2007 or higher) or doc format (older Word versions).

Manuscripts with mathematical content can also be submitted in LaTeX.
Headings - Please use no more than three levels of displayed headings.
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Abbreviations should be defined at first mention and used consistently thereafter.

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Footnotes can be used to give additional information, which may include the citation of a reference included in the reference list. They should not consist solely of a reference citation, and they should never include the bibliographic details of a reference. They should also not contain any figures or tables.

Footnotes to the text are numbered consecutively; those to tables should be indicated by superscript lower-case letters (or asterisks for significance values and other statistical data). Footnotes to the title or the authors of the article are not given reference symbols.

Always use footnotes instead of endnotes.

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Acknowledgments of people, grants, funds, etc. should be placed in a separate section on the title page. The names of funding organizations should be written in full.

REFERENCES

Citation

Reference citations in the text should be identified by numbers in square brackets. Some examples:

1. Negotiation research spans many disciplines [3].
2. This result was later contradicted by Becker and Seligman [5].
3. This effect has been widely studied [1-3, 7].

Reference list

The list of references should only include works that are cited in the text and that have been published or accepted for publication. Personal communications and unpublished works should only be mentioned in the text. Do not use footnotes or endnotes as a substitute for a reference list.

The entries in the list should be numbered consecutively.

- Journal article

Gamelin FX, Baquet G, Berthoin S, Thevenet D, Nourry C, Nottin S, Bosquet L (2009) Effect of high intensity intermittent training on heart rate variability in prepubescent children. Eur J Appl Physiol 105:731-738. doi: 10.1007/s00421-0080955-8

Ideally, the names of all authors should be provided, but the usage of “et al” in long author lists will also be accepted:

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

- Article by DOI

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

- Online document

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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Trent JW (1975) Experimental acute renal failure. Dissertation, University of California

Always use the standard abbreviation of a journal's name according to the ISSN List of Title Word Abbreviations, see ISSN.org LTWA

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- All tables are to be numbered using Arabic numerals.
- Tables should always be cited in text in consecutive numerical order.
- For each table, please supply a table caption (title) explaining the components of the table.
- Identify any previously published material by giving the original source in the form of a reference at the end of the table caption.
- Footnotes to tables should be indicated by superscript lower-case letters (or asterisks for significance values and other statistical data) and included beneath the table body.

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Electronic Figure Submission

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- For vector graphics, the preferred format is EPS; for halftones, please use TIFF format. MSOffice files are also acceptable.
- Vector graphics containing fonts must have the fonts embedded in the files.
- Name your figure files with "Fig" and the figure number, e.g., Fig1.eps.

Line Art

- Definition: Black and white graphic with no shading.
- Do not use faint lines and/or lettering and check that all lines and lettering within the figures are legible at final size.
- All lines should be at least 0.1 mm (0.3 pt) wide.
- Scanned line drawings and line drawings in bitmap format should have a minimum resolution of 1200 dpi.
- Vector graphics containing fonts must have the fonts embedded in the files.

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Definition: a combination of halftone and line art, e.g., halftones containing line drawing, extensive lettering, color diagrams, etc.

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If black and white will be shown in the print version, make sure that the main information will still be visible. Many colors are not distinguishable from one another when converted to black and white. A simple way to check this is to make a xerographic copy to see if the necessary distinctions between the different colors are still apparent.

If the figures will be printed in black and white, do not refer to color in the captions.

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- Keep lettering consistently sized throughout your final-sized artwork, usually about 2–3 mm (8–12 pt).
- Variance of type size within an illustration should be minimal, e.g., do not use 8-pt type on an axis and 20-pt type for the axis label.
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Figures should always be cited in text in consecutive numerical order.
Figure parts should be denoted by lowercase letters (a, b, c, etc.).
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APPENDIX B

Submission information of Paper II

- Guide for authors of *Eating Behaviors*

EATING BEHAVIORS
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AUTHOR INFORMATION PACK

DESCRIPTION

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

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