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Being bullied and feeling ashamed: Implications for eating psychopathology and depression in adolescent girls

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Abstract

The current study examined the associations between peer victimization, body image shame, self-criticism, self-reassurance, depressive symptoms and eating psychopathology in 609 female adolescents.

Correlational analyses showed that being the victim of bullying was positively associated with body image shame, self-criticism, with low self-reassurance, depressive symptoms and eating psychopathology. A path analysis indicated that victimization experiences were associated with increased depressive symptoms partially through increased levels of body image shame, and a severe form of self-criticism – hated self. Body image shame and hated-self self-criticism fully mediated the association between victimization experiences eating psychopathology. The tested model accounted for a total of 51% of depressive symptoms variance and for 52% of eating psychopathology variance.

These findings may have important intervention and prevention implications, by suggesting that bullying experiences fuel body image shame and consequent self-directed hostility and anger, which, in turn, predict increased depressive symptomatology and eating psychopathology in female adolescents.

Keywords: Peer victimization, Body shame, Self-criticism, Depressive symptoms, Eating Psychopathology

Introduction

Adolescence represents a critical developmental stage characterized by biological and physical maturation, and also by psychosocial transformations. These changes may contribute for significant increase of the prevalence of mental health problems in this transitional period, namely depression (Cole et al., 2002; Kashani & Orvaschel, 1990). In particular, adolescent girls are a risk population for the development of eating disorders (Striegel-Moore & Bulik, 2007).

Adolescence is a time of a series of psychological, social and environmental challenges, including a movement of emancipation from parents, and enhancement of peer-group relationships (Allen & Land, 1999). This reliance on peers as new sources of social support occurs simultaneously with growing pressures to achieve social status and with the structuring of self-identity (Gilbert & Irons, 2009). Thus, adolescents become more aware of self-other evaluations and perceptive of the emotions and images they are triggering in their peers' minds (Gilbert & Irons, 2009; Wolfe & Mash, 2006; Wolfe, Lennox, & Cutler, 1986). In fact, during adolescence peer groups become stratified and issues of acceptance, popularity, competing for a secure place in the group and subsequent recognized social status, become increasingly important (Gilbert & Irons, 2009; Irons & Gilbert, 2005; Wolfe et al., 1986). This perceived pressure to be accepted, valued and approved by others increases adolescents' concerns with what is valued by the group, with self-presentation and with whether one is failing or not to display valued features (e.g., toughness and aggressiveness among adolescent boys, and appearance among girls; Eder, 1995).

These concerns can be understood in light of the dynamics of humans' innate need for group belonging and the social competition to be seen as attractive by others as outlined by Gilbert (1998, 2002, 2007) evolutionary biopsychosocial model of shame. According to this model, humans' survival and prospering deeply depend on being able to stimulate positive affect in the mind of the others about the self and engage them to co-create advantage social roles (e.g., as an ally, friend, team member). Thus, beginning in childhood, humans

develop a series of cognitive competencies for self-evaluation and to estimate how others see the self, that become particularly strengthened during adolescence. Shame emerges in this context of the competition for social attractiveness and is founded in social interactions (P. Gilbert, 2000b, 2002; Tangney & Fischer, 1995), being related to how one believes to be viewed by others. Shame acts therefore as an internal warning signal that one is failing to create positive affect in the mind of the others, and rather that one has certain personal characteristics, attributes or behaviors that are seen by others as unattractive and are potential factors for being victimized by them (Gilbert, 2000a; Pinto-Gouveia, Ferreira, & Duarte, 2014; Tangney & Fischer, 1995).

Retrospective research conducted with adults (e.g., Matos, Pinto-Gouveia, & Duarte, 2012; Matos, Ferreira, Duarte, & Pinto-Gouveia, 2014) suggests that shame experiences, namely occurred within peer relationships, may become the basis for negative self-evaluation and self-devaluation, being associated with depressive symptoms. This negative view of the self may become internalized in an internal shaming process defined as self-criticism (Gilbert & Irons, 2009). Self-criticism refers to a maladaptive defensive strategy adopted to correct one's perceived inadequacies and flaws, but that can also be characterized by desires to persecute or harm the self as others might (Gilbert, Clarke, Hempel, Miles, & Irons, 2004; Gilbert & Irons, 2005, 2009). Research has consistently shown that self-criticism, especially in its more severe form, is linked to poorer mental health indicators, namely depressive symptoms (Gilbert et al., 2004), as well as eating psychopathology (Pinto-Gouveia et al., 2014). Shahar et al. (2004), prospectively examined the pathogenic effect of self-criticism in adolescence and found that in adolescent girls self-criticism and depressive symptoms fueled each other in a vicious cycle.

Bullying can be a particularly harmful shaming experience. Bullying has been described as a negative interaction in which the perpetrator adopts an aggressive behaviour towards the victim, with the intent to inflict injury or discomfort (Smith & Thompson, 1991). Bullying can involve physical or verbal aggressiveness (e.g., acts that inflict physical harm, name-calling), but also other nonphysical, nonverbal forms of aggression, such as relational

aggression (e.g., including telling rumors, excluding, rejecting; Smith & Thompson, 1991). Such bullying experiences can activate shame as they may indicate to the adolescent that the self is regarded as unattractive and thus creates in others desires to reject, persecute or harm the self (Gilbert & Irons, 2009) and studies suggest that such experiences play a crucial role in adolescents psychopathology indicators (e.g., depression; Cunha, Matos, Faria, & Zagalo, 2012; Rubeis & Hollenstein, 2009).

A number of studies have demonstrated that peer rejection and bullying are associated with mental health problems (Cunha et al., 2012; Gilbert & Irons, 2009; Hawker & Boulton, 2000; Kaltiala-Heino, Rimpelä, Rantanen, & Rimpelä, 2000; Smokowski & Kopasz, 2005), including lowered self-esteem (O'Moore & Kirkham, 2001; Olweus, 1993), emotional wellbeing (Nansel et al., 2001), and other indicators of maladjustment (e.g., deficiencies in academic success, associations with deviant peers and violence; (Nansel, Overpeck, Haynie, Ruan, & Scheidt, 2003). In fact, two meta-analyses provided evidence that internalizing problems (e.g., depressive and anxiety symptoms, withdrawal, loneliness; Reinjntjes, Kamphuis, Prinzie, & Telch, 2010; Reinjntjes, Kamphuis, Prinzie, Boelen, et al., 2011) and externalizing problems (e.g., hostile and aggressive behaviours) constitute a consequence but also a risk factor for peer victimization.

In particular, studies have shown that being a victim of bullying is linked to severe depressive symptomatology among adolescents (Craig, 1998; Hawker & Boulton, 2000; Yena, Liua, Koa, Wud, & Chenge, 2014). There is also evidence that adolescents who are more victimized seem to be more prone to depression and suicidal ideation (Turner, Exum, R., & Holt, 2013). Bauman, Toomey, and Walker (2013) conducted a cross-sectional study that suggested that depression mediated the association between bullying and suicidal behaviour in both genders, and specifically in adolescent girls bullying, including cyber victimization, affected suicidal attempts. Another study demonstrated the association between being victimized and a higher risk for depression and suicidal ideation and attempts, and suggested that among females this risk was increased even if the victimization was infrequent (Klomek, Marrocco, Kleinman, Schonfeld, & Gould, 2008).

There is also some evidence suggesting that in adolescent girls bullying experiences are related to a higher risk for developing eating disorders (Engström & Norring, 2002). In particular, a number of cross-sectional and longitudinal studies have demonstrated the relationship between being the target of negative interactions focused on physical appearance (e.g., weight and appearance-related teasing) and body image and eating problems (for a review see (Menzel et al., 2010). Nonetheless, there is evidence that peer victimization can have a harmful effect on eating behavior even when it is not specifically focused on physical appearance (Kaltiala-Heino, Rissanen, Rimpela, & Rantanen, 1999). In fact, (Lunde, Frisén, & Hwang, 2006) demonstrated that experiences of victimization such as being rejected by the social group were associated with low body esteem and to young girls' perceptions that their physical appearance is the target of critical evaluations from their peers. Furthermore, research has shown that these early negative experiences may have an enduring adverse impact on body image and eating-related problems. Actually, patients with eating disorders often report experiences of having been bullied by peers in childhood and adolescence (Fosse & Holen, 2006; R. Striegel-Moore, Dohm, Pike, Wilfley, & Fairburn, 2002).

Given the pervasive effect of being bullied in adolescence, it is pertinent to formulate an insight relatively to possible mechanisms underlying the associations between bullying and mental health indicators. Self-other representations and the internalization of what is socially valued, seem to play an important role in this process (Cunha et al., 2012; Sweetingham & Waller, 2008). In particular, among the female gender physical appearance is regarded as a key dimension for self-evaluation and to estimate social rank in the social group (e.g., whether one is valued and accepted or, on the contrary, rejected or even attacked by others; (Ferreira, Pinto-Gouveia, & Duarte, 2013; P. Gilbert, 2000a; Pinto-Gouveia et al., 2014). In this sense, the physical appearance domain may be in the root of shame feelings. Specifically, when individuals perceive that their physical appearance fails to fit within what the social group perceives as attractive, and that it may be in the root of rejection or attack behaviors by others, they are likely to experience body image shame. In this sense, individuals may engage in defensive body image concealment or avoidance of social

exposure to avoid possible negative social outcomes (e.g., being made fun of, verbally/physically abused or ostracized; Gilbert, 2002; S. Gilbert & Thompson, 2002). There is evidence that, in adult women, evaluations that one's body image make the individual unattractive in the eyes of others and thus vulnerable to social harm, exclusion or ridicule, are significantly associated with disordered eating symptomology (Duarte, Pinto-Gouveia, & Ferreira, 2014; Duarte, Pinto-Gouveia, Ferreira, & Batista, 2014; Gilbert, 2002) and that self-criticism is an important mediator in this association (Duarte, Pinto-Gouveia, & Ferreira, 2014).

However, the associations between bullying, shame and self-criticism, and their association with psychological adjustment in adolescent girls, remain less documented. Also, even though research has demonstrated the link between bullying and poorer mental health in adolescents, namely eating psychopathology among adolescent girls, research on the underlying mechanisms of these associations remains scarce. Based on a theoretical model and on research review, the current study tests a model in which it is explored whether, in adolescent girls, the associations between being a victim of bullying and negative outcomes – depressive symptoms and eating psychopathology – are mediated by body image shame and self-criticism. We hypothesized that, as adolescence is a phase of life in which concerns about fitting in and be accepted and regarded as attractive by others become heightened, being a victim of peer bullying may be associated with perceptions that one is failing on creating a positive image of the self and exists negatively in the mind of others, as undesirable and unattractive, which characterize the experience of shame. As body image is often a source of self-evaluation in females (Ferreira et al., 2013; Gilbert, 2002; Pinto-Gouveia et al., 2014), this dimension may become the focus of shame in adolescent girls and be associated with the internal shaming process of self-criticism. We hypothesize that the extent in which adolescent engage in this type of harsh self-to-self relationship will, in turn, mediate the associations between bullying experiences and body image-focused shame and both depressive symptoms and eating psychopathology symptoms.

Methods

Participants

Participated in the study 609 Portuguese adolescent girls attending schools from the central region of Portugal: 112 (18.4%) were attending 3 public middle/high schools situated in urban areas of Viseu (inland central region of the country); 35 (5.7%) attended a public middle/high school from a semi-urban area of Covilhã (inland central region); 43 (7.1%) were recruited in 2 public middle schools from urban areas of Coimbra (central region); 51 (8.4%) attended 2 public middle/high schools situated in semi-urban areas of Coimbra; 53 (8.7%) attended a private middle/high school in an urban area of Coimbra; 59 (9.7%) attended a public middle school in a rural area of Coimbra; and 256 (42%) were recruited in 2 public middle/high schools from semi-urban areas of Coimbra. Regarding socioeconomic status, 47.7% of the participants belonged to a low, 29.9% to a medium and 22.4% to a high socioeconomic status. The participants' age ranged from 12 to 18 years old, with a mean of 14.10 (*SD* = 1.16), and the years of education ranged from 8 to 12 (*M* = 8.89; *SD* = 1.05); 99.18% of the participants were Caucasian. Participants' Body Mass Index varied from 13.12 to 35.14, with a mean of 20.90 (*SD* = 3.29). Two participants (0.3%) presented severe thinness, 12(2%) presented thinness, 427(70.2%) presented a normal weight, 139 (22.8%) were overweight, and 29 (4.7%) were obese (De Onis, Onyango, Borghi, Siyam, Nishida, & Siekmann, 2007).

Procedure

The study was presented to and approved by the relevant local authorities (General Direction of Innovation and Curricular Development; Portuguese Data Protection Authority). The study's aims and procedures were then presented to the boards of the schools, which approved the study and invited the students to participate. The study was presented as a research about the protective or vulnerability effect of relational experiences and emotion regulation processes in eating-related difficulties. Written informed consent was then

obtained from the participants and from their parents/legal tutors. Each school subsequently scheduled the day and the class period for the questionnaires completion. The teacher in charge introduced the researchers to the students and left the classroom. The researchers administered the set of self-report questionnaires to groups of 5-36 participants. The researchers gave standardized instructions to all participants and prior to the completion of the questionnaires reiterated that the participation in the study was voluntary and that the data collected was confidential and only used for research purposes, to encourage honest and serious responding. The researchers were present during the questionnaires completion and answered participants' questions whenever necessary. The self-report questionnaires used in the study are adapted to Portuguese and validated for adolescents, and included demographic data, weight and height, bullying experiences, body image shame, forms of self-relating (criticism and self-reassurance), eating psychopathology and general psychopathology symptoms. The measures were completed within 45 minutes during one class period, and after the questionnaires completion, participants were given the opportunity to clarify any subject related to the study.

Measures

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

Peers Relations Questionnaire for children (PRQ; Rigby & Slee, 1993; Portuguese version by Silva & Pinheiro, 2010) is a 20-item self-report measure that assesses peers relationships, compassing three subscales: Victim, which expresses the tendency to be the victimized by peers (e.g., "Others make fun of me"; "Others leave me out of things on purpose"; Bully, which characterizes the tendency to act aggressively toward peers (e.g., "I enjoy upsetting wimps"; Pro-social, which assesses the propensity to relate to others in a pro-social way (e.g., "I enjoy helping others"). Items are rated in a 4-point Likert scale (*1 = never to 4 = very often*). PRQ is a widely used and reliable measure of bullying (Rigby & Slee, 1993). The scale was adapted and validated in the Portuguese population and presented good

psychometric properties (Silva & Pinheiro, 2010). For the purpose of the current study we used only the subscale Victim as a measure of bullying victimization, which presented a Cronbach's alpha of .79.

Body Image Shame Scale – Adolescents Version (BISS; Duarte et al., 2014; Adolescents version by Duarte & Pinto-Gouveia, 2014) includes 9 items and assesses body image shame considering an externalized (distress felt in and avoidance of social situations in which others may criticize one's body image; e.g., "I feel uncomfortable in social situations because I feel that people may criticize me because of my body shape") and an internalized dimension (negative self-evaluations and consequent behaviours to control the exposure of one's body image; e.g., "I choose clothes that hide parts of my body that I consider ugly or disproportional") of body image shame. Participants are asked to rate each item through a 5-point Likert scale (0 = *never* to 4 = *almost always*). Both the original adult version of the scale (C. Duarte et al., 2014) as well as the adapted version for adolescents (Duarte & Pinto-Gouveia, 2014) present good psychometric properties (α = .90 and α = .97, respectively). The scale presented a Cronbach's alpha of .93 in the current study.

Forms of Self-Criticism/Attacking and Self-Reassurance Scale – Adolescents version (FSCRS-A; Gilbert et al., 2004; Salvador & Tavares, 2011) includes 22 items and assesses two forms of self-criticism: Inadequate self (related with feelings of inadequacy and inferiority; e.g., "There is a part of me that feels I am not good enough"), and Hated self (characterized by desires of self-punishment and feelings of disgust and hatred for the self; e.g., "I have become so angry with myself that I want to hurt or injure myself"); and the ability to self-soothe (Reassured self; e.g., "I am able to remind myself of positive things about myself"). Items are rated on a 5-point Likert scale (0 = *not at all like me* to 4 = *extremely like me*). This scale presents good psychometric properties (Gilbert et al., 2004). The Portuguese version adapted for adolescents used in this study also presents good reliability (Salvador & Tavares, 2011). In the current study the subscales also presented good Cronbach's values: .89 for Inadequate self; .83 for Hated self and .86 for Reassured self.

Eating Disorder Examination Questionnaire (EDE-Q; Fairburn & Beglin, 1994; Machado et al., 2014) provides a comprehensive evaluation of the specific psychopathology of disordered eating behaviours and attitudes. This self-report questionnaire includes 36 items divided in four subscales: Restraint, Eating Concern, Weight Concern and Shape Concern. A global EDE-Q score can also be obtained by calculating a mean of the four subscale scores. Research supports that this scale holds good psychometric properties in the original (Fairburn & Beglin, 1994) and on the Portuguese version (Fairburn & Beglin, 1994; Machado et al., 2014). In the current study, the scale presented a Cronbach's alpha of .95.

Depression Anxiety and Stress Scales – 21 (DASS21; Lovibond & Lovibond, 1995; Portuguese version by Pais-Ribeiro, Honrado, & Leal, 2004). The DASS21 is a 21-item self-report measure scale that measures levels of Depression (e.g., "I couldn't seem to experience any positive feeling at all"), Anxiety ("I experienced trembling (e.g., in the hands)") and Stress symptoms ("I found it difficult to relax"). Items are rated in a 4-point Likert scale (0 = *Did not apply to me at all* to 4 = *Applied to me very much, or most of the time*). For the purpose of this study only the Depression subscale was considered. The original version (Lovibond & Lovibond, 1995) and the Portuguese version (Pais-Ribeiro et al., 2004) of this scale revealed that it has good psychometric properties. The subscale Depression used in this study presented high internal consistency, with a Cronbach's alpha of .91.

The descriptive statistics of the measures used in the current study are presented in Table 1.

Data analysis

The software SPSS (v.21 SPSS; Armonk, NY: IBM Corp.) was used to calculate descriptives and correlational analyses.

Product-moment Pearson Correlation analyses were conducted to examine the associations between bullying, body image shame, self-criticism, depressive symptoms, eating psychopathology and BMI (Cohen, Cohen, West, & Aiken, 2003).

The software AMOS (Analysis of Momentary Structure, software version 18, SPSS Inc. Chicago, IL) was used to estimate the hypothesized associations through a path analysis (Figure 1). Path analysis is a specific type of Structural Equation Modelling (SEM) that allows for the assessment of hypothesised causal relations between previously defined variables, namely the simultaneous examination of structural relationships, and direct and indirect effects between multiple independent, mediator and dependent variables, while controlling for error (Byrne, 2010; Kline, 2005). Even though the cross-sectional design of the current study does not allow the establishment of causal influences between variables, it may contribute for the understanding of the possible pathways between the variables under examination and whether these pathways are consistent with the underlying hypothesized theoretical model (e.g., Hayes, 2013, Mueller & Hancock, 2008) of whether bullying (exogenous, independent variable) has a significant effect on depressive symptoms and eating psychopathology (endogenous, dependent variables), through the mechanisms of body image shame and self-criticism (endogenous, mediator variables). To account for the effect of depressive symptoms on bullying experiences and their associations with self-criticism and eating psychopathology, a model examining depressive symptoms as an exogenous variable was also tested. The Maximum Likelihood estimation method was selected to test for the significance of the regression coefficients and fit statistics. The adequacy of the model was examined considering the Chi-square (χ^2), and the following goodness of fit indicators: the Normed Chi-Square (CMIN/DF), regarding which values ranging from 2 to 5 show a good global adjustment of the model (Arbuckle, 2008; Tabachnick & Fidell, 2013); the Tucker Lewis Index (TLI) and the Comparative Fit Index (CFI), which provide evidence for a good fit when values range from [.90 – .95], and a very good fit with values above .95 (Kline, 2005); and the Relative Fit Index (RFI), with values close to 1 indicating a very good fit (Bollen, 1986). Finally, we also used the Root-Mean Square Error of Approximation (RMSEA), with 90% confidence interval, with values below 0.05 ($p > .05$; (Arbuckle, 2008) indicating a very good fit, values ≤ 0.08 representing reasonable errors of approximation

(Browne & Cudeck, 1992), and values ranging from .08 to .10 indicating mediocre fit (Byrne, 2010; MacCallum, Browne, & Sugawara, 1996).

The significance of the direct, indirect and total effects was assessed by Chi-Square tests and by the Bootstrap resampling method, with 2000 Bootstrap samples. Also, 95% bias-corrected confidence intervals (CI) were considered to test for the significance of the mediational paths. Effects were regarded as significantly different from zero ($p < .050$) if zero was not included in the interval between the lower and the upper bound of the 95% bias-corrected confidence interval (Kline, 2005).

Results

Preliminary data analysis

Results regarding uni and multivariate analysis indicated that there were no severe violations of normal distribution as confirmed by the coefficients of Skewness, which varied between .90 (EDEQ) and 1.96 (PRQ), and Kurtosis, which presented valued ranging from -0.12 (EDEQ) and 4.77 (PRQ; Kline, 2005).

Correlations

Table 1 displays product-moment Pearson correlations coefficients and significance levels. Results indicated that being victim of bullying was positively and moderately associated with body image shame as well as with self-criticism, especially with the hated self-form of self-criticism. Furthermore, victimization was positively and moderately correlated with depressive symptomatology and eating psychopathology. A high positive correlation was also found between body image shame and the self-criticism forms of inadequate and hated self, depressive symptoms and eating psychopathology. Inadequate self and hated self forms of self-criticism were positively and highly associated with depressive symptoms and eating psychopathology, which, in turn, were also strongly associated with each other. On the contrary, negative small to moderate associations were verified between

the ability to self-reassure and being victim of bullying, body image shame, depressive symptoms, eating psychopathology, as well as with the inadequate self and hated self forms of self-criticism. BMI was only significantly correlated with body image shame and eating psychopathology, and revealed a small positive association with hated self and a negative association with reassured self. Partial correlations between the study variables controlling for the effect of BMI revealed that the correlations kept the same magnitudes.

Insert Table 1 around here

Path analysis

The model initially examined presented 24 parameters. All path coefficients were statistically significant at the level of $p < .001$. An exception was verified regarding the path coefficient between PRQ and EDE ($p = .034$). Results indicated that PRQ accounted for a total of 15% of body image shame. Also, the model explained 31% of the hated self form of self-criticism, and 52% for both depressive symptoms and eating psychopathology.

A second model was then conducted in which the direct path between PRQ and EDE was eliminated. Results indicated that the amount of variance explained by the model was similar. Regarding the model fit, the χ^2 value was significant ($\chi^2_{(1)} = 4.473$; $p = .034$), but since this index is very sensitive to sample size (Hair, Black, Babin, & Anderson, 2010; Kline, 2005), we selected other model fit indices to attest the adequacy of the model (Kline, 2005). Results indicated an adequate normed χ^2 (CMIN/DF = 4.473). The RMSEA (RMSEA = .076 [.017 - .152], $p = .189$) provided evidence for close-fit, but the value obtained for the upper bound also suggested that the poor-fit hypothesis could not be rejected (Kline, 2005). Nonetheless, it has been suggested that this statistic's performance is influenced by model specifications and degrees of freedom, and may bias model fit interpretation (Chen, Curran, Bollen, Kirby, & Paxton, 2008; Kline, 2005). Thus, to analyze the adequacy of the model we also considered the other selected fit indices. The obtained values were above the cut offs

indicating a very good model fit (TLI = .973, CFI = .995; RFI = .965; Bollen, 1986; Kline, 2005; Tabachnick & Fidell, 2013).

Findings showed that PRQ had a direct effect of .39 on body image shame (b_{PRQ} = .17; SEb = .02; Z = 10.39; p < .001). Body image shame, in turn, had a direct effect on the hated self form of self-criticism of .44 (b_{BISS} = 2.10; SEb = .17; Z = 12.10; p < .001). Also, PRQ had a total effect of .38 on the hated self form of self-criticism (b_{PRQ} = .44; SEb = .08; Z = 5.72; p < .001), with a direct effect of .21 and an indirect effect of .36, mediated by body image shame. This mediation effect was significant according to the Bootstrap resampling method, with the estimate of the indirect effect of PRQ on self-criticism revealing an effect significantly different from zero (CI = .16, .19; p = .002).

The hated self-form of self-criticism presented, in turn, a direct effect of .44 on depressive symptoms ($b_{HatedSelf}$ = .49; SEb = .04; Z = 12.91; p < .001). Body image shame presented a total effect of .50 on depressive symptoms, also presenting a significant direct effect of .30; b_{BISS} = 1.61; SEb = .18; Z = 8.90; p < .001). However, this effect was partially mediated by the hated self-form of self-criticism, with an indirect effect .19, which was significantly different from zero (CI = .14, .25; p = .002).

Regarding the association between PRQ and depressive symptoms, the model indicated that PRQ had a total effect of .41 on depressive symptoms, with a direct effect of .13 (b_{PRQ} = .30; SEb = .07; Z = 4.11; p < .001) and an indirect effect of .67, through the mediators of body image shame and the hated self form of self criticism. This mediational effect was significant according to the Bootstrap resampling method. In fact, the estimate of the indirect effect of bullying on depressive symptoms, revealed an effect significantly different from zero (CI = .23, .35; p = .001).

In relation to eating psychopathology the model indicated that self-criticism presented a direct effect of .21 on eating psychopathology ($b_{HatedSelf}$ = .06; SEb = .01; Z = 6.23; p < .001). Moreover, body image shame presented a total effect of .68 on eating psychopathology, with a direct effect of .59 (b_{BISS} = .76; SEb = .04; Z = 17.90; p < .001), and an indirect effect of .09 mediated by the hated self form of self-criticism (CI = .06, .13; p < .001).

Finally, the effect of PRQ on EDE was totally mediated by body image shame and the hated self form of self-criticism, presenting an indirect effect of .18. Again, the Bootstrap resampling method confirmed that this mediational effect of body image shame and self-criticism on the association between bullying experiences and eating psychopathology was significant (CI = .24, .37; p = .002).

A final model was tested accounting for the effect of depressive symptoms on bullying experiences, and on the associations between body image shame, self-criticism and eating psychopathology. Overall, results confirmed the adequacy of the model ($\chi^2_{(1)}$ = 2.930; CMIN/DF = 2.930; TLI = .984, CFI = .998; RFI = .976; RMSEA = .056 [.000 - .136], p = .317). The tested direct and indirect effects remained significant and the model accounted for a total of 18% of bullying experiences, 37% of body image shame, 46% of self-criticism and again 52% of eating psychopathology.

Insert Figure 1 around here

Discussion

Several studies have highlighted the association between bullying and psychopathology among adolescents. Nonetheless, research on the effect of bullying on female adolescents' psychopathology, namely body image difficulties and eating behaviours problems, remains less investigated. Also, studies exploring the mechanisms underlying these relationships remain scarce. The present study aimed at examining the associations between peer victimization, body image shame, self-criticism, depressive symptoms and eating psychopathology, in a wide sample of female adolescents

Consistent with other studies of the relationship between early negative experiences and psychopathology (Bauman et al., 2013; Cunha et al., 2012; Gilbert & Irons, 2009; Klomek et al., 2008; Turner et al., 2013; Yena et al., 2014), this study's findings corroborated the association between being victim of bullying by peers and increased levels of both

depressive symptomatology and eating psychopathology. Furthermore, the current study demonstrated that in adolescent girls going through bullying experiences is strongly associated with experiencing shame in relation to one's body, that is, with negative evaluations that one's physical appearance is seen negatively by others (Duarte et al., 2014). Moreover, results showed that these associations were independent of weight status, which is in according with prior evidence suggesting that, in women, negative body image-related perceptions are associated with negative psychological outcomes and that actual indicators of body image size or weight have a small effect on these associations (Duarte, Pinto-Gouveia, & Ferreira, 2014; Ferreira et al., 2013; Pinto-Gouveia et al., 2014). Also, results are in line with prior suggestions by indicating that being victimized by peers is associated with critical and hostile forms of self-relating, especially with a more severe form of self-criticism characterized by self-directed anger and contempt towards the self and desires to persecute and hurt the self as an external source might (Cunha et al., 2012; Gilbert & Irons, 2009). This study also extends prior evidence (Duarte et al., 2014) on the association between body image shame, self-criticism, and depressive symptoms and eating psychopathology, by corroborating that these associations are also evident in adolescent girls going through challenging physiological and psychosocial transformations.

To further understand the dynamics of such complex interactions, the current study aimed at clarifying the indirect effect of early negative interactions of being the victim of bullying by peers on depressive and eating psychopathology. Thus, a path model was tested in which it was examined whether body image shame and self-criticism would have a significant mediating effect on the relationship between bullying and such negative psychological outcomes. Moreover, we further analyzed whether increased levels of self-criticism would mediate the effect of body image shame on depressive symptoms and eating psychopathology. Results indicated that the theoretical model is plausible, with the path model accounting for 51% and 52% of the variance of depressive symptomatology and eating psychopathology, respectively, in female adolescents.

Consistent with prior evidence (Hawker & Boulton, 2000; Kaltiala-Heino et al., 1999; Lunde et al., 2006), results confirmed that bullying has an indirect effect on depressive symptoms and eating psychopathology. However, this study further revealed that this effect is mediated by body image shame and self-criticism. Furthermore, the effect of body image shame on both depressive symptoms and eating psychopathology was partially influenced by the hated self form of self-criticism. This result suggests that bullying is associated with body image shame and self-criticism, and it could be hypothesized that when body image shame is related to higher levels self-criticism, more severe mental health outcomes may be expected.

These findings are in line with prior evidence that physical appearance is a particularly relevant domain for females to estimate their social attractiveness (e.g., Ferreira et al., 2013). Also, results are consistent with theoretical accounts suggesting that as adolescents' social life evolves to adapt to new relationships in which peers gain an increased importance to ascertain their sense of security in the social arena, becoming the target of negative interactions inflicted by them is particularly threatening and may be linked to the defensive affective response of shame (Gilbert, 2000a, 2002). In particular, this data suggests that in adolescent girls this process is likely to result in feelings of shame regarding their body image. Also, our findings confirmed that this deleterious emotion is associated to increased depressive symptoms and eating psychopathology (e.g., Burney & Irwin, 2000; Duarte et al., 2014; Noll & Fredrickson, 1998).

Results further suggest that such perceptions that one's physical appearance is the root of ostracism and harassment by others, is associated with self-criticism, namely a more severe form characterized by self-hatred, self-loathing and desires to hurt or persecute the self (Gilbert et al., 2004). Also, it seems that in adolescent girls this type of self-relating is also a mechanism through which body image shame, associated with bullying experiences, is linked with depressive symptoms, as well the severity of eating psychopathology. That is, findings seem to suggest that, in adolescence, as the social group becomes a source of threat, instead or support, these negative external interactions may become internalized. The self may then start to bully the self in regard to possible reasons (such as body image) for existing in the

outside world as a rejectable and persecuted peer. According to previous theoretical and empirical contributions, a threat-based submissive depressive response may occur as a response to these threatening external and internal environments (Gilbert, 2000a; Gilbert & Irons, 2005; Gilbert & Procter, 2006; Irons & Gilbert, 2005). Furthermore, attitudinal and behavioural manifestations of eating psychopathology (e.g., overevaluation of thinness, pathological dieting, excessive exercise, purging), may emerge as attempts to correct the self into what may be socially valued, and thus to avoid the threat of existing negatively in the mind of others and of being rejected, excluded, persecuted, and harmed by them (Gilbert, 2000a; Gilbert & Thompson, 2002; Goss & Gilbert, 2002). The current study also tested for the significance of the effect of depressive symptoms on the aforementioned associations, and results confirmed the plausibility of reciprocal associations between depressive symptomatology and both bullying experiences and self-criticism (Reinjntjes et al., 2010, 2011; Shahar et al., 2004).

Limitations

These findings are based on cross-sectional data and therefore conclusions cannot be drawn regarding the causal relationship between the study variables. In fact, the current study contributes for the understanding of the possible pathways through which negative interaction experiences with peers exert their effect on adolescents' mental health, namely depressive symptoms and eating psychopathology. Nonetheless, prior evidence suggested that bullying experiences may be an antecedent but also a consequence of depressive symptoms (Reijntjes et al., 2010, 2011), which, in turn, fuel self-criticism in a vicious cycle (Shahar et al., 2004). Thus, future research should use longitudinal designs to better understand these mechanisms and their effect on the vulnerability to and maintenance of mental health difficulties of adolescent girls. Also, the current study examined a parsimonious model that addresses the role of specific variables (e.g., body image shame, self-criticism) in depressive symptomatology and eating psychopathology and therefore other relevant psychosocial and

physiological (e.g., puberty) variables were not considered. Future studies should complement this model considering such variables.

Also, this study focused specifically on female adolescents since this is a particularly vulnerable population for body image and eating problems (Striegel-Moore & Bulik, 2007), but future studies should explore whether the variables and mechanisms explored in the current study operate or have distinct outcomes in male adolescents. Moreover, results were based on self-report data, which may suffer from some bias (e.g., due to social desirability). Future studies should consider the use of other assessment methods, such as structured interviews, and other sources of information, including peers and teachers, to better determine the accuracy of the relational experiences reported, as well the possibly related negative outcomes (e.g., major depression, suicidal ideation, eating disorders).

Nonetheless, these findings, by being supported by robust statistical analyses, may contribute for a higher understanding of the associations between victimization experiences, depressive symptoms and eating psychopathology in female adolescents and how shame and self-criticism may operate on these associations. This study may have therefore important implications for future research as well as for prevention and intervention efforts. Our data highlights the important role of shame and self-criticism in mental health in a sample of adolescents and supports therefore the relevance of addressing these constructs in bullying prevention programs, as well as at a clinical level when working with adolescent girls reporting bullying experiences. Professionals working with youth, including educators and clinicians, should be aware of the effect of such negative interpersonal interactions on the development of body image and eating-related symptoms and of the maladaptive function of such symptoms. From this perspective, they should work towards promoting an attentive, deshaming and safe context to prevent damaging peer interactions and promote positive ones (e.g., in schools). At an individual level, a comprehensive and non-shaming attitude towards adolescents' difficulties should be adopted to develop a collaborative work against the deleterious consequents of the problem. This would involve the rigorous assessment of the adolescent's social network and interactions, and the provision of specific social skills to

manage interpersonal violence and rejection, while promoting self-acceptance and inner compassion as antidotes to shame and self-criticism, to facilitate emotional and behavioural regulation. In conclusion, this study stresses the importance of providing programs (e.g., Compassion-focused approaches; Gilbert, 2002; Gilbert & Irons, 2005, 2009) that focus on developing skills to identify and engage with self and others' distress and adopt adaptive behaviours that aim at promoting genuine self and others wellbeing and safeness.

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Figure 1. Path model showing the association between peer victimization and depressive symptoms and eating psychopathology, mediated by body image shame and hated self form of self-criticism, with standardized estimates and square multiple correlations (R^2; N = 609).

Note: *** $p < .001$

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Tables

Table 1

Cronbach's alphas, descriptive statistics and correlations between the study measures (N = 609)

	Min	Max	*M*	*SD*	PRQ	BISS	FSCRS Inad. Self	FSCRS Hated Self	FSCRS Reass. Self	DASS21 Depress.	EDE
PRQ	5	15	6.61	2.20	1						
BISS	0	4	0.90	0.98	.39***	1					
FSCRS Inadeq. Self	0	36	13.78	8.33	.35***	.59***	1				
FSCRS Hated Self	0	20	4.14	4.65	.38***	.52***	.70***	.1			
FSCRS Reass. Self	0	32	18.37	7.10	-.23***	-.34***	-.24***	-.35***	1		
DASS21 Depress.	0	21	4.80	5.17	.42***	.58***	.65***	.65***	-.39***	1	
EDE	0	5.42	1.43	1.26	.36***	.70***	.53***	.52***	-.35***	.53***	1
BMI	13.12	35.14	20.90	3.29	.05	.29***	.05	.09**	-.10**	.05	.33***

Note: *** $p < .001$; ** $p < .050$

Inad. Self = Inadequate self subscale; Reass. Self = Reassured self subscale; Depress = Depression subscale

Figure

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