

**Body image as a target of victimization by peers/parents: Development and validation of the
Body Image Victimization Experiences Scale**

Running head: The Body Image Victimization Experiences Scale

Cristiana Duarte^{1*} and José Pinto-Gouveia²

¹ University of Coimbra, Portugal

CINEICC – Cognitive and Behavioural Centre for Research and Intervention

² University of Coimbra, Portugal

CINEICC – Cognitive and Behavioural Centre for Research and Intervention

*Requests for reprints should be addressed to

Cristiana Duarte

CINEICC, Faculdade de Psicologia e Ciências da Educação,

Universidade de Coimbra

Rua do Colégio Novo, Apartado 6153

3001-802 Coimbra, Portugal

E-mail: cristianaoduarte@gmail.com (Cristiana Duarte)

Telephone: (+351) 239851450

Fax: (+351) 239851462

Acknowledgements

This research has been supported by the first author (Cristiana Duarte) Ph.D. Grant (SFRH/BD/76858/2011), sponsored by FCT (Portuguese Foundation for Science and Technology).

Body image as a target of victimization by peers/parents:

Development and validation of the Body Image Victimization Experiences Scale

Abstract

This study developed and established psychometric properties of the Body Image Victimization Experiences Scale (BIVES). The BIVES retrospectively assesses the frequency (Part A – frequency) and effect (Part B – impact) of victimization experiences pertaining to body image, perpetrated by peers and parents/caregivers in childhood and adolescence.

Distinct samples of Portuguese women were recruited in 2013-2014: two nonclinical samples of the general population ($n = 1,177$), aged 18-60 years, and a clinical sample of patients with Binge Eating Disorder (BED; $n = 73$), aged 19-59 years. An Exploratory Factor Analysis was conducted in 632 participants. A Confirmatory Factor Analysis (CFA) and the scale's psychometric properties were tested in 545 participants. The ability of the BIVES to discriminate the clinical from a nonclinical sample was examined.

The scale presented two factors indicating the sources of the victimization – peers and parents. CFA results confirmed the scale's structure. The BIVES presented very good internal consistency, construct and discriminant validity, good test-retest reliability, and was associated with related constructs, body shame and eating psychopathology. The scale adequately discriminated between the clinical sample and a nonclinical sample.

The BIVES is a valid and reliable measure that allows for a comprehensive assessment of body image-related victimization experiences.

Keywords: Body image; Body image victimization; Eating psychopathology; Psychometric properties; Confirmatory Factor Analysis

Introduction

Body image has been a salient area of research, with negative self-perceptions about body image being related to poorer mental health (Cash 2004), especially eating psychopathology (e.g., Stice, Marti, and Durant 2011). Nonetheless, such self-perceptions may be greatly influenced by one's perceptions of evaluations by others (Ferreira, Pinto-Gouveia, and Duarte 2013; Pinto-Gouveia, Ferreira, and Duarte 2014; Gilbert 2002), and research suggests the negative effects of others' criticism, rejection or even attacks because of one's physical appearance (Duarte, Pinto-Gouveia, and Ferreira 2014; Duarte, Pinto-Gouveia, Ferreira, and Batista 2015; Duarte, Pinto-Gouveia and Rodrigues, 2015). Especially among women, bullying or teasing (a more verbal form of victimization characterized by insults, name-calling or negative comments) by peers about physical appearance have been associated with poorer psychological adjustment, feelings of inferiority and shame, body dissatisfaction and disordered eating, namely binge eating (Lunde, Frisén, and Hwang 2006; Matos et al. 2015; Sweetingham and Waller 2008; Menzel et al. 2010; Haines et al. 2006). Body image-related victimization perpetrated by family members, particularly both parents, have also been associated with body image dissatisfaction and disordered eating (Haines et al. 2006; Keery et al. 2005; Libbey et al. 2008; Thompson and Sargent 2000).

The most widely used and validated measures to assess teasing about physical appearance are the Physical Appearance Related Teasing Scale (PARTS; Thompson et al. 1991) and its later version, the Perception of Teasing Scale (POTS; Thompson et al. 1995). These scales assess the frequency of weight and size-related teasing. In particular, the POTS assesses the history of the frequency and the emotional impact of experiences of being teased about abilities/competencies and weight. Although considered a reliable measure, the POTS

is focused on verbal negative interactions about the particular feature of being overweight (and not overall physical appearance). Although children with excess weight may be at higher risk of victimization and eating disorders (e.g., Fox and Farrow 2009), perceptions that one's body image may be at the root of social diminishment, regardless of actual weight status, has also been associated with eating psychopathology (Ferreira, Pinto-Gouveia, and Duarte 2013). Thus, a measure focusing on experiences related to body image may be more inclusive than one exclusively targeting experiences related to being overweight. Moreover, the POTS does not specify the teasing source (the items refer to a generic source, e.g., "People made jokes about you being too heavy"), which limits its use in research. In fact, prior evidence suggests that the source of victimization can have a differential impact in later indicators of psychological adjustment (e.g., Matos, Costa and Pinto-Gouveia 2013), namely in body image and eating-related difficulties (e.g., Keery et al. 2005; Matos et al. 2015; Thompson and Sargent 2000). Therefore, a measure that assesses the potential distinct effect of victimization experiences perpetrated by different agents may be particularly useful. Although modifications to existent measures were made to broaden their use, for instance by adding items addressing the specific source of the victimization (e.g., parents; Keery et al. 2005), they still have limited psychometric support. The use of single-item or dichotomous measures have also been used. However, these are not well-validated and may underestimate the strength of the associations between teasing and negative outcomes (Menzel et al. 2010).

The current study developed and assessed the psychometric properties of the Body Image Victimization Experiences Scale (BIVES). This measure comprises experiences that involve direct and indirect forms of victimization (e.g., rejection) related to one's body image (i.e., overall physical appearance), that occurred during childhood and adolescence, considering two distinct sources: peers and parents (or other relevant caregivers). This new measure addresses the frequency and the impact of the victimization experiences related to

body image perpetrated by peers and by parents/caregivers, based on the evidence that more than the presence, the severity of the bullying and teasing experiences may play a particularly important role in determining the negative effect of these experiences (Herbozo and Thompson 2006). Although evidence suggests that body image-related issues are prevalent in both genders (McCreary and Sasse, 2002; Pila, Brunet, Crocker, Kowalski, and Sabiston, 2016),, especially for women, body image-related experiences seems to play a significant role in self-evaluation, and in current and later psychological adjustment (Menzel et al. 2010; Pinto-Gouveia et al. 2014). Therefore, the BIVES factor structure was tested in distinct clinic and non-clinic-based samples of women with an ample age range.

The construct validity of the BIVES was examined via relationships with other measures of relational experiences in childhood and adolescence, within the family (Gilbert et al. 2003; Richter, Gilbert, & McEwan, 2009) and with peers (Rigby and Slee 1993). We further aimed to contribute to the extant evidence on the link between body image-related victimization and psychological functioning (e.g., Lunde et al. 2006; Menzel et al. 2010; Haines et al. 2006; Libbey et al. 2008), by examining the associations between the BIVES and self-criticism, body image shame, general psychopathology and eating psychopathology.

Methods

Participants

Female undergraduate students and women from the Portuguese general community who voluntarily accepted to take part in the research, were recruited in their respective educational institution or place of work by online advertisements in the institutions' websites and by communications from members of the Boards of the institutions. Females aged from 18 to 60 years old, with a minimum of 4 years of any education were eligible. The institutions

scheduled the assessment sessions and all participants who consented to take part in the study completed and provided the self-report measures. A total of 1,207 participants (718 students and 489 participants from the general population) were recruited in 2013-2014. Data from 30 participants (2.48%; 19 students and 11 participants from the general population) who had not completed at least 90% of the measures were excluded from the analyses.

We first recruited a convenience sample of 632 participants (371 students and 261 women from the general population) to examine the scale's factorial structure and internal reliability estimates. Additionally, a distinct convenience sample of 545 participants (328 students and 217 women from the general population) was recruited to conduct a Confirmatory Factor Analysis (CFA) and to examine further the scale validity. Of this latter sample of 545, a convenience subsample of 30 participants from institutions that approved a follow-up assessment was invited to complete the retest of the BIVES after a one-month period. At the first assessment these participants were asked to indicate a personal code to match the two surveys.

An additional sample of patients with Binge Eating Disorder (BED) was used to test the scale's ability to discriminate a clinical sample from participants from the general population. The recruitment was part of a larger study investigating factors related to the vulnerability and maintenance of eating disorders' symptoms. The study was presented to the practitioners at an eating disorders care unit at the BLOCKED FOR REVIEW, who then identified 89 potential participants and referred them to the researchers. Patients aged between 18 and 60 years, with a current diagnosis of BED (evaluated by the Eating Disorder Examination 16.0D; Fairburn, Cooper, and O'Connor 2008), and without current comorbid severe mental disorders (according to DSM-5 criteria; American Psychiatric Association 2013), current pregnancy, or severe medical or endocrine disorders were eligible. Seventy-three participants met eligibility criteria and all consented to complete the BIVES.

Procedure

Approval for the study protocol was obtained from the involved institutions' Ethics Committees and Boards. Participants were informed about the aims of the study and the voluntary and confidential nature of their cooperation. Written informed consents were obtained from all participants. The authors administered the questionnaires assisted by undergraduate students. The students were recruited within distinct courses of the BLOCKED FOR REVIEW (a campus that is part of the public university system and is attended by students from all over the country) and completed the measures at the end of designated lectures. The general population participants comprised convenience samples recruited from the staff of schools, private companies, and retail services from the central region of Portugal, that were asked to complete the self-report measures at a previously authorized break.

Scale development

The BIVES was developed to assess childhood or adolescence experiences of bullying and teasing related to physical appearance by peers (friends or colleagues) or by parents (or other caregivers). Item development was based on a literature review (e.g., Herbozo and Thompson 2006, Keery et al. 2005, Menzel et al. 2010, Sweetingham and Waller 2008), prior research and clinical experience. The authors generated a pool of 28 items that covered the continuum of victimization experiences, including the more direct (e.g., name-calling, being made fun of, or criticism) and indirect (e.g., rejection, exclusion, being commented about) forms that body image-related victimization experiences can take. The instructions ask participants to recall early experiences of being the target of negative interactions related to their physical appearance, and to indicate their frequency (Part A). Participants are also asked to indicate the extent to which each experience (if it occurred)

affected/upset them (Part B). Part A and Part B are rated using a 5-point scale ranging, respectively, from 1 = *Never* to 5 = *Very frequently* and from 1 = *Nothing* to 5 = *A lot* (total score for both parts is derived from the mean of item scores and range between 1 and 5).

The items were discussed with other researchers with clinical experience with body image and eating disorders. The initial version of the scale was administered to an independent sample of 118 female undergraduate students aged from 18 to 43 years (*Mean* = 20.57; *SD* = 2.91 years), with 14 to 18 years of education (*Mean* = 14.18; *SD* = 0.69 years) and with a mean body mass index (BMI) of 21.61 (*SD* = 2.89). Data collection followed the procedures described above. Students were asked to provide their feedback on item clarity. This first draft was then revised by the research team taking into account these preliminary quantitative and qualitative analyses. Items with very low estimates or with redundant content were dropped, and adaptations to some items and minor changes of wording were made. Eighteen items were retained in this process of refining the scale.

Measures

Early Life Events Scale (ELES; Gilbert et al. 2003) assesses emotional memories in one's family regarding feeling (un)valued, threatened and having to behave submissively. The scale includes 15 items (e.g., "I experienced my parents as powerful and overwhelming") in which participants are asked to answer to what extent each item is true for them (ranging from 1 = *Completely untrue*, to 5 = *Very true*). Items are summed to obtain a total score (score range 15-75). Higher values indicate more negative emotional memories. Gilbert et al. (2003) found the total scale to have a Cronbach's alpha of 0.92 (0.89 in the current study).

Peers Relations Questionnaire (PRQ; Rigby and Slee 1993) includes 20 items measuring relational experiences, including of victimization by peers (e.g., "I get called names by others"). Items are rated on a 4-point scale (1 = *Never* to 4 = *Very often*) and

summed to obtain a score ranging from 5 to 20 (the higher the score, the more frequent the experiences). The PRQ is a reliable bullying measure (with Cronbach's alpha estimates ranging from 0.86 to 0.78; Rigby and Slee 1993). In this study, instructions were adapted to address bullying experiences in childhood and adolescence (Cronbach's alpha of 0.86).

Early Memories of Warmth and Safeness Scale (EMWSS; Richter et al. 2009), with 21 items, measures early memories of feeling warm, safe and cared for (e.g., "I felt safe and secure"). Participants rate the frequency in which they experienced these feelings (0 = *No, never* to 4 = *Yes, most of the time*). A total score (total score range 0-84) is obtained by summing the items; higher scores indicate more positive emotional memories. The scale had a Cronbach's alpha of 0.97 in the original (Richter et al., 2009) and in the current study.

Forms of Self-Criticizing & Self-Reassuring Scale (FSCRS; Gilbert et al. 2004), with 22 items, includes two subscales that measure two forms of self-criticism – inadequate self (e.g. "There is a part of me that feels I am not good enough") and hated self (e.g., "I have a sense of disgust with myself"); and a third subscale measuring the ability to self-soothe – reassured self (e.g., "I can still feel lovable and acceptable"). Items are answered on a 5-point scale (0 = *Not at all like me*, to 4 = *Extremely like me*; score range 0-4 obtained as the mean of item scores). The Cronbach's alpha estimates were 0.90, 0.86 and 0.86 for the inadequate self, the hated self and the reassured self subscales in the original study (Gilbert et al. 2004) , and 0.77, 0.90, 0.88, in the current study, respectively.

Body Image Shame Scale (BISS; Duarte, Pinto-Gouveia, Ferreira, and Batista 2015) is a 14-item measure of body image shame (e.g., "My physical appearance makes me feel inferior in relation to others"). Each item is rated according to the frequency with which respondents experience body image shame (0 = *Never* to 4 = *Almost always*; score range 0-4 calculated as the mean of item scores), with higher scores indicating higher levels of body

image shame. The scale has high internal consistency (with an estimate of 0.96; Duarte, Pinto-Gouveia, Ferreira, and Batista 2015), with a Cronbach's alpha of 0.94 in this study.

Eating Disorder Examination 16.0D (EDE 16.0D; Fairburn et al. 2008) and *Eating Disorder Examination Questionnaire* (EDE-Q; Fairburn and Beglin 1994). The EDE provides a comprehensive evaluation of the diagnostic criteria for eating disorders and the frequency and severity of eating disorders' symptoms. It includes 4 subscales: restraint (e.g., "Have you been deliberately trying to limit the amount of food you eat to influence your shape or weight (whether or not you have succeeded?); eating concern (e.g., "Have you had a definite fear of losing control over eating?"); weight concern (e.g., "Has your weight influenced how you think about (judge) yourself as a person?"); and shape concern (e.g., "Has your shape influenced how you think about (judge) yourself as a person?"). A total score is derived from the mean of the subscales' scores (score range: 0-6). Higher scores indicate higher eating psychopathology severity. The EDE-Q is the self-report version of the EDE. The score range also varies between 0 and 6. In this study we used the EDE-Q total score. EDE-Q shows good psychometric properties with Cronbach's alpha estimates of 0.97 in community samples (Machado et al. 2014) and 0.95 in the current study.

Binge Eating Scale (BES; Gormally et al. 1982; Duarte, Pinto-Gouveia, and Ferreira 2015) assesses the behavioral, emotional and cognitive dimensions of binge eating. It comprises 16 items that include three or four statements (reflecting a rating of severity ranging from 0 – no difficulties– to 3 – severe problems; score range 0-46) and respondents are asked to select the one that best describes their experience (e.g., "I feel incapable of controlling urges to eat. I have a fear of not being able to stop eating voluntarily"). The scale has good psychometric properties with Cronbach's alpha estimates of 0.88 in community samples (Duarte, Pinto-Gouveia, and Ferreira 2015) and 0.88 in this study.

Depression Anxiety and Stress Scales – 21 (DASS21; Lovibond and Lovibond 1995).

The DASS21, with 21 items, assesses depressive (e.g., “I couldn’t seem to experience any positive feeling at all”), anxiety (e.g., “I was aware of dryness of my mouth”) and stress (e.g., “I found it hard to wind down”) symptoms. Respondents rate how frequently they experienced each symptom over the past week (0 = *Did not apply to me at all* to 4 = *Applied to me very much, or most of the time*). The scores are obtained by summing the items’ scores, which range from 0-21 for the depression, 0-20 for the anxiety and 0-21 for the stress subscales. Cronbach’s alpha estimates were 0.88, 0.82 and 0.90, respectively (Lovibond and Lovibond 1995). In this study the values were: 0.87, 0.84 and 0.90, respectively.

Body mass index (BMI). Participants’ BMI was calculated by dividing self-reported current weight (in kg) by self-reported height squared (in m).

Data analysis

A Principal Components Analysis (PCA) was conducted to identify the number of factors best describing the underlying pattern of correlations among the items. The scale’s internal consistency was assessed through Cronbach’s alpha coefficients and item-total correlations. A CFA was conducted using the Maximum Likelihood method. Recommended goodness of fit measures were selected to examine the global adjustment of the model (Tabachnick and Fidell 2013). Construct reliability and convergent validity were examined through the Composite Reliability (CR) and the Average Variance Extracted (AVE).

Retest reliability was analysed through t-Tests for Dependent Samples and Pearson product-moment correlations. The association between the BIVES and the other study variables was assessed by Pearson product moment correlations. A MANOVA was conducted to examine demographic and weight characteristics differences between women from the general population and the clinical sample using the General Linear Model for

multivariate analysis. Differences in the BIVES' scores between these groups were calculated through a MANCOVA retaining as a covariate BMI because the first analysis indicated significant differences between the two groups in this variable (considering the criteria of $p < .050$). The criterion Wilks' Lambda was used to assess the significance of the effects (Tabachnick and Fidell 2013). Partial eta squares (η^2) were used to analyse effect sizes, that is, the amount of the total variation owing to the factor excluding the effects of other factors from the non-error variation (Norman & Streiner, 2008). Preliminary analyses were conducted to confirm the assumptions of normality and homogeneity of variances. The SPSS and AMOS software (v. 21, Chicago, IL, USA) were used to conduct the analyses.

Results

Participants' characteristics

The BIVES scale was first examined in 632 participants ranging in age from 18 to 60 ($Mean = 28.22$; $SD = 11.38$) years, and from 4 to 21 ($Mean = 13.03$; $SD = 2.63$) years of education; 371 (58.7%) were students, 118 (18.7%) reported having a middle class profession, 99 (15.7%) low-income, 18 (2.8%) high-class professions, 24 (3.8%) were unemployed or reported other situations, and 2 (0.3%) did not provide information on socioeconomic status. Participants' mean BMI was 22.66 ($SD = 3.67$); 7.7% were low weight ($BMI < 18.5$); 69.7% were normal weight ($BMI \geq 18.5 - \leq 24.9$); 17.5% were overweight ($BMI \geq 25.0 - \leq 29.9$); 4.3% presented class I obesity ($BMI \geq 30.0 - \leq 34.9$), and 0.8% class II obesity ($BMI \geq 35.0 - \leq 39.9$; WHO, 1995).

The sample used to conduct the CFA ($n = 545$) presented ages ranging from 18 to 60 years old ($Mean = 28.97$; $SD = 11.96$), and years of education ranging from 4 to 26 ($Mean = 13.47$; $SD = 2.72$); 328 (60.2%) were students, 101 (18.5%) reported having a middle class

profession, 76 (14%) low-income, 16 (2.9%) high-class professions, 18 (3.3%) were unemployed or in other situations, and 6 (1.1%) did not provide information. Mean BMI was 23.09 ($SD = 3.79$); 6.2% presented low weight; 66.5%, normal weight; 21.9% were overweight; 4.3% presented class I obesity, and 1.1% class II obesity (World Health Organization, 1995). The two samples did not significantly differ by age ($F_{(1)} = 1.267$; $p = 0.261$) or BMI distribution ($X^2_{(4)} = 6.398$; $p = 0.171$). The second sample ($n = 545$) had a higher mean of years of education ($Mean = 13.48$; $SD = 2.72$), in comparison to the first ($n = 642$; $Mean = 13.02$; $SD = 2.63$; $F_{(1)} = 8.131$; $p = 0.007$). As expected, students ($Mean = 20.69$, $SD = 2.22$) were younger than participants from the general population ($Mean = 40.05$, $SD = 10.18$; $F_{(1)} = 2313.78$; $p < 0.001$), had more years of education ($Mean = 13.40$, $SD = 12.99$; $F_{(1)} = 6.60$; $p = .010$) and had lower BMI ($X^2_{(4)} = 126.453$; $p = < 0.001$; Póinhos et al. 2009), but students and participants from the general community were considered together to examine the measure in the continuum of the overall population.

The clinical sample had ages ranging from 19 to 59 years ($Mean = 38.22$; $SD = 10.75$) years, a mean of 13.71 ($SD = 3.84$) years of education and a mean BMI of 34.41 ($SD = 7.53$); 15.1% had normal weight, 13.7%, were overweight, 28.7% ($n = 21$), class I obesity; 15.1% class II obesity, and 27.4% class III obesity.

Exploratory Factor Analyses

First, the Part A – frequency was analyzed. The Kaiser-Meyer-Olkin measure of sampling adequacy (0.93) and the Bartlett's Test of Sphericity ($X^2_{(153)} = 8246.29$; $p < 0.001$) supported the data adequacy. In a non-rotated analysis, the Kaiser-Guttman criteria suggested the retention of three factors (eigenvalues of 8.26, 2.84 and 1) that accounted for 45.87%, 15.75% and 5.57% of the variance, respectively. A Parallel Analysis indicated two factors with eigenvalues larger than the parallel eigenvalues of the components derived from the

randomly generated correlation matrix. A second PCA with Direct Oblimin rotation was conducted, forcing a two-factor solution. This solution explained 61.63% of the variance, with the first factor – including the items referring to peers – explaining 45.87% and the second – including the items referring to parents – 15.75%. Two items were removed because they did not meet face validity and presented the lowest factor loadings on each respective factor: the item “At school I felt that my friends/colleagues with better appearance were more popular” presented loading of 0.61 on the factor Peers; and the item “My mother/father used to worry a lot about me getting fat” presented a loading of 0.43 on the factor Parents. This decision resulted in an increase of the amount of variance explained to 65.89%.

Also, results indicated that the internal consistency would improve with the deletion of four additional items. Following a conservative approach to achieve a psychometrically and theoretically robust scale, these items were progressively deleted. This two-factor solution explained a total of 73.76% of the variance, with the factor peers accounting for 53.33% and the factor parents for 20.42%. The scale presented a Cronbach’s alpha of 0.92, and the factors 0.93 and 0.92, respectively, indicating an excellent internal consistency (DeVellis 2011). Item-total correlations were above 0.69 for peers and 0.65 for parents.

The same procedure was followed regarding the Part B – impact. The KMO was 0.93 and the Bartlett’s test of sphericity was significant ($\chi^2_{(153)} = 8396.36; p < 0.001$). Results indicated two factors with eigenvalues above 1 (8.67 and 2.63) that explained a total of 62.75% of the variance. The Parallel Analysis confirmed the retention of two factors. The final structure accounted for 72.58% of the variance, with the peers factor accounting for 54.13% and the parent factor for 18.45%. This part had an excellent internal consistency ($\alpha = 0.92$), as well as the peers factor ($\alpha = 0.93$) and parents factor ($\alpha = 0.92$). Item-total correlations were above 0.66 for the peers subscale and above 0.71 for the parents (Table 1).

Table 1 should be inserted around here

Confirmatory Factor Analyses

A two-factor model regarding Part A – frequency was tested. The initial analysis indicated a poor model fit [$\chi^2_{(53)} = 517.62, p < 0.001$; CMIN/DF = 9.77, CFI = 0.91; TLI = 0.89; RMSEA = 0.13]. The analysis of the Modification Indices and items’ content supported the specification of correlations between the measurement errors of the items 16 and 14 (100.86), in peers, and of the items 15 and 9 (109.39), and 7 and 4 (80.83), in parents. A second analysis indicated that the model presented good global fit [$\chi^2_{(50)} = 220.49; p < 0.001$; CMIN/df = 4.41; CFI = 0.97; TLI = 0.96; RMSEA = 0.08].

The same two-factor structure was tested for Part B – impact. Results indicated the following model fit: $\chi^2_{(53)} = 388.18, p < 0.001$; CMIN/DF = 7.32, CFI = 0.93; TLI = 0.91; RMSEA = 0.11. We specified the correlated measurement errors between items 14 and 16, in the peers subscale (75.14), and 7 and 4 (62.03) in the parents. This resulted in an overall improvement of the model fit [$\chi^2_{(51)} = 215.77, p < 0.001$; CMIN/DF = 4.23, CFI = 0.97; TLI = 0.96; RMSEA = 0.08]. Both part A and B revealed good local adjustment indices (Table 2; (Tabachnick and Fidell 2013)).

Table 2 should be inserted around here

Validity and Reliability Analyses

In Part A the two factors revealed a CR of 0.95. The peers factor presented an AVE of 0.78 and the parent factor 0.77, suggesting adequate convergent validity. The factors showed good discriminant validity since the AVE of each factor was higher than their squared correlation. Both factors in Part B– impact revealed a CR of 0.95 and an AVE of 0.75, thus revealing good convergence. The factors also revealed good discriminant validity.

Test-retest reliability

Results showed no significant differences between the test and retest regarding the Part A ($t_{Peers(29)} = 0.38, p = 0.708; t_{Parents(29)} = 0.35, p = 0.728$) and Part B ($t_{Peers(29)} = 0.94, p = 0.356; t_{Parents(29)} = 0.58; p = 0.565$). The test and retest for Part A were strongly positively correlated ($r_{Peers} = 0.83; r_{Parents} = 0.80$) and Part B ($r_{Peers} = 0.89; r_{Parents} = 0.86$).

BIVES correlations with other measures

Results (Table 3) revealed positive moderate associations between the BIVES subscales. Positive associations were found between the BIVES, namely the parents subscale, and negative emotional memories with family. Large to moderate positive correlations were found between the peers subscale, and peer bullying. In contrast, the BIVES subscales were negatively correlated, with a low magnitude, with memories of warmth and safeness. The BIVES subscales were negatively associated with self-reassurance, and positively associated with self-criticism, and depressive, anxiety and stress symptoms. Results showed positive and moderate correlations between the BIVES and body image shame, eating psychopathology,

and binge eating symptomatology. Positive significant but small associations were found between the BIVES factors and current BMI.

Table 3 should be inserted around here

Victimization experiences measured by BIVES and binge eating

To evaluate BIVES' ability to discriminate patients with BED and women from the general population, we compared the BIVES between the clinical sample ($n = 73$) and a sample randomly selected from the overall sample ($n = 75$). Results of the MANOVA indicated that the two samples did not present significant differences regarding age ($F_{(1)} = 3.36, p = 0.069$) and years of education ($F_{(1)} = 2.62, p = 0.108$). The patients presented significantly higher BMI ($F_{(1)} = 125.38; p < 0.001$). Therefore, this variable was controlled for in a 2 (clinical condition) x 4 (frequency and impact of victimization experiences with peers and parents) MANCOVA. Results indicated a significant main effect of the clinical condition on the BIVES' subscales, *Wilks' Lambda* = 10.42, $p < 0.001$, with a large effect (partial $\eta^2 = 0.23$). The patients reported significantly higher frequency and impact of body image-related victimization experiences by peers and parents in comparison to the general population sample (Table 4).

Table 4 should be inserted around here

Discussion

Being victimized in childhood and adolescence may have deleterious and enduring consequences for mental health, namely eating psychopathology (e.g., Menzel et al. 2010). Hence, the development of measures that contribute to a wider understanding of the role that being the victim of negative experiences related to body image on negative outcomes among women is particularly relevant. The current study presents the development and validation of

the BIVES, a retrospective measure of the frequency of victimization experiences about body image, and their emotional impact, inflicted by distinct sources: peers and parents/caregivers.

In both the frequency and impact parts of the scale, two distinct factors emerged, which referred to victimization experiences perpetrated by peers (e.g., colleagues and friends) and by parents (e.g., mother and father or other caregivers), with six items each. Two CFAs confirmed the plausibility of this two-factor model (Tabachnick and Fidell 2013), supporting that the scale had a consistent factor structure across independent samples. The BIVES internal consistency and item-total correlation analyses confirmed the quality and adequacy of the items to each respective factor. The BIVES factors in both parts also presented high convergent and discriminant validity, and temporal stability examined over a one-month period. Thus, the current data demonstrate that the BIVES is a brief and psychometrically sound measure. Unlike other widely used measures that focus on specific aspects of the physical appearance (e.g., excess weight; Thompson et al., 1995) as the potential reason for being the target of negative social interactions, the BIVES assesses victimization experiences related to physical appearance in general. Given the growing evidence suggesting the negative effects of perceptions that one's physical self may be the cause for negative social experiences, despite actual physical appearance characteristics (e.g., Ferreira et al. 2013; Duarte, Pinto-Gouveia, and Rodrigues, 2015), the use of a generic body image-focused victimization scale holds significant potential for researchers and clinicians. Moreover, by allowing the assessment of the occurrence and impact of these experiences perpetrated by two relevant distinct sources – peers and parents – this measure may be an important contribution for the development of conceptualization models and clinical research investigating the specific effect of these experiences on a series of psychological adjustment indicators and processes.

The current study also demonstrated the validity, specificity and potential utility of the BIVES given the pattern of relationships that were found with other measures assessing relational experiences in childhood and adolescence and negative psychological symptoms and processes. These findings confirmed the instrument convergent validity by demonstrating that victimization experiences focused on the body image domain are related but do not overlap with more general negative interactions experienced in childhood and adolescence. Moreover, the BIVES was positively associated with current levels of self-criticism, (Gilbert et al. 2004), which has been associated with poor mental health indicators, namely eating psychopathology (Duarte et al. 2014; Duarte, Pinto-Gouveia, and Rodrigues 2015; Pinto-Gouveia, Ferreira, and Duarte 2014). Also, body image-related victimization experiences were positively linked with depressive, anxiety and stress symptoms, current body image shame and eating psychopathology, namely binge eating. These findings add to previous evidence demonstrating the role of these experiences on disordered eating symptomatology (e.g., Menzel et al. 2010) and on the individual self-evaluation and psychological and interpersonal functioning (Duarte, Pinto-Gouveia, and Rodrigues 2015; Haines et al. 2006; Lunde et al. 2006; Matos et al. 2015; Menzel et al. 2010; Pinto-Gouveia et al. 2014).

Our findings are also aligned with prior research conducted in eating disorders samples (e.g., Matos et al. 2015) as it demonstrated that a sample of women diagnosed with an eating disorder, in comparison to women from the general population, recalled having been more frequently teased and bullied about their body image both by their peers and parents, and also that these experiences had a greater emotional impact. Hence, these findings point to important directions of research focused on the potential negative effect that these types of experiences, may have on individuals' body image, eating behavior, self-evaluation and overall wellbeing. In particular, the BIVES provides a means to test these associations

considering the specific effect of the occurrence and emotional impact of victimization experiences perpetrated by distinct relevant social agents.

An important limitation of this study was the retrospective nature of the measure and the fact that current psychosocial adjustment may bias self-assessment of recollection of earlier experiences. Nonetheless, the main aim of this research was to develop and validate a new measure that could contribute for a wider assessment of experiences of victimization regarding one's body image and their perceived impact. Future research may focus on investigating causality mechanisms related to such experiences by testing the use of this measure on longitudinal designs. The sampling method was also a limitation as the nonclinical samples comprised convenience samples that were not representative of the general population, reducing generalizability of results and having the potential for social acceptability bias. Moreover, although the study was conducted in women, which is considered a relevant population in which body-image related experiences play a significant role in current and later psychological adjustment, growing evidence demonstrate these experiences may also have a deleterious effect in men (e.g., Menzel et al., 2010; Pila et al., 2016). Therefore, future research should examine the BIVES' measurement model invariance and correlates in male participants. Also, the scales' structure invariance and psychometric properties should be tested in other samples (e.g. adapting the time frame to apply the scale to adolescents; clinical samples) and other languages (e.g., English speaking countries).

In conclusion, the BIVES is a psychometrically robust measure that allows for a brief and valid assessment of the frequency and effect of body image-related victimization experiences, considering two distinct sources—peers and parents. The findings suggested the usefulness of this new measure in clinical settings as well as in research investigating risk and protective factors for psychological adjustment, and body image and eating difficulties.

References

- American Psychiatric Association, American Psychiatric Association 2013. *Diagnostic and statistical manual of mental disorders : DSM-5*. Arlington, VA: American Psychiatric Publishing.
- Cash, T. 2004. "Body image: Past, present, and future." *Body Image* 1 (1):1-5. doi: 10.1016/S1740-1445(03)00011-1.
- DeVellis, R. 2011. *Scale development: Theory and applications* 3rd ed. Thousand Oaks, CA: Sage Publications.
- Duarte, C. , J. Pinto-Gouveia, and C. Ferreira. 2014. "Escaping from body image shame and harsh self-criticism: Exploration of underlying mechanisms of binge eating." *Eating Behaviors* 15 (4):638-643. doi: 10.1016/j.eatbeh.2014.08.025.
- Duarte, C., J. Pinto-Gouveia, and C. Ferreira. 2015. "Expanding binge eating assessment: Validity and screening value of the Binge Eating Scale in women from the general population." *Eating Behaviors* 18: 41-47. doi: 10.1016/j.eatbeh.2015.03.007
- Duarte, C., J. Pinto-Gouveia, C. Ferreira, and D. Batista. 2015. "Body image as a source of shame: A new measure for the assessment of the multifaceted nature of body image shame." *Clinical Psychology & Psychotherapy* 22(6):656-666. doi: 10.1002/cpp.1925.
- Duarte, C., Pinto-Gouveia, J., & T. Rodrigues . 2015. "Being bullied and feeling ashamed: Implications for eating psychopathology and depression in adolescent girls." *Journal of Adolescence* 44: 259-268. doi:10.1016/j.adolescence.2015.08.005
- Fairburn, C., and S. Beglin. 1994. "Assessment of eating disorders: Interview or self-report questionnaire?" *International Journal of Eating Disorders* 16 (4):363-370. doi: 10.1002/1098-108X(199412)16:4<363::AID-EAT2260160405>3.0.CO;2-#.

Fairburn, C., Z. Cooper, and M. O'Connor. 2008. "Eating Disorder Examination (Edition 16.0D)." In *Cognitive behavior therapy and eating disorders* edited by C. Fairburn, 265–308. New York: Guilford Press.

Ferreira, C., J. Pinto-Gouveia, and C. Duarte. 2013. "Physical appearance as a measure of social ranking: The role of a new scale to understand the relationship between weight and dieting." *Clinical Psychology & Psychotherapy* 20 (1):55-66. doi: 10.1002/cpp.769.

Fox, C., and C. Farrow. 2009. "Global and physical self-esteem and body dissatisfaction as mediators of the relationship between weight status and being a victim of bullying." *Journal of Adolescence* 32 (5):1287-1301. doi: 10.1016/j.adolescence.2008.12.006.

Gilbert, P. 2002. "Body shame: A biopsychosocial conceptualisation and overview with treatment implications." In *Body shame: Conceptualisation, research and treatment*, edited by P. Gilbert and J. Miles, 3-54. New York: Brunner Routledge.

Gilbert, P., M.S.P. Cheung, T. Grandfield, F. Campey, and C. Irons. 2003. "Recall of threat and submissiveness in childhood: Development of a new scale and its relationship with depression, social comparison and shame." *Clinical Psychology and Psychotherapy* 10:108-115. doi: 10.1002/cpp.359.

Gilbert, P., M. Clarke, S. Hempel, J. N. Miles, and C. Irons. 2004. "Criticizing and reassuring oneself: An exploration of forms, styles and reasons in female students." *British Journal of Clinical Psychology* 43 (Pt 1):31-50. doi: 10.1348/014466504772812959.

Gormally, J., S. Black, S. Daston, and D. Rardin. 1982. "The assessment of binge eating severity among obese persons." *Addictive behaviors* 7 (1):47-55. doi: 10.1016/0306-4603(82)90024-7.

Haines, J., D. Neumark-Sztainer, M. E. Eisenberg, and P. J. Hannan. 2006. "Weight teasing and disordered eating behaviors in adolescents: Longitudinal findings from project EAT (Eating Among Teens)." *Pediatrics* 117 (2):209-215. doi: 10.1542/peds.2005-1242.

- Herbozo, S., and J. K. Thompson. 2006. "Appearance-related commentary, body image, and self-esteem: Does the distress associated with the commentary matter?" *Body Image* 3 (3):255-262. doi: 10.1016/j.bodyim.2006.04.001.
- Keery, H., K. Boutelle, P. van den Berg, and J. K. Thompson. 2005. "The impact of appearance-related teasing by family members." *Journal of Adolescent Health* 37:120–127. doi: 10.1016/j.jadohealth.2004.08.015..
- Libbey, H. P., M. T. Story, D. R. Neumark-Sztainer, and K. N. Boutelle. 2008. "Teasing, disordered eating behaviors, and psychological morbidities among overweight adolescents." *Obesity* 16:S24–S29. doi: 10.1038/oby.2008.455.
- Lovibond, S. , and P. Lovibond. 1995. *Manual for the Depression Anxiety Stress Scales*. 2nd ed. Sydney: Psychology Foundation.
- Lunde, C. , A. Frisé, and C. Hwang. 2006. "Is peer victimization related to body esteem in 10-year-old girls and boys?" *Body Image* 3 (1):25–33. doi: 10.1016/j.bodyim.2005.12.001.
- Machado, P., C. Martins, A. Vaz, E. Conceição, A. Bastos, and S. Gonçalves. 2014. "Eating Disorder Examination Questionnaire: Psychometric properties and norms for the Portuguese population." *European Eating Disorders Review* 22 (6):448-453. doi: 10.1002/erv.2318.
- Matos, M., C. Ferreira, C. Duarte, and J. Pinto-Gouveia. 2015. "Eating disorders: When social rank perceptions are shaped by early shame experiences." *Psychology and Psychotherapy: Theory Research and Practice* 88(1):38-53. doi: 10.1111/papt.12027.
- Matos, M., J. Pinto-Gouveia, and V. Costa. 2014. " Understanding the importance of attachment in shame traumatic memory relation to depression: The impact of emotion regulation processes." *Clinical Psychology & Psychotherapy*. 20(2):149-165. doi: 1002/cpp.786

- Menzel, J. E., L. M. Schaefer, N. L. Burke, L. L. Mayhew, M. T. Brannick, and J. K. Thompson. 2010. "Appearance-related teasing, body dissatisfaction, and disordered eating: A meta-analysis." *Body image* 7:261–270. doi:10.1016/j.bodyim.2010.05.004.
- Norman, G. and D. Streiner. 2008. "Biostatistics: The bare essentials." Hamilton: Bc Decker.
- Pila, E., J. Brunet, P. Crocker, K. Kowalski, and C. Sabiston. 2016. "Intrapersonal characteristics of body-related guilt, shame, pride, and envy in Canadian adults." *Body image* 16: 100-106. doi:10.1016/j.bodyim.2016.01.001
- Pinto-Gouveia, J., C. Ferreira, and C. Duarte. 2014. "Thinness in the pursuit for social safeness: An integrative model of social rank mentality to explain eating psychopathology." *Clinical Psychology & Psychotherapy* 21 (2):154-165. doi: 10.1002/cpp.1820.
- Póinhos, R., B. Franchini, C. Afonso, F. Correia, V. Teixeira, P. Moreira, C. Durão, O. Pinho, D. Silva, J. Lima-Reis, T. Veríssimo, M. de Almeida. 2009. "Alimentação e estilos de vida da população Portuguesa: Metodologia e resultados preliminares [Alimentation and life styles of the Portuguese population: Methodology and preliminary results]." *Alimentação Humana* 15(3):43-60.
- Richter, A., P. Gilbert, and K. McEwan. 2009. "Development of an early memories of warmth and safeness scale and its relationship to psychopathology." *Psychology and Psychotherapy: Theory, Research and Practice* 82:171–184. doi: 10.1348/147608308X395213.
- Rigby, K., and P. T. Slee. 1993. "Dimensions of interpersonal relating among Australian school children and their implications for psychological well-being." *Journal of Social Psychology* 133 (1):33-42. doi: 10.1080/00224545.1993.9712116.
- Stice, E., C. N. Marti, and S. Durant. 2011. "Risk factors for onset of eating disorders: Evidence of multiple risk pathways from an 8-year prospective study." *Behaviour Research and Therapy* 49 (10):622-627. doi: 10.1016/j.brat.2011.06.009.

Sweetingham, R. , and G. Waller. 2008. "Childhood experiences of being bullied and teased in the eating disorders." *European Eating Disorders Review* 16:401-407. doi: 10.1002/erv.839.

Tabachnick, B., and L. Fidell. 2013. *Using multivariate statistics*. 6th ed. Boston: Pearson.

Thompson, J. K., J. Cattarin, B. Fowler, and E. Fisher. 1995. "The Perception of Teasing Scale (POTS): A Revision and extension of the Physical Appearance Related Teasing Scale (PARTS)." *Journal of Personality Assessment* 65 (1):146-157. doi: 10.1207/s15327752jpa6501_11.

Thompson, J. K., L.. Fabian, D. Moulton, M. Dunn, and M. Altabe. 1991. "Development and validation of the Physical Appearance Related Teasing Scale." *Journal of Personality Assessment* 56 (3):513-521. doi: 10.1207/s15327752jpa5603_12.

Thompson, S. H., and R. G. Sargent. 2000. "Black and White women's attitudes toward being overweight, reported body dissatisfaction and parental criticism of their childhood appearance." *Women and Health* 30 (3):77-92. doi: 10.1300/J013v30n03_06.

World Health Organization. 1995. *Physical status: The use and interpretation of anthropometry. Reports of a WHO Expert Committee*. WHO Technical Report series 854. Geneva: World Health Organization.

Table 1.

Means (*M*), Standard Deviation (*SD*), Communalities (h^2), Factor loadings (λ) of each factor, item-total correlations (*r*) and Cronbach's alpha if item deleted (α ; $n = 632$)

Items	Part A – Frequency							Part B – Impact							
	<i>M</i>	<i>SD</i>	h^2	λ F1	λ F2	<i>r</i>	α	<i>M</i>	<i>SD</i>	h^2	λ F1	λ F2	<i>r</i>	α	
Peers															
3 – My physical appearance used to be a reason for my colleagues/friends to mock me.	1.45	0.92	0.85	0.94	-	0.88	0.91	0.75	1.47	0.77	0.94	-	0.87	0.90	
					0.03							0.04			
1 – My colleagues/friends called me names because of my weight/body shape.	1.48	0.92	0.82	0.93	-	0.85	0.91	0.84	1.53	0.79	0.88	-	0.84	0.91	
					0.06							0.02			
8 – I was pointed at by my colleagues/friends because of my weight or body shape.	1.39	0.88	0.82	0.91	-	0.86	0.91	0.63	1.34	0.84	0.93	-	0.87	0.90	
					0.01							0.03			
5 – My colleagues/friends tormented me because of my physical appearance.	1.38	0.86	0.78	0.88	0.01	0.83	0.92	0.62	1.35	0.74	0.87	-	0.80	0.91	
												0.01			
16 – At school I was left out/excluded because of my body shape.	1.19	0.64	0.64	0.77	0.07	0.73	0.93	0.31	1.00	0.56	0.71	0.01	0.66	0.93	
14 – My colleagues/friends made fun of me when I exercised.	1.29	0.80	0.61	0.76	0.03	0.69	0.93	0.44	1.20	0.62	0.79	-	0.70	0.92	
												0.00			
Parents															
15 – My mother/father said or did things that made me feel bad about my physical appearance.	1.18	0.62	0.82	-	0.92	0.84	0.89	0.28	0.95	0.77	-	0.91	0.80	0.90	
				0.04							0.08				
7 – My mother/father made negative comments about my weight or body shape.	1.27	0.74	0.81	-	0.91	0.85	0.89	0.43	1.13	0.80	0.04	0.87	0.85	0.89	
				0.02											
9 – My mother/father used names like “fat” to describe me.	1.14	0.60	0.75	0.01	.086	0.79	0.90	0.22	0.87	0.72	-	0.86	0.76	0.90	
											0.04				
4 – My mother/father criticized me because of my weight or body shape.	1.30	0.79	0.75	0.02	0.85	0.80	0.90	0.51	1.24	0.75	-	0.81	0.80	0.90	
											0.07				
13 – My mother/father made jokes about my body shape or weight.	1.14	.052	0.65	-	0.84	0.71	0.91	0.21	0.79	0.65	0.10	0.84	0.71	0.91	
				0.07											
12 – My mother/father commented aloud my physical	1.27	0.69	0.57	.019	0.65	0.65	0.92	0.42	1.08	0.63	0.14	0.71	0.71	0.91	

appearance with other family
members.



Note: Part A – Frequency item scores range 1-5; Part B – Impact item scores range 1-5.

Table 2.

Standardized Regression Weights (SRW) and Squared Multiple Correlations (SMC; n = 545)

Items	Part A – Frequency		Part B – Impact	
	SRW	SMC	SRW	SMC
Peers				
3	0.93	0.86	0.91	0.84
1	0.83	0.62	0.88	0.77
8	0.89	0.80	0.86	0.73
5	0.81	0.66	0.82	0.67
16	0.67	0.45	0.62	0.38
14	0.70	0.49	0.65	0.42
Parents				
15	0.86	0.75	0.89	0.79
7	0.88	0.77	0.84	0.71
9	0.77	0.59	0.77	0.59
4	0.83	0.68	0.80	0.63
13	0.74	0.54	0.73	0.54
12	0.75	0.56	0.76	0.58

Table 3.

Correlations (two-tailed Pearson's r) between the BIVES Part A (Peers and Parents Frequency) and Part B (Peers and Parents Impact) and early life negative (ELES) and positive (EMWSS) experiences, bullying experiences (PRQ), forms of self-criticism (FSCRS), body image shame (BISS), eating psychopathology (EDEQ) and binge eating (BES), depression anxiety and stress (DASS21), and BMI.

		Peers Frequency	Peers Impact	Parents Frequency	Parents Impact
	Peers Frequency	1			
BIVES	Peers Impact	0.77***	1		
	Parents Frequency	0.48***	0.42***	1	
	Parents Impact	0.44***	0.48***	0.78***	1
	ELES	0.28***	0.21***	0.41***	0.31***
PRQ-R	0.52***	0.43***	0.20***	0.17***	
EMWS	-0.27***	-0.23***	-0.25***	-0.22***	
	Inadequate self	0.29***	0.29***	0.28***	0.31***
FSCRS	Reassured self	-0.09*	-0.10*	-0.11**	-0.09*
	Hated self	0.33***	0.28***	0.29***	0.27***
	BISS	0.41***	0.37**	0.32***	0.37***
EDEQ	0.38***	0.37***	0.39***	0.43***	
BES	0.33***	0.31***	0.35***	0.38***	
	Depression	0.25***	0.24***	0.22***	0.22***
DASS21	Anxiety	0.26***	0.22***	0.21***	0.19***
	Stress	0.28***	0.29***	0.25***	0.23***
BMI		0.18***	0.14**	0.20***	0.19***

BIVES, Body Image Victimization Experiences Scale (Part A – Frequency scores range 1-5; Part B – Impact scores range 1-5); ELES, Early Life Events Scale (scores range 1-5); PRQ-R, Peers Relations Questionnaire-Retrospective (scores range 1-5); FSCRS, Forms of Self-Criticizing/Reassuring Scale (scores range 0-4); BISS, Body Image Shame Scale (scores range 0-4); EDEQ, Eating Disorder Examination Questionnaire (scores range 0-6); BES, Binge Eating Scale (scores range 0-3); DASS21, Depression Anxiety and Stress Scales (scores range 0-4); BMI, Body Mass Index.

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Table 4.

BIVES factors comparison between the clinical sample (n = 73) and the sample from the general population (n = 75)

	Clinical <i>M(SD)</i>	General population <i>M(SD)</i>	<i>F; df</i>	<i>Significance</i>
Peers Frequency	2.74 (1.38)	1.38 (0.68)	20.86; 1	< .001
Peers Impact	3.42 (1.80)	1.34 (1.69)	30.62; 1	<.001
Parents Frequency	2.19(1.18)	1.23(1.95)	18.40; 1	<.001
Parents Impact	2.68(1.95)	0.74 (1.24)	29.28	<.001