

Body image shame in men: Confirmatory Factor Analysis and psychometric properties of the Body Image Shame Scale

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Abstract

Purpose

Body image shame plays a key role in disordered eating symptoms and psychological adjustment. Nonetheless, research has been mainly focused on women. The Body Image Shame Scale (BISS) was previously developed and tested in a nonclinical sample of women.

This study examines the BISS in a male sample comprising students and community participants.

Methods

Participants were 420 men, who completed the BISS and self-report measures of shame, self-criticism, body weight and shape concerns and psychopathological symptoms.

Results

The previously identified structure of the BISS, with an external and internal dimension, fitted the data well. All items presented high reliability. The BISS total score and its subscales in men present high construct reliability, and convergent and discriminant validity. Correlation analyses indicated that BISS and its subscales in men present positive associations with general shame and self-criticism, body weight and shape concerns, and with indices of poorer psychological adjustment.

Conclusion

Findings supported that the BISS is a reliable measure to assess body shame in men.

Introduction

Shame is a complex, self-conscious emotion that involves evaluations that one is negatively viewed by others (Gilbert, 1998; Gilbert, 2007; Lewis, 2003). Shame has been defined as involving two dimensions: an external dimension regarding how one believes others see and judge the self (e.g., as bad, inadequate, flawed); and an internal dimension in which these evaluations become internalized in the form of self-criticism (Gilbert, 2002; Lewis, 2003). These evaluations are highly distressing as they involve threatening perceptions that one stands at risk of being rejected or excluded. As such, shame activates defensive behavioural responses, such as concealment or avoidance and attempts to overcompensate (Gilbert, 1998). Research shows that shame plays a central role in a series of psychopathological difficulties, including depression (Kim, Thibodeau, & Jorgensen, 2011), anxiety (Matos, Pinto-Gouveia, & Gilbert, 2013) and body and eating related psychopathology (e.g., Duarte, Ferreira, & Pinto-Gouveia, 2016; Ferreira, Matos, Duarte, & Pinto-Gouveia, 2014; Goss & Allan, 2009; Pinto-Gouveia, Ferreira, & Duarte, 2014;

Swan & Andrews, 2003). Body shame involves evaluations that one's physical appearance (e.g., body shape, size, weight) may be the source of others' negative view about oneself (Gilbert, 2002). These evaluations may lead to affective-defensive responses such as desires to hide/conceal the body or avoid social situations in which physical appearance may be exposed to others and evaluated by them (Gilbert, 2002; Duarte, Pinto-Gouveia, Ferreira, & Batista, 2015). These outcomes may however paradoxically increase shame, negative affect and have a negative impact in one's life (Duarte et al., 2016).

Body image research has been mainly focused on women, but there is growing evidence that body image in men is also an important domain for self-evaluation that is associated with psychological adjustment problems and problematic eating behaviours (e.g., Cafri & Thompson, 2004; Cain, Epler, Steinley, & Sher, 2012; Dakanalis & Riva, 2013; Duarte & Pinto-Gouveia, 2017; Pila, Brunet, Crocker, Kowalski, Sabiston, 2016; Striegel-Moore et al., 2009; Thompson & Cafri, 2007). These studies support that both women and men may be similarly affected by evaluations that their physical appearance makes them inferior and may cause others to criticize or reject them. The development and examination of psychometric measures that allow the assessment of body shame in men is, thus, greatly needed to better understand the impact of this dimension in this population.

Existing measures of body shame have been used to assess the cognitive and emotion dimensions of body shame and are mainly derived from theoretical models focused on women's body image. For instance, the body shame subscale of the Objectified Body Consciousness Scale (McKinley & Hyde, 1996) measures the self-consciousness of appearance that is generated by the tendency to scrutinize one's body as an object and compare it with sociocultural idealized images. The Experiences of Shame Scale (Andrews, Qian & Valentine, 2002) includes a subscale of body shame that measures, through single items, the cognitive and emotional aspects of body shame, as well as the behavioural dimension (e.g., avoidance and concealment). However, the psychometric properties and utility of these measures to assess body shame in samples of men were never systematically examined. The Weight and Body-related Shame and Guilt Scale (Conradt et al., 2007) was developed to assess shame about body shape and weight, and guilt about eating behaviour, physical activity and weight control behaviours. The validation study of this measure showed a similar factor structure between women and men. However, this scale was developed to be used in samples of individuals with excess weight or obesity and thus its use may not be generalizable to individuals from the general population with a wide range of weights. Duarte and colleagues (2015) developed the Body Image Shame Scale (BISS) to measure body shame and its internal and external affective and behavioural dimensions. The external dimension involves perceptions that one's body image may be the source of negative evaluations or criticism by others, which leads to increased distress or avoidance of contexts in which the individual is more exposed to such evaluations. The internal dimension involves negative self-evaluations and subsequent body image concealment. Studies show that body shame as measured by the BISS is associated with body image and eating difficulties in both adolescent girls (Duarte, Pinto-Gouveia, & Rodrigues, 2015) and adult women with and without eating disorders (Duarte, Pinto-Gouveia, & Ferreira, 2015).

The current study examined the factor structure and psychometric properties of the BISS in a sample of male college students and men from the general community.

Method

Participants

A sample of 420 Portuguese men was used in this study. Participants were college students ($n = 215$) and community participants ($n = 205$) with ages ranging from 18 to 69 years, and with a mean age of 28.63 ($SD = 10.93$) and of 13.09 ($SD = 2.87$) years of education. Participants' mean Body Mass Index (BMI) was 24.01 ($SD = 3.86$).

Measures

BMI. Participants' BMI was calculated by dividing current self-reported weight (in kg) by height squared (in m).

Participants completed the following self-report measures, which were previously translated and validated in Portuguese samples:

The *Body Image Shame Scale* (BISS; Duarte, et al., 2015) assesses shame focused on body image. It includes: an externalized dimension, that assesses judgements of being negatively evaluated or criticized by others because of one's physical appearance (7 items; 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, which focus on negative self-evaluations based on one's physical appearance (7 items; e.g., "When I see my body in the mirror I feel I am a defective person"). A composite score of body image shame can also be calculated. Each item is rated according to the frequency with which participants experience body image shame (from 0 = "Never" to 4 = "Almost always"). BISS revealed a Cronbach's alpha of .92 (Duarte et al., 2014).

The *Eating Disorder Examination Questionnaire* (EDE-Q; Fairburn & Beglin, 1994; Machado et al., 2014) is a comprehensive measure of weight and body image problems and disordered eating behaviours. The EDE-Q comprises 36 items which focus on the past 28 days. The items are rated for frequency of occurrence of the experience/symptom described in each item (from 0 = "No days" to 6 = "Every day") or for severity (from 0 = "Not at all" to 6 = "Markedly"). Higher scores indicate greater levels of disturbance. In the current study, we used the subscales Body Shape Concerns and Body Weight Concerns, which have been found to present high estimates of internal consistency in samples of men and women from the general community (Aardoom, Dingemans, Slof Op't Landt, & Van Furth, 2012; Reas, Øverås, & Rø, 2012).

The *Other as Shamer Scale-2* (OAS-2; Matos, Pinto-Gouveia, Gilbert, Duarte, & Figueiredo, 2015) is an 8-item self-report measure that assesses external shame, that is, global judgements that other people look down on, negatively evaluate, or criticise the individual. Respondents are asked to indicate the frequency of their shame experiences, using a 5-point scale (0 = "Never" to 4 = "Almost always"). Higher scores

indicate high external shame. In the original study conducted in a sample of men and women recruited from a public university and from the general community, the scale showed a Cronbach's alpha of .92.

The *Forms of Self-Criticizing & Self-Reassuring Scale* (FSCRS; Gilbert et al., 2004; Castilho & Pinto-Gouveia, 2011) is a 22-item scale that assesses self-criticism in relation to setbacks or failures. The scale assesses two forms of self-criticism: inadequate-self, which involves feelings of inadequacy and inferiority; and hated-self, characterized by self-punishment and feelings of disgust and hatred for the self. For the purpose of this study, these two forms were combined to measure self-criticism. Respondents use a 5-point scale (ranging from 0 = "not at all like me", to 4 = "extremely like me"), to assess how much each statement applies to their experience. In a nonclinical sample of undergraduate students that included men and women the scale presented Cronbach's alpha values of .85 to .90; Baião, 2014).

The *Depression Anxiety and Stress Scales – 21* (DASS21; Lovibond & Lovibond, 1995; Pais-Ribeiro, Honrado, & Leal, 2004) assesses symptoms of Depression, Anxiety, and Stress. Respondents are asked to indicate the frequency they experienced each symptom over the past week using a 4-point scale (0 = "did not apply anything to me" to 3 = "applied to me very much"). The scale presented Cronbach's alpha values of .88, .82, and .90 for Depression, Anxiety, and Stress respectively in men and women from the general population (Henry & Crawford, 2005).

Procedure

Approval was obtained from the Ethic Committees and boards of the institutions involved in the study. Participants comprised a convenience sample recruited from educational and professional institutions from the central region of Portugal.

The researchers contacted these institutions inviting them to take part this study, which was advertised as requiring that participants voluntarily completed a set of self-report questionnaires. Data collection took place in those who accepted to collaborate. The study was presented by the researchers at each site. All participants were informed that this study is part of a larger research project focused on emotions and behaviours related to body image and psychological wellbeing. Researchers clarified that participation was voluntary and the data confidential.

Participants provided their informed consent and filled the set of self-report measures.

The students completed the measures at the end of a lecture specified by the respective Faculty's Board. The community participants were recruited from different private and public work sectors, including retail services, health services and education services. These participants completed the set of self-report measures at their workplace during a break defined and authorized by the respective institution Board. Questionnaires completion took 10–15 minutes. All participants completed the BISS, EDEQ and DASS21. One hundred and forty-three participants recruited from institutions that allowed an additional time for questionnaires completion, also completed the OAS-2 and FSCRS.

Analytic Strategy

The BISS two-factor structure was examined through a Confirmatory Factor Analysis (CFA). The Maximum Likelihood method of estimation was used. Each item was specified to load on each respective latent first-order factor – internal and external body shame – and these two latent factors were specified to load on the higher-order factor of body image shame (Fig. 1). A series of model fit indices were used following the method used in the previous validation study of this measure (Duarte et al., 2015). The Chi-square goodness-of-fit (which indicates good model fit at a $p > .05$ threshold) was used, but this measure suffers from limitations (see Kline, 2005) and thus we considered the Normed Chi-Square (in which values varying between 2 and 5 show a good global adjustment of the model). The following goodness of fit indices were also considered: the Comparative Fit index (CFI) and Tucker-Lewis Index (TLI), which range from 0–1, and indicate a poor fit when values < 0.80 and a good fit when values range from .90 – .95; the Parsimony Normed Comparative Fit Index (PCFI), which varies between 0–1, with values $< .60$ indicating a poor fit and values between .60 and .80 a good fit; and the Root Mean Square Error of Approximation (RMSEA), with the lower limit of 0 indicating perfect fit, values between .05 – .08 suggesting a good fit and values $> .10$ indicating a poor fit (Kline, 2005). Construct reliability was examined through the calculation of the Composite Reliability (CR) coefficients for the total scale and each subscale. CR is a more appropriate estimate of internal consistency as it is based on standardized regression weights and the measurement error of each item. Values ≥ 0.70 indicates good construct reliability (Hair, Black, Babin, Anderson, 2010; Novick & Lewis, 1967). The items' convergent validity was examined through the Average Variance Extracted (AVE), which provides a measure of the average amount of variance of the construct accounted by the items of each factor. Values ≥ 0.50 indicate good convergent validity (Fornell & Larcker, 1981; Hair et al., 2010). The discriminant validity of the subscales was examined by comparing the AVE of each factor with the squared correlation between the factors (Fornell & Larcker, 1981). The relationship between the BISS and other self-report measures was assessed through Pearson product-moment correlation coefficients. The SPSS and AMOS software (v. 21, Chicago, IL, USA) were used to conduct the analyses.

Results

Preliminary Analysis

Preliminary analyses indicated that there was no violation of normal distribution, with skewness values ranging from 1.04 (item 1) to 2.93 (item 6), and with kurtosis values ranging from -0.40 (item 1) to 9.38 (item 10; Kline, 2005).

Confirmatory Factor Analysis

Results of the CFA (Fig. 1) indicated the following model fit indices: $X^2_{(76)} = 340.72$; $p < .001$; $X^2/df = 4.48$; CFI = .94; TLI = .93; PCFI = .78; RMSEA = .09 [.08, .10]. The correlation between the errors of items 3 and 4 (Modification Index (MI) = 29.91) and 9 and 10 (MI = 19.63), which were identified in the original validation study as sharing significant method error variance (Duarte et al., 2015), resulted in an improvement of the model fit: $X^2_{(74)} = 287.83$, $X^2/df = 3.89$; CFI = .95; TLI = .94; PCFI = .77; RMSEA = .08 [.07, .09].

The evaluation of the local adjustment indices (Table 1) indicated that all items had high factor loadings (i.e., standardized regression weights), ranging from .66 (item 13) to .89 (item 14) in the external subscale, and .65 (item 1) to .86 (item 5) in the internal subscale.

Regarding squared multiple correlations all items presented high reliability with values ranging from .42 (item 1) to .79 (item 14).

Psychometric properties

Results indicated that the external subscale revealed a CR of .95, while the internal subscale showed a CR of .95. Furthermore, the BISS total score CR was .97. This indicates that the scale and respective subscales have very good construct reliability. Regarding the AVE, a value of .72 was found for the external subscale, and of .75 for the internal subscale, which confirmed the instrument convergent validity. The AVE coefficients were higher than $r^2 = .62$, indicating that the subscales have adequate discriminant validity.

Relationships between BISS and other measures

The BISS total score and the subscales external and internal body image shame were positively correlated with each other (Table 2). Furthermore, the total score and the subscales were positively associated with a general measure of shame (OAS-2). The BISS external dimension was more strongly associated, compared to the internal dimension ($Z_H = 2.93$; $p = .003$), with the OAS-2, which focuses on external social evaluation. BISS and its subscales were also positively and strongly associated with a measure of self-criticism. Results showed a positive and strong association between the BISS total score and the subscales body weight and shape concerns (EDE-Q). The BISS and each subscale were also positively and strongly associated with symptoms of depression, anxiety and stress. The BISS total score and the internal subscale revealed a positive but weak association with BMI.

Discussion

There is a rising interest in how body image problems may negatively impact psychological adjustment in men (Dakanalis & Riva, 2013; Duarte & Pinto-Gouveia, 2017; Thompson & Cafri, 2007). The important role of body shame in disordered eating symptoms and mental health has been increasingly demonstrated in clinical and nonclinical samples (e.g., Dakanalis & Riva, 2013; Duarte & Pinto-Gouveia, 2016; Duarte et al., 2015). Nonetheless, these studies are mostly focused on women and little is known about the impact of body shame on men. A possible reason for this is the lack of body image-related measures validated for this population (Cafri & Thompson, 2004). The current study examined the dimensional structure, psychometric properties and correlates of the BISS in a large sample of male college students and men from the general community.

Results of the CFA confirmed the adequacy of the two-dimensional structure, underlying a higher-order factor of body image shame, previously found in women (Duarte, Pinto-Gouveia, Ferreira, et al., 2015). Moreover, the BISS total scores and the subscales, presented a high composite reliability. Also, the two subscales presented good convergent and discriminant validity.

To confirm the BISS usefulness to study body image problems in men, we further examined the associations between the BISS and other related measures of self and social evaluation and psychological adjustment. Findings showed that the BISS present good convergent validity with a general measure of shame focused on external evaluations (OAS-2). As previously found in women, results revealed higher correlations between the BISS external subscale and OAS-2. Moreover, BISS and its subscales were found to be strongly correlated with higher levels of self-criticism. Furthermore, strong associations were found between the BISS and body shape and weight concerns, similarly to previous studies conducted with women. The BISS and its subscales also presented strong positive associations with symptoms of depression, anxiety and stress. Interestingly, these associations were stronger in men compared to other samples of women (Duarte, Pinto-Gouveia, Ferreira, et al., 2015), which suggests that for men feelings of shame focused on physical appearance may have a detrimental effect on psychological wellbeing. The marginal or nonsignificant associations between the BISS and BMI may indicate that the relationship between body shame and weight in men may not be as linear as what research shows in samples of women (e.g., Duarte et al., 2015). In the female population a higher BMI is often the target of stigmatization, shame and criticism from others, because it equates being distant or different from the sociocultural idealized image of female physical appearance. On the contrary, a higher BMI in men may be associated with the idealized and valued male muscular physical appearance (Cafri & Thompson, 2004). However, a higher BMI in men may also be associated with overweight or obesity, which, along with being perceived as 'small' or 'skinny' is linked to negative self-evaluations and psychological and behavioural maladjustment (Thompson & Cafri, 2007). Also, evidence suggests that in men, more than body weight, muscularity and leanness (i.e., low body fat) may play a more relevant role in how men experience their body image and how they relate to it (Dakanalis & Riva, 2013) .

Strength and limits

This is the first study providing data on the psychometric properties and validity of the BISS in men. This data will allow the development of research in body shame and its impact in this population. This study's findings need to be interpreted taking into consideration some limitations. First, the study's sample is not representative of the general male population, and thus future research is required before the current findings can be generalized. Participants' sexual orientation was not assessed, and there is now mounting evidence that sexual orientation may play an important role in body image problems and disordered eating symptoms in men (e.g., Dakanalis & Riva, 2013). Also, in younger men body image issues may be more prominent and play an important role in later psychosocial adjustment (Cain et al., 2012; Duarte & Pinto-Gouveia, 2017). Future studies should examine the scale's dimensionality and psychometric properties in these more vulnerable populations (e.g., gay men and adolescents). Moreover, the scale was developed and tested in Portuguese samples and thus further studies should examine the scale in different languages. Also, future research should investigate the temporal stability of the scale in male samples.

What is already known on this subject?

The BISS is a measure of body image shame that has shown good psychometric properties and predictive validity in association with body image and eating behaviour problems. Growing evidence suggests that body image can impact men's self evaluation and eating behaviour.

What this study adds?

This study corroborated that the BISS is a brief reliable measure of shame focused on body image and related behaviours in men, and it contributes to extend research on the correlates of body shame in this population.

Declarations

Funding

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Conflicts of interest

The authors declare no conflict of interest.

Availability of data and material

Data can be sent upon request to the corresponding author.

Code availability

SPSS and AMOS software (v. 21, Chicago, IL, USA) were used to conduct the analyses.

Authors' contributions

CD and CF designed the study protocol and conducted data collection; CD conducted data analysis; CD and CF contributed to results interpretation and production of the manuscript.

Ethics approval

The study was approved by the Ethics Commission of the Faculty of Psychology and Educational Sciences, University of Coimbra.

Consent to participate

All participants provided their written informed consent.

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Tables

Table 1

Items' standardized regression weights (SRW) and squared multiple correlations (SMC)

Items	SRW	SMC
<i>External</i>		
2. I avoid social situations (e.g., going out, parties) because of my physical appearance.	.68	.46
6. The relationship I have with my body prevents me from having an intimate relationship with someone.	.76	.57
9. I avoid moving my body (for example, dancing) in public places because I feel I am exposing my physical appearance to the criticism of others.	.71	.51
10. I feel uncomfortable in social situations because I feel that people may criticize me because of my body shape.	.82	.67
12. My physical appearance makes me feel inferior in relation to others.	.86	.74
13. I do not like to exercise in front of others because I am afraid of how they might evaluate me.	.66	.43
14. The relationship I have with my physical appearance makes it difficult for me to feel comfortable in social situations.	.89	.79
<i>Internal</i>		
1. I avoid wearing tight clothes that reveal my body shape.	.65	.42
3. It bothers me to see my body undressed.	.79	.62
4. When I see my body in the mirror I feel I am a defective person.	.77	.59
5. I choose clothes that hide parts of my body that I consider ugly or disproportional.	.86	.75
7. I pay close attention to the movements and posture of my body to hide parts that I do not like.	.80	.64
8. I feel bad about myself when I use clothes that reveal my body shape.	.85	.73
11. There are parts of my body that I prefer to hide.	.82	.67

Table 2

Descriptive statistics and BISS association with other measures

	<i>M</i>	<i>SD</i>	<i>a</i> (CI)	BISS total score	BISS external	BISS internal
BISS Total	0.47	0.67	.94 (.94, .95)	1		
BISS External	0.33	0.59	.90 (.89, .92)	.93***	1	
BISS Internal	0.61	0.81	.92 (.90, .93)	.96***	.79***	1
EDEQ Shape concern	0.77	1.01	.84 (.81, .87)	.67***	.59***	.66***
EDEQ Weight concern	0.86	1.07	.71 (.64, .77)	.70***	.63***	.69***
OAS-2	8.87	6.71	.93 (.91, .94)	.65***	.66***	.59***
FSCRS	7.79	5.64	.93 (.91, .94)	.65***	.69***	.59***
DASS21 Depression	3.65	4.38	.93 (.91, .94)	.55***	.59***	.47***
DASS21 Anxiety	2.85	3.34	.85 (.81, .89)	.46***	.51***	.38***
DASS21 Stress	4.94	4.43	.88 (.85, .91)	.44***	.45***	.39***
BMI	24.01	3.86		.13**	.06	.17***

Note:

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

BISS – Body Image Shame Scale; EDEQ – Eating Disorder Examination Questionnaire; OAS-2 – Other as Shamer Scale; FSCRS – Forms of Self-criticizing and Self-reassurance Scale; DASS21 – Depression, Anxiety and Stress Scales; BMI – Body Mass Index.

Figures

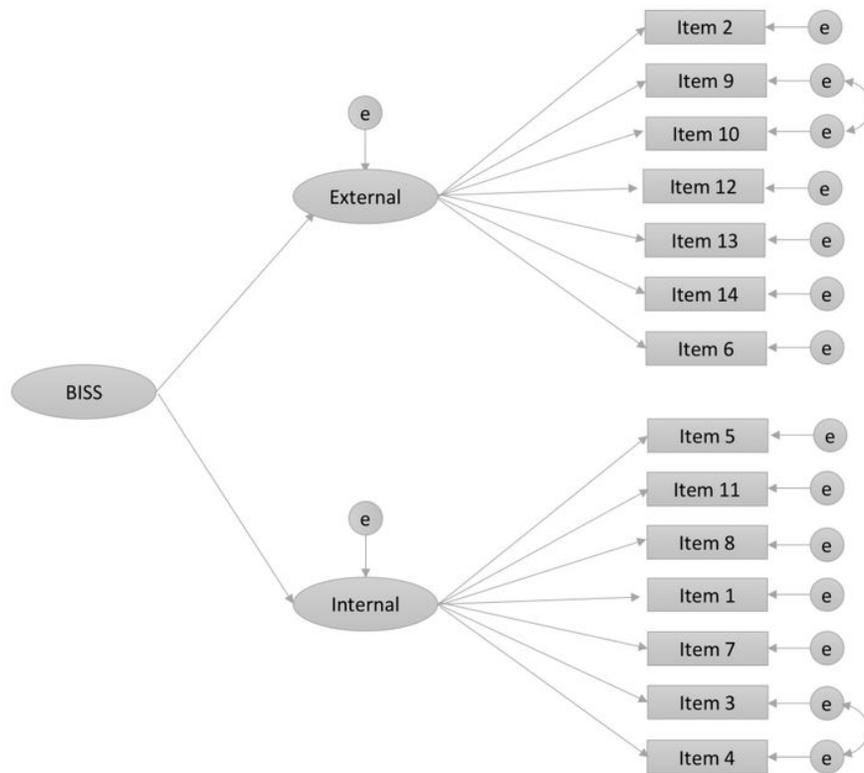


Figure 1

The Maximum Likelihood method of estimation was used. Each item was specified to load on each respective latent first-order factor – internal and external body shame – and these two latent factors were specified to load on the higher-order factor of body image shame.