The need to present a perfect body image:

Development of a new measure of perfectionistic self-presentation

Cláudia Ferreira[1]

Cristiana Duarte[1]

José Pinto-Gouveia [1]

Catarina Lopes[1]

[1] CINEICC – Cognitive-Behavioural Research Centre

Faculty of Psychology and Education Sciences

University of Coimbra, Portugal

The need to present a perfect body image:

Development of a new measure of perfectionistic self-presentation

Abstract

Perfectionistic self-presentation is linked to different clinical conditions and especially to eating disorders. In fact, the role that the drive to reach "perfection" and display it to others plays on eating and body image-related symptoms has long been the target of theoretical and empirical interest. However, an instrument that specifically assessed the need to present a perfect body image to others did not exist. The current study presents the development and validation of the Perfectionistic Self-Presentation Scale – Body Image (PSPS-BI), a measure designed to assess the need to present a perfect body image to others by displaying a flawless physical appearance and by occulting perceived imperfections in a public context.

Three studies that included a total of 364 males and 541 females with ages between 18 to 38 years, were used to examine the scale's structure and psychometric properties. Results showed that PSPS-BI presents two factors that measure the concealment of body imperfections and the display of body perfection. PSPS-BI revealed good internal reliability and temporal stability. Also, the PSPS-BI revealed good concurrent validity, tested with measures of perfectionism, body image flexibility, and general and eating psychopathology. Furthermore, a mediational analysis indicated that the need to present a perfect body image to others fully mediates the relationship between a general measure of perfectionistic self-presentation and drive for thinness, in both men and women.

PSPS-BI showed good preliminary evidence as a reliable and accurate measure, and seems to offer new possibilities to the research field of body image and eating-related difficulties.

Keywords: Perfectionistic self-presentation; concealment of body imperfections; display of body perfection; body image; eating disorders.

Introduction

The conceptualization of perfectionism as a trait has been gathering a large interest and has been widely studied (e.g., McGee et al. 2005). Perfectionism was first described under a unidimensional perspective, that is the setting of extremely rigid personal standards regarding one's performance and goals. However, several limitations have been attributed to this view (Cockell et al. 2002; Halmi et al. 2000; Vohs et al. 2001), and some authors proposed that a multidimensional perspective was more adequate (Frost et al. 1990; Hewitt and Flett 1991).

According to this multidimensional perspective, perfectionism involves different facets, which have distinct effects on well-being and on mental health (Frost et al. 1990). Hewitt and Flett (1991) suggested that perfectionism can be self-oriented (i.e., setting demanding standards and evaluation patterns for oneself), other-oriented (i.e., setting unrealistic standards for others, and rigidly evaluating others' performance), and socially prescribed (i.e., perceiving that others have unrealistic standards for oneself, and stringently evaluate and pressure oneself to be perfect). More recently, Hewitt and colleagues (2003) added that perfectionism entailed a public expression: perfectionistic self-presentation. Perfectionistic self-presentation refers to a maladaptive tendency characterized by the need to appear perfect to others, which involves three dimensions: perfectionistic self-promotion (i.e., the active promotion of one's supposed "perfection"); nondisplay of imperfection (i.e., the need to conceal/avoid showing perceived imperfections); and nondisclosure of imperfection (i.e., the need to avoid verbally expressing imperfections). Perfectionistic self-presentation (i.e., *appear* perfect) is distinct from perfectionism (i.e., *be* perfect) since the former is a contextual, situationally-activated social strategy, whereas the latter is conceptualized as a trait (Hewitt et al. 2003; Hewitt et al. 1995).

Evidence suggests that perfectionism and perfectionistic self-presentation are associated with different clinical conditions, such as depression and anxiety (e.g., Flett et al. 2011; Hewitt at al. 1996; MacKinnon

and Sherry 2012), obsessive-compulsive disorder (e.g., Antony at al. 1998), social phobia and panic disorder (e.g., Saboonchi et al. 1999), personality disorders (e.g., Sherry et al. 2007), and especially eating disorders (Steele et al. 2011). Actually, the role that perfectionism plays on eating and body image problems has long been the target of theoretical and empirical interest (Bardone-Cone et al. 2007). Specifically, research shows that perfectionistic self-presentation is associated with body image dissatisfaction, pathological dieting and bulimic symptoms (Cockell et al. 2002; Hewitt et al. 1995; McGee et al. 2005).

There has been a growing emphasis on modern Western societies on the need to achieve a thin or a muscular body shape (Buote et al. 2011). Moreover, thinness and physical attractiveness are often regarded as synonymous of health, success and happiness (Strahan et al. 2006). This is pointed out as a source of widespread body image dissatisfaction and of attempts to control body image (for instance by dieting), which are regarded as key risk factors for eating disorders (Pinto-Gouveia et al. 2014; Stice et al. 2011). In fact, the display of an attractive and socially-valued body image is a central self-evaluative dimension, and a particularly used domain to attain positive social attention (Ferreira et al. 2013). Thus, someone who perceives that it is necessary to appear perfect to others in order to be accepted and valued may select physical appearance as the preferred domain to invest in. Such investment may, however, translate into extreme forms of control of one's body shape, weight and eating behaviour.

The need to appear perfect to others has been assessed through the Perfectionistic Self-Presentation Scale (PSPS; Hewitt et al. 2003), a widely known and validated measure that examines a global tendency to express one's supposed perfection to others. However, this measure may not capture domain-specific aspects of perfectionistic self-presentation (Stoeber and Stoeber 2009). That is, different individuals may choose different domains to express the need to convey a perfect self to others (e.g., through sports or academic performance). Thus, an instrument that specifically assesses the need to present a perfect physical appearance to others seems particularly relevant. In fact, body image is a socially-valued dimension that is

easily assessed by others and thus that can be conceptualized as an important domain to reach social acceptance and approval. Different studies suggest that negative perceptions about body image are related with negative affect, perceptions of inferiority in relation to others and with the tendency to engage in defensive behavioural responses, such as pathological dieting (Ferreira et al. 2011, 2013 Stice et al. 2011). Nonetheless, a measure that assesses perfectionistic self-presentation focused on body image remained non-existent. This motivated the development of the *Perfectionistic Self-Presentation Scale – Body Image* (PSPS-BI). The current study presents the development and psychometric properties of the PSPS-BI, in a large sample of male and female students with an ample age range. Furthermore, this study explored the incremental validity of this specific measure to explain overconcern with dieting, weight and the extreme need to reach thinness (i.e., drive for thinness).

Study 1

PSPS-BI development, factor analysis and psychometric properties

The current study presented the development of the PSPS-BI. The factorial structure of the measure and its internal consistency and concurrent validity with other measures were also examined. Moreover, the incremental validity of the PSPS-BI was tested through a path model examining whether the impact of perfectionist self-presentation on drive for thinness operates through perfectionistic self-presentation specifically focused on body image. A multigroup analysis was also conducted to test the model invariance between men and women.

Material and Method

Participants and procedures

Four hundred and one participants were used to explore the scale's structure and to test PSPS-BI validities; 194 men, with a mean age of 18.31 (*SD* = 3.83) and a mean of 11.02 (*SD* = 2.64) years of education; 207 women, with a mean age of 18.28 (*SD* = 3.60) and a mean of 11.44 (*SD* = 2.73) years of education. There were no gender differences regarding age ($t_{(399)}$ = .11; p = .916) and education ($t_{(399)}$ = 1.58 ; p = .115).

Data collection respected deontological principles and was approved by the ethic committees of the institutions involved in this study. Participants were recruited from middle and higher education schools. Before completing the self-report measures all participants were fully informed about the voluntary and confidential nature of their cooperation, and received previous clarification about the study's goals and procedures. After students and their parents (if the participants were minor) provided their written informed consent, the measures were completed at the end of a designed lecture, with the approval by the respective teacher. One of the researchers was present during the completion of the scales and assisted participants whenever necessary. The majority of the approached students accepted to participate in the study. Participants who expressed any difficulty while completing the measures or those who failed to complete 15% or more of the administered measures were excluded from the study.

Measures

Perfectionistic Self-Presentation Scale (PSPS; Hewitt et al. 2003; Ferreira, 2012). *PSPS* includes 27 items, measuring the need to appear perfect to others and comprises three subscales: perfectionistic self-promotion (e.g., "I try always to present a picture of perfection"), nondisplay of imperfection (e.g., "I do not want people to see me do something unless I am very good at it"), and nondisclosure of imperfection (e.g., "I should solve my own problems rather than admit them to others"). Participants are asked to rate their

(dis)agreement with each item using a 7-point scale; higher scores indicate greater perfectionistic self-presentation. PSPS presents high internal consistency in its original and Portuguese versions.

Multidimensional Perfectionism Scale (MPS; Frost et al. 1990; Ferreira, 2012). This 35-item scale assesses perfectionism as a trait, considering 6 dimensions: concern over mistakes, personal standards, parental expectations, parental criticism, doubts about actions, and organization. The MPS revealed internal consistency values ranging from .77 to .93 in original study, and from .67 to .86 in its Portuguese version.

Body Image – Acceptance and Action Questionnaire (BI-AAQ; Sandoz et al. 2013; Ferreira et al. 2011). This scale has 12 items which measure psychological flexibility regarding body image, that is, the extent to which an individual actively contacts with perceptions, thoughts and feelings about one's body image without attempting to change their intensity, frequency or form (Sandoz et al. 2013). The participants are asked to rate each statement as it applies to them using a 7-point Likert scale. The BI-AAQ revealed very good psychometric properties in its original version (with an internal consistency of .93) and in its Portuguese version (with an internal consistency of .95).

Eating Disorders Inventory (EDI; Garner et al. 1983; Machado et al. 2001). EDI is a 64-item self-report questionnaire that comprises 8 subscales assessing weight, shape and eating-related attitudes and behaviours, and psychological characteristics common in patients with eating disorders. Using a 6-point scale (ranging from "Always" to "Never") participants rate how much the item applied to them. EDI is a widely used measure to assess eating disorders' features and presents robust psychometric properties, in both its original and Portuguese versions. In the current study we used the subscales "drive for thinness" and "body dissatisfaction", given that these subscales assess two potential key-features of the vulnerability to and maintenance of eating psychopathology.

Depression, Anxiety and Stress Scales (DASS21; Lovibond, and Lovibond 1995; Pais-Ribeiro et al. 2004). This scale comprises 21 statements regarding participants' negative emotional symptoms. Participants are asked to rate how much they experienced each symptom during the previous week using a 4-point Likert scale. Higher results indicate higher levels of depression, anxiety, and stress symptomatology. The Cronbach's alphas of the Portuguese version resemble the original ones: .93 for the depression subscale (.91 in the original version), .83 for the anxiety subscale (.84 in the original version), and finally .88 for the stress subscale (.90 in the original version).

The Cronbach's alphas and descriptive statistics of all the measures used in this study are reported in Table 2.

Statistical analyses

IBM SPSS Statistics 20 (IBM Corp. 2011) was the software used to explore the preliminary factorial structure of the PSPS-BI and to perform descriptive and psychometric analyses. The software AMOS (v.18, SPSS Inc. Chicago IL) was used to conduct the path model.

Data analysis procedures used for each analysis are specified throughout results description.

Results

Scale development

The development of the Perfectionistic Self-Presentation Scale – Body Image (PSPS-BI) was based on the original Perfectionistic Self-Presentation Scale (PSPS; Hewitt et al. 2003). Permission to make this adaptation was obtained from the authors of the original PSPS. Firstly, the first author developed a pool of 47 items, intended to capture the three dimensions of the PSPS while focusing the construct of body image.

Specifically, theseitems were rewritten to assess the need to promote a perfect body image to others, concerns regarding the fear of being seen by others as having an unattractive or imperfect body, and the need to conceal perceived imperfections or flaws in physical appearance. Ashe items were further reviewed by the authors, fourteen of them were dismissed based on clinical and theoretical reasons (e.g., because they did not fully capture the abovementioned dimensions, or because of duplication of content). This procedure resulted in a 33-item scale that was then analysed with the goal of reaching a shorter measure. The scale's instructions ask participants to rate their agreement level with each item, using a 7-point scale (1 =) "Strongly disagree" to 7 = "Strongly agree"), with higher scores indicating greater levels of body image-related perfectionistic self-presentation.

Factor structure of the PSPS-BI

Preliminary analyses indicated that Skewness and Kurtosis values did not present serious bias to normal distribution (SK < |3| and Ku < |10|; Kline 2005).

Given that PSPS-BI's structure was based on the PSPS (Hewitt et al. 2003), the procedure of the original PSPS validation was followed. The suitability of the data for analysis was confirmed by the Kaiser Meyer-Olkin (.94) and the Bartlett's sphericity tests ($\chi^2_{(528)} = 7362.13$; $p < .001$). The analysis of the Kaiser-Guttman criteria suggested the pertinence of retaining 5 factors. However, the Catell's scree test revealed a 3-factor solution, which was confirmed with a Parallel Analysis (Horn 1965; Velicer et al. 2000). In fact, this analysis indicated three factors with eigenvalues larger than the parallel eigenvalues of the components derived from the randomly generated correlation matrix. We repeated the analysis, with a Direct Oblimin rotation, and results showed that the 3-factor solution explained a total of 52.55% of the variance, with all items presenting communalities values higher than .28.

However, item 18 ("*I avoid social situations because of my physical appearance*") had a factorial loading (.38) below the cut-point (.45), and the items 22 ("*For me is not important to have an attractive physical appearance*"; factor loadings: .48 and .40), 20 ("*I put a lot of effort into displaying a physical appearance that others value*"; factor loadings: .57 and .50) and 33 ("*having a physical appearance that others value is one of the most important things to me"*; factor loadings: .57 and .47) loaded on two factors with a difference below .15 (Tabachnick and Fidel 2007). These items were eliminated, which resulted in a factor structure that explained a total of 54.65% of the variance. The item 6 ("*I should reveal an ideal body image so that others can accept me*"), and item 27 ("*I spend a lot of time and put a great effort on trying to present myself attractive to others*") loaded on the factor "concealment of body imperfections" (.66 and .51, respectively), and were expected to load on the factor "display of body perfection", because they focus on pressures or strategies related to the promotion of a perfect body image. For this reason, these items were eliminated. Similarly, items 14 ("*I do not like that others realize how I strive to have an attractive body image*"; factor loading: 58), 17 ("*When others make some negative comment about my body I feel horrible*"; factor loading: .69) and 21 ("*I feel awful when others comment anything negative about my body*" factor loading: .67) also loaded on the factor "concealment of body imperfections", but their content did not express the construct related to the need to conceal or avoid showing one's perceived imperfections. Given these cross-loadings, these items were eliminated. This process resulted in an increment of the total variance explained (56.38%). Nonetheless, although the items 3 ("*I do not mind talking about the things I find ugly and unattractive in my body*") , 4 ("*I do not get worried that others notice my body's imperfections*"), 12 ("*I do not mind sharing with others my difficulties about my body image*"), 15 ("*I do not get worried about others noticing any flaw or defect in my body*") and 16 ("*I do not mind telling others that there are certain parts of my body that I find ugly and unnatractive*"), loaded together on a third subscale (factor loadings of .69, .65, .67, and .78 respectively), they were theoretically expected to load on the other two subscales.

These items might have formed together a factor because they were reversed items with similar wording (e.g., "I do not mind", e.g., "I do not get worried about"), and thus they did not represent a distinct theoretical construct. For this reason, these items were also eliminated.

The final obtained structure (Table 1), of 19 items that explained a total of 56.85% of the variance, comprised two factors: "concealment of body imperfections" (13 items), which explained 46.81% (eigenvalue: 8.89); and "display of body perfection" (6 items), which accounted for 10.04% of the variance (eigenvalue: 1.91).

Insert Table 1 approximately here

Reliability Analysis

PSPS-BI presented a very good internal reliability, with a Cronbach's alpha of .93 for the total scale, and of .94 and .80 for the subscales "display of body perfection" and "concealment of body imperfections". Furthermore, the removal of any of the items would not result in an increment of the subscales' internal reliability (Table 1).

PSPS-BI subscales' correlations and their relation to other measures

To further analyse PSPS-BI's concurrent validity, product-moment Pearson correlation coefficients were calculated in regard to other related measures of perfectionism, of body image and eating-related psychopathology, and of general symptoms of psychopathology. Results showed that the subscales "concealment of body imperfections" and "display of body perfection" are positively linked ($r = .56$; $p < .001$).

Insert Table 2 approximately here

Positive correlations were found between the PSPS-BI and the PSPS. Particularly, the subscale "concealment of body imperfections" (PSPS-BI) presented strong correlations with the total PSPS and its subscales. The total PSPS-BI and its subscales were positively linked to the distinct dimensions of perfectionism assessed by the MPS. Contrariwise, the PSPS-BI and its subscales were negatively correlated with psychological flexibility regarding body image (assessed by the BI-AAQ). Furthermore, the results showed that the PSPS-BI and its subscales were positively linked with drive for thinness and with body image dissatisfaction, assessed by the EDI. Finally, positive correlation coefficients were found between the total PSPS-BI scale and its subscales, and depressive, anxiety and stress symptoms (DASS21).

PSPS-BI versus a general measure of perfectionistic self-presentation.

To understand whether the impact of a global tendency to present oneself as perfect to others on the overconcern with dieting, weight and the extreme need to reach thinness (i.e., drive for thinness), is mediated by a specific dimension of perfectionistic self-presentation, one that is focused on body image, a mediational analysis was tested through a path model (Figure 1). Thus, a path analysis was conducted to examine PSPS-BI's incremental validity over a global measure of perfectionistic self-presentation (PSPS). Results indicated that the model accounted for a total of 19% of the variance of drive for thinness. The direct effect of PSPS on PSPS-BI (b_{PSPS} = .64; *SEb* = .03; *Z* = 21.78; $p < .001$) and the direct effect of PSPS-BI on drive for thinness ($b_{PSPS\text{-}BI}$ = .07; *SEb* = .01; *Z* = 6.89; $p < .001$) was significant. The direct effect of PSPS on the drive for thinness ($b_{PSPS\text{-}BI}$ = -.01; *SEb* = .01; *Z* = -.63; p = .531) was nonsignificant, with results indicating that PSPS-BI fully mediated the association between PSPS and drive for thinness (b_{PSPS} = .32, 95%; *CI* = .25 to .39).

The model was then recalculated for both genders separately. For the male sample, the model accounted for 7% of the variance of drive for thinness. Results indicated that the direct effect of PSPS on

PSPS-BI (b_{PSPS} = .64; *SEb* = .04; *Z* = 14.57; $p < .001$) and the direct effect of PSPS-BI on drive for thinness ($b_{PSPS\text{-}BI}$ = .03; *SEb* = .01; *Z* = 2.70; $p < .001$) were significant, while the direct effect of thePSPS on drive for thinness ($b_{PSPS\text{-}BI}$ = -.00; *SEb* = .01; *Z* = -.10; *p* = .922) was nonsignificant. Thus, results revealed that PSPS-BI fully mediated the association between PSPS and drive for thinness (b_{PSPS} = .20, 95%; *CI* = .09 to .30). For the female sample, the model testing for the mediation effect of the PSPS-BI explained a total of 28% of drive for thinness' variance. The direct effect of PSPS on PSPS-BI (b_{PSPS} = .65; *SEb* = .04; *Z* = 17.78; $p < .001$) and the direct effect of PSPS-BI on drive for thinness ($b_{PSPS\text{-}BI}$ = .10; *SEb* = .02; *Z* = 5.62; $p < .001$) were significant. The direct effect of the PSPS on drive for thinness ($b_{PSPS\text{-}BI}$ = -.00; *SEb* = .01; *Z* = -.12; *p* = .905) was again nonsignificant. Results showed that the relationship between PSPS and drive for thinness was fully mediated by the body image-specific measure of perfectionistic self-presentation PSPS-BI (b_{PSPS} = .42, 95%; *CI* = .29 to .56). Finally, a multigroup analysis was conducted and results indicated that the structural model was invariant between men and women (ΔCFI < -0.01; Cheung and Rensvold 2002).

Insert Figure 1 around here

Study 2

Temporal stability

In the Study 1, the factor structure of the scale and its psychometric properties were analysed. The goal of Study 2 was to determine the stability of the PSPS-BI over time.

Material and Method

Participants and procedures

The temporal stability of the PSPS-BI was studied in a sample composed of 47 female college students, with a mean age of 21.45 (SD = .83) years old and of 15.30 (SD = 1.99) years of education. Participants completed the PSPS-BI twice within a interval of 3 to 4-weeks, at the end of a lecture, after the provision of their informed consent.

Results

Pearson correlation coefficients between the two assessment moments were of .90 for the PSPS-BI total scale, and .80 and .89 for the subscales "display of body perfection" and "concealment of body imperfections", respectively. Also, no significant differences were found between test and retest, regarding the global scale (t = .96; p = .342) and PSPS-BI subscales: "display of body perfection" (t = .97; p = .336) and "concealment of body imperfections" (t = .74; p = .461).

Study 3

Confirmatory Factor Analysis

Finally, in Study 3, a Confirmatory Factor Analysis (CFA) was conducted using an additional sample of both genders in order to confirm the adequacy of the PSPS-BI's factorial structure.

Material and Method

Participants and procedures

Four hundred and fifty-seven participants were used to performed CFA, 170 males, with a mean age of 17.77 (*SD* = 3.73) and of 10.78 (*SD* = 3.23) years of education; and 287 females, with a mean age of 17.50 (*SD* = 3.06) and a mean of 10.73 (*SD* = 3.01) years of education. The two groups do not significantly differ concerning age ($t_{(302.65)}$ = .80 ; p = . 427) and years of education ($t_{(455)}$ = .149 ; p = .881). Data

collection followed the procedures described in Study I. Participants comprising this sample were only asked to answer to the PSPS-BI.

Statistical analyses

To confirm the PSPS-BI's two-factor structure, a CFA was conducted, with Maximum Likelihood as the estimation method. Different goodness-of-fit indices were used to confirm the scale's factorial structure. The chi-square goodness-of-fit, which measures the discrepancy between the predicted model and the data, was selected. However, this index is very sensitive to sample size, often leading to problematic testing and bias in the results' interpretation (DeCoster 1998). The Normed Chi-Square (with values ranging from 2 to 5 indicating a good global adjustment of the model; Tabachnick and Fidell, 2007) was used to overcome this limitation. Additionally, the Tucker and Lewis Index (TLI), the Comparative Fit index (CFI), and the Goodness-of-fit index (GFI), that indicate a good fit when values are superior or equal to 0.9, were used. Also, we analysed the Root Mean Square Error of Approximation (RMSEA), in which values ranging from .06 to .08 indicate a good fit (Byrne 2010). Finally, the model's invariance between genders was examined through a multigroup analysis. The software AMOS (v.18, SPSS Inc. Chicago IL) was used to conduct the CFA of the PSPS-BI.

Results

The chi-square goodness-of-fit was significant ($\chi^2 = 515.16$; $df = 151$, $p < .001$). However, the Normed Chi-Square (χ^2/df) was 3.41. Likewise, the remaining indices indicated that this structure was adequate: TLI .89, CFI .90, GFI .89, PCFI .80, RMSEA .07 [CI = .07 to .08].

Regarding the local adjustment indices (Table 1), the standardized regression weights ranged from .42 to .83, which are above the recommended cut-off point of .40 (Tabachnick and Fidell 2007); the squared multiple correlations ranged from .27 and .68, indicating the reliability of the measure.

Model's invariance of the PSPS-BI between genders was examined though a multigroup analysis. Results supported the model's invariance between genders, given that no differences were found regarding factor weights (ΔCFI = -.01), as well as item's means (ΔCFI =-.03; Chen et al. 2005; Cheung and Rensvold 2002).

Discussion

This study presents the development and validation of a new measure – PSPS-BI – designed to assess the need to present a perfect body image to others. Three studies involving a total of 364 men and 541 women were conducted. Results showed that PSPS-BI presents a multidimensional structure that explains a total of 56.85% of the variance. This specific measure includes two dimensions: "concealment of body imperfections" and "display of body perfection". This structure was confirmed through a CFA. Moreover, results supported the model's invariance between genders.

The PSPS-BI and its respective subscales presented high internal consistency, with Cronbach's alpha values ranging from .80 to .94, and with high values of item-total correlations. These results corroborated the quality and adequacy of the items. Furthermore, this scale was shown to be stable over time.

The PSPS-BI also presented good convergent validity. In fact, this new measure presented moderate associations with the original PSPS (Hewitt et al. 2003). This result seems to indicate that these two instruments are related but distinguishable, since the PSPS-BI measures a specific aspect, rather than a global expression of the tendency to display a public image of perfection. PSPS-BI's correlations with MPS (Frost et al. 1990) showed that perfectionistic self-presentation regarding body image was moderately associated

with a general trait that entails the need to be perfect. To note, PSPS-BI was more strongly linked to the MPS's dimension "concern over mistakes". This correlation may be understood in light of the conceptualization of Hewitt and colleagues (2003) on the interpersonal dimension of perfectionism, according to which an excessive concern with possible errors or personal defects may fuel the strive to appear perfect to others, namely by using the physical appearance domain.

In addition, physical appearance-related perfectionistic self-presentation was shown to be associated with decreased psychological flexibility regarding body image (as measured by BI-AAQ), that is, with a lower ability to keep in touch and accept the ongoing stream of internal events related to body image. Moreover, the specific need to portray a perfect body image to others was linked to increased body image dissatisfaction and drive for thinness. Also, results revealed that the need to present a perfect body image to others was significantly linked to increased levels of depressive, anxiety and stress symptoms.

To further demonstrate the utility and specificity of this new measure, a model was tested examining the mediational effect of PSPS-BI in the relationship between a global need to appear perfect in the eyes of others (assessed by the global measure PSPS) and the overconcern with dieting, weight and with the extreme need to reach thinness (i.e., drive for thinness). Findings confirmed that this relationship was fully mediated by perfectionistic self-presentation focused on the specific domain of physical appearance, for both men and women. Even though it is widely demonstrated that perfectionism and the tendency to present oneself as being perfect are related to eating psychopathology, these findings seem to indicate that this relationship is fully explained by the need to create an image of perfection using physical appearance. Also, results demonstrated that these associations were stronger for women in comparison to men. Particularly, results suggested that, especially in women, the desire to reach thinness emerges when the need to portray an image of perfection to others is focused on the domain of physical appearance.

Some limitations should be considered. Even though this study supports the validity and reliability of

this new measure, further research should be conducted in other samples to ensure the plausibility and invariance of the factorial structure of the scale. Furthermore, this study's sample constricts conclusions to be drawn given that it only comprised students. Future studies should consider the use of samples from the general population. Also, this measure should be tested in other languages, namely in English. Other limitation was the absence of a clinical sample with eating disorders. Actually, taking into account the singularity of this new measure and its relevance for the field of eating psychopathology, future studies should test its structure and clinical utility in these clinical conditions.

The current study supports that PSPS-BI is a robust and reliable instrument to assess perfectionistic self-presentation focused on physical appearance, and a more accurate measure to capture the relationship between the need to be seen as perfect and drive for thinness. Overall, PSPS-BI seems to offer new possibilities for research and clinical purposes.

Compliance with Ethical Standards

Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

This article does not contain any studies with animals performed by any of the authors.

Informed consent

Informed consent was obtained from all individual participants and their parents (if the participants were underage included in the study.

References

Antony, M. M., Purdon, C. L., Huta, V., & Swinson, R. P. (1998). Dimensions of perfectionism across the anxiety disorders. *Behaviour Research and Therapy, 36*, 1143–1154.

Bardone-Cone, A. M., Wonderlich, S. A., Frost, R. O., Bulik, C. M., Mitchell, J. E., Uppala, S., & Simonich, H. (2007). Perfectionism and eating disorders: current status and future directions. *Clinical Psychology Review, 27*(3), 384-405. doi:10.1016/j.cpr.2006.12.005

Buote, V. M., Wilson, A. E., Strahan, E. J., Gazzola, S. B., & Papps, F. (2011). Setting the bar: divergent sociocultural norms for women's and men's ideal appearance in real-world contexts. *Body Image, 8*(4), 322-334. doi:10.1016/j.bodyim.2011.06.002

Byrne, B. (2010). *Structural equation modelling with AMOS – basic concepts, applications, and programming*. Taylor and Francis, New York.

Chen, F. F., Sousa, K. H., & West, S. G. (2005). Testing measurement invariance of second-order factor models. *Structural Equation Modeling: A Multidisciplinary Journal, 12*(3), 471-492. doi:10.1207/s15328007sem1203_

Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling: A Multidisciplinary Journal, 9*(2), 233-255. doi:10.1207/S15328007SEM0902_5

Cockell, S. J., Hewitt, P. L., Seal, B., Sherry, S., Goldner, E. M., Flett, G. L., & Remick, R. A. (2002). Trait and selfpresentational dimensions of perfectionism among women with anorexia nervosa. *Cognitive Therapy and Research, 26*(6), 745–758. doi:10.1023/A:1021237416366

DeCoster, J. (1998). *Overview of factor analysis*. Retrieved June, 28, 2012 from http://www.stat-help.com/notes.html

Ferreira, C., Pinto-Gouveia, J., & Duarte, C. (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*, 55–66. doi:10.1002/cpp.76

Ferreira, C., Pinto-Gouveia, J., & Duarte, C. (2011). The validation of the Body Image Acceptance and Action Questionnaire: exploring the moderator effect of acceptance on disordered eating. *International Journal of Psychology and Psychological Therapy*, *11*(3), 327–345.

Frost, R. O., Marten, P. A., Lahart, C., & Rosenblate, R. (1990). The dimensions of perfectionism. *Cognitive Therapy and Research*, *14*(5), 449–468. doi:10.1007/BF01172967

Garner, D. M., Olmsted, M. P., & Polivy, J. (1983). Development and validation of a multidimensional eating disorder inventory for anorexia nervosa and bulimia. *International Journal of Eating Disorders*, *2*, 15–34. doi:10.1002/1098-108X(198321)

Halmi, K., Sunday, S., Strober, M., Kaplan, A., Woodside, B., Fichter, M., Treasure, J., Berrettini, W., & Kaye, W. (2000). Perfectionism in anorexia nervosa: variation by clinical subtype, obsessionality and pathological eating behavior. *American Journal of Psychiatry*, *157*, 1799–1805. doi:10.1176/appi.ajp.157.11.1799

Hewitt, P. L., & Flett, G. L. (1991) Perfectionism in the self and social contexts: conceptualization, assessment, and association with psychopathology. *Journal of Personality and Social Psychology*, *60*(3), 456–470. doi:10.1037/0022-3514.60.3.456

Hewitt, P. L., Flett, G. L., Sherry, S. B., Habke, M., Parkin, M., Lam, R.W., … & Stein, M. B. (2003). The interpersonal expression of perfection: perfectionistic self-presentation and psychological distress. *Journal of Personality and Social Psychology*, *84*(6), 1303–1325. doi:10.1037/0022-3514.84.6.1303

Hewitt, P. L., Flett, G. L., & Ediger, E. (1995). Perfectionism traits and perfectionistic self-presentation in eating disorder attitudes, characteristics, and symptoms. *International Journal of Eating Disorders*, *18*(4),

317–326. doi:10.1002/1098-108X(199512)18:4<317::AID-EAT2260180404>3.0.CO;2-2

Hewitt, P. L., Flett, G. L., & Ediger, E. (1996). Perfectionism and depression: Longitudinal assessment of a specific vulnerability hypothesis. *Journal of Abnormal Psychology, 105*(2), 276–280. doi:10.1037/0021-843X.105.2.276

Horn, J. (1965). A rationale and test for the number of factors in factor analysis. *Psychometrika, 30*(2), 179-185. doi: 10.1007/BF02289447

Kline, R. B. (2005). *Principle and practice of structural equation modeling*. New York, NY: Guilford

Lovibond, S. H., & Lovibond, P. F. (1995). *Manual for the Depression Anxiety Stress Scales* (2nd ed.). Psychology Foundation, Sydney.

Machado, P., Gonçalves, S., Martins, C., & Soares, I. (2001). The Portuguese version of the eating disorders inventory: evaluation of its psychometric properties. *European Eating Disorders Review, 9*(1), 43-52. doi:10.1002/erv.359

MacKinnon, S., & Sherry, S. (2012). Perfectionistic self-presentation mediates the relationship between perfectionistic concerns and subjective well-being: a three-wave longitudinal study. *Personality and Individual Differences, 53*, 22-28. doi:10.1016/j.paid.2012.02.010

McGee, B. J., Hewitt, P. L., Sherry, S. B., Parkin, M., & Flett, G. L. (2005). Perfectionistic self-presentation, body image, and eating disorder symptoms. *Body Image, 2*(1), 29-40. doi:10.1016/j.bodyim.2005.01.002

Pais-Ribeiro, J., Honrado, A., & Leal, I. (2004). Contribuição para o estudo da adaptação portuguesa das escalas de Depressão Ansiedade Stress de Lovibond e Lovibond [Contribution for the study of the Portuguese adaptation of the Depression, Anxiety and Stress scales of Lovibond and Lovibond]. *Psychologica, 36,* 235-246.

Pinto-Gouveia, J., Ferreira, C., & Duarte, C. (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

Saboonchi, F., Lundh, L., & Öst, L. (1999). Perfectionism and self-consciousness in social phobia and panic disorder with agoraphobia. *Behaviour Research and Therapy 37,* 799-808. doi: 10.1016/S0005-7967(98)00183-1

Sandoz, E. K., Wilson, K. G., Merwin, R. M., & Kellum, K. K. (2013). Assessment of body image flexibility: the Body Image-Acceptance and Action Questionnaire. *Journal of Contextual Behavioral Science, 2*(1–2), 39–48. doi:10.1016/j.jcbs.2013.03.002

Sherry, S., Hewitt, P., Flett, G., Lee-Baggley, D., & Hall, P. (2007). Trait perfectionism and perfectionistic self-presentation in personality pathology. *Personality and Individual Differences, 42*(3), 477–490. doi: 10.1016/j.paid.2006.07.026

Steele, A. L., O'Shea, A., Murdock, A., & Wade, T. D. (2011). Perfectionism and its relation to overevaluation of weight and shape and depression in an eating disorder sample. *International Journal of Eating Disorders, 44*(5), 459–464. doi:10.1002/eat.20817

Stice, E., Marti, N., & Durant, S. (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

Strahan, E. J., Wilson, A. E., Cressman, K. E., & Buote, V. M. (2006). Comparing to perfection: how cultural norms for appearance affect social comparisons and self image. *Body Image 3*(3), 211-27. doi:10.1016/j.bodyim.2006.07.004

Stoeber, J., & Stoeber, F. S. (2009). Domains of perfectionism: Prevalence and relationships with perfectionism, gender, age, and satisfaction with life. *Personality and Individual Differences, 46*, 530-535. doi: 10.1016/j.paid.2008.12.006,

Tabachnick, B., & Fidell, L. (2007). *Using multivariate statistics* (5th Ed.). Pearson, Boston.

Velicer, W. F., Eaton, C. A., & Fava, J. L. (2000). Construct explication through factor or component analysis: A review and evaluation of alternative procedures for determining the number of factors or components. In R. Goffin & E. Helmes (Eds.), *Problems and solutions in human assessment*. Norwell, MA: Kluwer Academic.

Vohs, K. D., Voelz, Z. R., Pettit, J. W., Bardone, A. M., Katz, J., Abramson, L. Y., … & Joiner, T. E. (2001). Perfectionism, body dissatisfaction, and self-esteem: an interactive model of bulimic symptom development. *Journal of Social and Clinical Psychology, 20*(4), 476–497. doi:10.1521/jscp.20.4.476.22397

Figure 1. The mediational effect of PSPS-BI on the relationship between PSPS and DFT (EDI).

Table 1

Factor analysis(EFA) and reliability coefficients (n = 401), and factor loadings in the CFA (n = 457)

	EFA Sample (n = 401)					*CFA Sample (n = 457)*	
Items	**1**	**2**	h^2	**Item total**	**α it del.**	**SRW**	**SMC**
Concealment of body imperfections							
23. To show that I cannot control my weight and eating is one of the things that make me blue.	.81	.10	.59	.66	.93	.75	.57
11. It would be awful if others saw my ugly and unattractive body characteristics.	.80	.03	.73	.75	.93	.80	.64
26. I prefer not to go to a social event if I think that my physical appearance is not the ideal one for the situation.	.79	.17	.59	.59	.93	.63	.40
30. I avoid situations in which I know that I am going to expose parts of my body (or characteristics) that I find ugly or shameful.	.79	.02	.65	.73	.93	.59	.35
25. I try hard to disguise what I find less attractive in my body.	.79	.10	.70	.79	.93	.64	.41
7. Admitting any flaw (regarding my physical appearance) is, for me, one of the worst things.	.78	.11	.57	.63	.93	.73	.53
24. It seems that my (body) imperfections become worse when I feel that others notice them.	.76	.06	.63	.73	.93	.57	.33
32. I do not wear certain clothes (even if I like them) if I think that they might reveal parts (or characteristics) of my body that I find ugly.	.76	.07	.54	.63	.93	.77	.60
5. I do everything I can to conceal what I dislike in my body.	.74	.14	.66	.77	.93	.42	.18
19. It is very important for me that others do not see my body defects.	.72	.16	.67	.76	.93	.60	.37
10. I strive so that others do not become aware of certain characteristics of my body.	.66	.15	.69	.69	.93	.83	.68
2. It would be awful for me to show my body imperfections to others.	.65	.12	.55	.66	.93	.61	.37
31. I strive hard so that others see me as more attractive than what I really am.	.64	.22	.62	.73	.93	.71	.51
Display of body perfection							
8. It is very important for me to present myself (my physical appearance) perfectly in social situations.	.10	.80	.60	.43	.93	.68	.47
28. Having a beautiful and attractive physical appearance makes me feel good with others.	.10	.78	.61	.41	.93	.73	.53

29. For me it is extremely important that others see me as having an impeccable and exemplary physical appearance.	.10	.71	.62	.55	.93	.69	.47
13. I would like to appear more (physically) attractive than what I really am.	.16	.65	.57	.56	.93	.52	.27
9. I know that I do not have an ideal body image, but I strive to reveal myself to others as perfect as I can.	.10	.62	.73	.48	.93	.63	.40
1. It is important to have an attractive physical appearance.	.09	.54	.56	.42	.93	.55	.30

Table 2

Descriptive statistics, Cronbach's alpha coefficients and product-moment correlations between PSPS-BI and the study variables (Sample 1, n = 401).

					PSPS-BI		
		Mean	Standard Deviation	Cronbach's alpha	Total	Display of Body Perfection	Concealment of Body Imperfections
PSPS	Total	106.91	24.27	.92	.74**	.50**	.74**
	Perfectionictic self-promotion	40.41	9.66	.82	.69**	.54**	.66**
	Nondisplay of imperfections	40.49	10.02	.83	.69**	.48**	.68**
	Nondisclosure of imperfections	26.00	6.97	.75	.63**	.32**	.67**
MPS	Total	86.05	17.46	.91	.56**	.38**	.56**
	Concern over mistakes	23.50	6.68	.83	.52**	.32**	.53**
	Personal standards	22.70	4.40	.73	.39**	.37**	.35**
	Parental expectations	14.96	4.26	.77	.39**	.28**	.38**
	Parental criticism	9.41	3.49	.70	.42**	.19**	.45**
	Doubt	16.67	3.12	.71	.44**	.28**	.45**
	Organization	21.18	3.87	.71	.26**	.32**	.21**
BI-AAQ		63.54	14.74	.92	-.62**	-.44**	-.61**
EDI	Drive for thinness	2.43	3.15	.70	.43**	.37**	.40**
	Body dissatisfaction	4.73	4.96	.84	.42**	.29**	.42**
DASS21	Depression	4.96	4.29	.87	.40**	.22**	.42**
	Anxiety	4.78	4.09	.83	.33**	.17**	.35**
	Stress	6.86	4.20	.84	.32**	.26**	.31**

** $p < .001$

PSPS = Perfectionsitic Self-Presentation; MPS = Multidimensional Perfectionism Scale; BI-AAQ = Body Image Acceptance and Action Questionnaire; EDI = Eating Disorder Inventory; DASS21 = Depression, Anxiety and Stress Scales.