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PSYCHOMETRIC PROPERTIES OF THE POLISH VERSION OF THE BODY AND APPEARANCE SELF-CONSCIOUS EMOTIONS SCALE (BASES)

The studies were aimed to investigate the psychometric properties of a Polish version of the Body and Appearance Self-Conscious Emotions Scale (BASES; Castonguay, Sabiston, Crocker, & Mack). In Study 1, data from student ($n = 325$) and community samples ($n = 385$) provided evidence for the four-factor structure of the Polish BASES and its adequate construct validity. Data from a separate sample ($n = 443$) in Study 2 supported the four-factor structure of the Polish BASES, as well as its convergent validity through significant correlations between BASES scores and other variables related to body image and well-being. Sex invariance was also tested and confirmed, although mean scores for guilt and shame were higher for women. The Polish BASES is an appropriate and psychometrically sound measure of body and appearance-related self-conscious emotions.

Keywords: body image; self-conscious emotions; shame; guilt; hubristic and authentic pride.

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INTRODUCTION

The last years brought attention to the scientific study of body image, emphasizing its complexity, as well as diversity of cultural and personal contexts in which it may be analyzed (Cash & Smolak, 2011). As pointed by Cash and Smolak, "body image transcends a singular experience. It is complex and multidimensional" (2011, p. 10). It is shaped by historical influences such as socialization, modeling or physical changes, and proximal impacts including activating situations and events. It is comprised of perceptions, beliefs, emotions, and self-regulatory strategies and behaviors toward one's body (Cash, 2011). As a key human experience of embodiment, body image affects diverse aspects of psychosocial functioning and quality of life (Cash & Smolak, 2011). For example, dissatisfaction with one's body shape, size and appearance may predict considering cosmetic surgery (Jovic, Sforza, Jovanovic, & Jovic, 2016; Markey & Markey, 2009), sexual dissatisfaction (Hoyt & Kogan, 2001), anxiety and avoidance of behaviors in social settings (Cash, Thériault, & Annis, 2004; Mills, Fullertyszkiewicz, & Holmes, 2014), as well as disordered eating (Calogero & Pina, 2011; MacNeill, Best, & Davis, 2017; Scherr, Ferraro, & Weatherly, 2010), depressive symptoms (Conradt et al., 2007; Sharpe et al., 2017), poor mental health and unhappiness (Ganem, Heer, & Morera, 2009; Stokes & Frederick-Recascino, 2003). Nonetheless, positive body image is related to higher levels of self-esteem, life satisfaction (Avalos, Tylka, & Wood-Barcalow, 2005), sexual function (Satinsky, Reece, Dennis, Sanders, & Bardzell, 2012), and well-being (Swami, Weis, Barron, & Furnham, 2017). However, far less attention has been focused on specific emotional body image outcomes (Thøgersen-Ntoumani et al., 2018). In some recent work, the affective domain of body image has been explored with self-conscious emotions that are contextualized to the body appearance and function (e.g., Castonguay, Sabiston, Crocker, & Mack, 2014; Castonguay, Sabiston, Kowalski, & Wilson, 2016; Crocker et al., 2014; Sabiston et al., 2010).

Self-conscious emotions are a special class of emotions central to psychological functioning (Robins & Schriber, 2009; Tracy & Robins, 2007b), which may be described with several characteristics. First, they are more cognitively complex than basic emotions (Tracy & Robins, 2004, 2007b). They require self-awareness, stable self-representations, and self-evaluative processes (Robins & Schriber, 2009; Tracy & Robins, 2004, 2006). They are evoked in response to events which are appraised as significant to identity goals. Positive self-conscious emotions, such as pride, are triggered when identity-goal congruence

is detected, whereas negative self-conscious emotions (e.g. shame and guilt) develop in the case of identity-goal incongruence (Tracy & Robins, 2004, 2007b). Second, due to their complexity, self-conscious emotions emerge later in childhood than basic emotions. To experience shame, guilt or pride, an individual should acquire the cognitive ability to understand social rules and standards, and to appraise one's own behavior in relation to these standards (i.e. referential self is required; Tracy & Robins, 2004). Third, it is considered that self-conscious emotions were developed to achieve social goals (Robins & Schriber, 2009). Fourth, self-conscious emotions show weaker evidence of universality than basic emotions. They are not consistently accompanied by universal facial expressions, but are manifested through language and complex nonverbal behaviors (i.e. bodily movements and postural changes) (Tracy & Robins, 2007b). This latter specific feature of self-conscious emotions highlights the need to consistently explore the emotions across and within cultures.

There are four prominent body-related self-conscious emotions which are evoked by self-reflection and self-evaluation: body-related shame, guilt, hubristic pride, and authentic pride (Castonguay, Brunet, Ferguson, & Sabiston, 2012). Based on a theoretical model of self-conscious emotions (Tracy & Robins, 2004, 2007b), body-related shame is an emotion usually experienced when an individual perceives or is afraid of failure to meet internalized social standards considering body attractiveness, such as when a person fails to reach their desired body weight or shape (Castonguay et al., 2012, 2014; Pila, Brunet, Crocker, Kowalski, & Sabiston, 2016). Since it includes a negative evaluation of self, it is an acutely painful emotion and is difficult to modify (Castonguay, Pila, Wrosch, & Sabiston, 2015). Some scholars have demonstrated in their studies that body shame may predict depressed mood (Tiggemann & Kuring, 2004), caloric intake and dietary restraint (Troop, 2016), and is related to eating behaviors (Mustapic, Marcinko, & Vargek, 2017). Overall, body-related shame is an intense emotion that is linked to a range of maladaptive outcomes.

Derived from theoretical assumptions (Tracy & Robins, 2004), body-related guilt is defined as an emotion arising in response to a transgression of a specific behavior, such as overeating, which is perceived as internal and controllable failure and is often negatively evaluated by an individual (Calogero & Pina, 2011; Castonguay et al., 2014, 2015; Sabiston et al., 2010). It is usually accompanied by regret and remorse (Castonguay et al., 2014; Pila et al., 2016; Tracy & Robins, 2004) and, as empirically evidenced both in clinical and non-clinical samples, may be a motivator for reparative actions, such as exercising (Castonguay, Wrosch, Pila, & Sabiston, 2017; Sabiston et al., 2010) or on the other hand

may increase vulnerability to eating disorders (Burney & Irwin, 2000; Calogero & Pina, 2011).

Similar to the generalized emotions of shame and guilt (Tracy & Robins, 2004), *body-related* shame and *body-related* guilt are likely to co-occur and are often correlated due to having a number of features in common (Castonguay et al., 2012; Conradt et al., 2007). Both are negatively valenced self-conscious emotions based on a perceived failure and related to a specific rule or standard. Body shame refers to the whole person and elicits global negative appraisal about the self, whereas body guilt is elicited in response to a specific behavior which is perceived as a misconduct against one's body (Calogero & Pina, 2011; Castonguay et al., 2012, 2014). Also, body-related guilt may be adaptive in some circumstances and may motivate reparative action (Castonguay et al., 2017; Sabiston et al., 2010), whereas body shame usually promotes a desire to conceal one's perceived inadequate self (Calogero & Pina, 2011; Castonguay et al., 2016; Thompson, Dinnel, & Dill, 2003).

Body-related pride, similarly to pride (Tracy & Robins, 2007a), may be operationalized as two facets: authentic pride and hubristic pride (Castonguay, Gilchrist, Mack, & Sabiston, 2013). Body-related authentic pride is an outcome of meeting internalized social standards due to one's specific and controllable behaviors and achievements such as regular exercises (Castonguay et al., 2012, 2013, 2014). As demonstrated in young adults, it is related to confidence, engagement in goal-directed behavior, feeling of personal growth and accomplishment, and happiness (Castonguay et al., 2013). Body-related hubristic pride refers to more global and less controllable aspects of the self (e.g., having attractive body) and is associated with a sense of superiority to others aroused from social comparisons and compliments from other people (Castonguay et al., 2013). Studies in non-clinical samples suggest that body-related hubristic pride is inversely associated with upward appearance comparisons (Thøgersen-Ntoumani et al., 2018) and positively related to narcissistic self-aggrandizement and both adaptive and maladaptive functions (Castonguay et al., 2013).

Body-related self-conscious emotions are effectively measured with the Body and Appearance Self-Conscious Emotions Scale (BASES), which, unlike other measures of specific body and appearance-related emotions (Conradt et al., 2007; Thompson et al., 2003), focuses on both positive and negative emotional experiences. As the authors note (Castonguay et al., 2014), this is the first available scale to assess body and appearance-related authentic and hubristic pride. The BASES includes 16 items (four items assessing each, shame, guilt, authentic and hubristic pride) and scores in male and female older adolescent and adults in

Canada were found to have a four-factor structure and evidence of good internal consistency and 2-week test-retest reliability. Evidence of concurrent, convergent, incremental, and discriminant validity was also presented for scores of the original BASES (Castonguay et al., 2014). So far, the scale has been translated to Spanish. Data from a student sample revealed a four-factor structure (with one cross-loaded item for guilt that was deleted), adequate internal consistency and acceptable convergent validity (Alcaraz-Ibáñez & Sicilia, 2018). Further testing of revised body image scales is needed to capture cultural similarities and differences, and the BASES enables the assessment of both positive and negative self-conscious emotions that may demonstrate unique experiences for individuals in other parts of the world.

We developed and validated the Polish BASES for two reasons. First, to the best of our knowledge, body-related self-conscious emotions have not been explored in Poland, where there are socio-cultural changes over the past decades. Specifically, the decline of socialism and the adoption of market economies triggered economic growth and lifestyle changes. The Polish, through Western media, became exposed to Western values and beauty standards (Catina & Joja, 2001; Forbes, Doroszewicz, Card, & Adams-Curtis, 2004; Rathner, 2001; Taylor, Szpakowska, & Swami, 2013). Internalizing these standards has had an impact on body dissatisfaction in Polish men and women (Forbes et al., 2004; Taylor et al., 2013) and may result in higher levels of body-related guilt and shame, and lower levels of authentic and hubristic pride. Second, through adaptation of the BASES to Polish, we intend to expand a range of instruments and scope of cross-cultural studies with a measure that comprehensively assesses both negative and positive body and appearance emotions.

Two studies were conducted. Study 1 was designed to investigate the factor structure of the Polish BASES using confirmatory factor analysis (CFA). Based on the previous research (Castonguay et al., 2014), a correlated four-factor model was specified when performing CFA in student and community samples separately. To extend recent work on the scale, we examined the construct validity of the Polish version of the BASES using a CFA framework. Indices of convergent validity, as well as discriminant validity determinants were applied to address this purpose. The aim of Study 2 was to provide further evidence on the Polish BASES factor structure to check whether the findings from Study 1 could be generalized to another sample. The study also aimed to build upon previous research by exploring the measurement invariance of Polish BASES scores across sex and comparing scores of male and female participants. Although measurement invariance across sex of the original BASES was not reported, based on the

study on the Spanish BASES (Alcaraz-Ibáñez & Sicilia, 2018), we predicted, that the Polish BASES scores would be invariant across sex. In line with previous research (Alcaraz-Ibáñez & Sicilia, 2018; Conradt et al., 2007; Else-Quest, Higgins, Allison, & Morton, 2012; Pila et al., 2016), when comparing scores of women and men, we expected higher intensity of body-related shame and guilt in female than in male samples. Consistently with some reports (Castonguay et al., 2013; Else-Quest et al., 2012; Pila et al., 2016), it was hypothesized that men and women would display similar levels of authentic and hubristic pride.

Moreover, Study 2 was designed to provide evidence for convergent validity of the scale by examining the relations of scores on BASES subscales with indices of body image and well-being. In line with current empirical findings, we predicted that BASES authentic and hubristic pride would be positively related to self-esteem (Castonguay et al., 2013, 2014), positive affect (Alcaraz-Ibáñez & Sicilia, 2018; Castonguay et al., 2014), and body appreciation (Razmus & Razmus, 2017). Consistently with previous research (Alcaraz-Ibáñez & Sicilia, 2018; Castonguay et al., 2014), we hypothesized that negative correlation between both types of body-related pride and depressive symptoms would hold in the Polish sample. In accordance with prior reports, we anticipated that body-related shame and guilt would be positively related to depressive symptoms (Brunet, Pila, Solomon-Krakus, Sabiston, & O'Loughlin, 2017; Castonguay et al., 2014; Chen & Russo, 2010; Conradt et al., 2007), yet negatively linked to self-esteem (Castonguay et al., 2014; Conradt et al., 2007), positive affect (Alcaraz-Ibáñez & Sicilia, 2018; Brunet et al., 2017; Castonguay et al., 2014), and body appreciation (Conradt et al., 2007; Razmus & Razmus, 2017). Since theoretical conceptualizations suggest that body-related pride is linked to positive psychological variables and adaptive factors (Castonguay et al., 2014), we decided to extend an analysis of the Polish BASES convergent validity by examining the associations of body and appearance self-conscious emotions with positive orientation (i.e. individuals' tendency to view and address life and experience with a positive outlook; Caprara et al., 2012, p. 710). We anticipated that this variable would be positively related to body and appearance authentic and hubristic pride, yet negatively linked to body shame and guilt.

STUDY 1: FACTOR STRUCTURE AND CONSTRUCT VALIDITY OF THE POLISH BASES

METHOD

Participants and Procedures

The research was conducted with two independent samples of students and community members, which were homogenous in terms of ethnicity (all participants were White). The first sample consisted of 325 students (54.8% women) ranging in age from 20-28 years ($M = 22.43$, $SD = 1.30$). Participants' body mass index (BMI), based on self-reported weight and height, ranged from 16.18 kg/m² to 39.30 kg/m² ($M = 21.93$, $SD = 3.06$). The second sample consisted of 385 individuals (55.1% women) ranging in age from 18-57 years ($M = 35.38$, $SD = 10.83$). BMI values ranged from 16.53 to 38.87 kg/m² ($M = 23.91$, $SD = 3.72$).

The study received the approval from the Ethical Committee of The John Paul II Catholic University of Lublin, Institute of Psychology. Data were collected between January and April 2017. Participation in the study was voluntary and respondents did not receive remuneration. Following face-to-face informed consent, participants in both samples completed an anonymous paper-and-pencil version of the scale. For the student sample, participants were recruited from two universities in two large south-eastern Polish cities (Lublin and Rzeszów). Participants filled in the questionnaire during class time and were instructed to fold their response sheets prior to collection for anonymity. To ensure that the participants did not confer, one of the researchers was present during data collection. For the second sample composed of community members, participants were recruited via personal contacts of four trained data collectors using direct solicitation. Respondents received questionnaires personally at their homes or work sites and completed them individually in secluded areas. Anonymity of the study was enhanced by inserting each questionnaire in an envelope, which was sealed after the questionnaire was filled in.

Measures

Body and appearance self-conscious emotions. The Polish translation of the BASES (Castonguay et al., 2014) was used. The BASES was translated into Polish by three independent professional translators. After the translations were

compared and agreed upon by the Polish authors of the paper, the initial version of the scale was back-translated by two psychologists who were fluent in English and experienced in translating professional texts. The translated scale was reviewed by the authors and some minor modifications were implemented to improve the precision of two items. Moreover, the instructions and form of the items were changed to coincide with the specificity of the Polish language¹ (Appendix). In the next step, the equivalence of scores on the English and Polish versions of the BASES was tested. The study was conducted in a bilingual group of 69 English Studies Master's degree students ($N = 52$ women and 17 men) aged 22-27 years. Correlation coefficients between subscales scores in both versions ranged from .82 (for Shame) to .92 (for Hubristic Pride). There were no statistically significant differences between the mean subscales scores of English and Polish versions. Scores on both scale adaptations demonstrated similar internal consistency statistics (Cronbach α s for Polish and English versions ranged from .89 to .92 and from .90 to .92, respectively). Like the English BASES (Castonguay et al., 2014), the Polish scale consists of 16 items answered on a 5-point scale from 1 (*Never*) to 5 (*Always*). Higher scores demonstrate higher intensity of body and appearance self-conscious emotions.

Statistical analyses

Data were analysed with CFA using Mplus v.7.0 (Muthén & Muthén, 2012), as it allows to test a priori specified hypotheses considering the structure of a model. Considering the multivariate non-normality estimate, the four-factor model was tested using maximum likelihood estimation with robust standard errors (MLR). The following indices were taken into account when assessing model fit: Satorra-Bentler scaled chi square ($S-B\chi^2$), RMSEA, CFI, and SRMR. Values below .08 for the RMSEA and .09 for the SRMR, and values higher than .90 for the CFI indicate an acceptable fit (Schweizer, 2010). Construct validity was determined by assessing both convergent and discriminant validity using a CFA framework. Convergent validity was estimated by calculating CR and AVE. CR should be higher than 0.70 and AVE should be higher than 0.50 (Hair, Black, Babin, Anderson, & Tatham, 2006). Discriminant validity was assessed by comparing the square roots of AVEs for the subscales with inter-construct cor-

¹ There is no equivalent of Present Perfect in Polish, that is why, to refer to an individual's generalized experience, the present tense was used. The phrase *In general, I have felt. . .* was deleted and the items are full sentences including verbs and adjectives describing self-conscious emotions.

relations. To demonstrate discriminant validity, the square root of AVE for a scale should be higher than its correlations with other subscales (Hair et al., 2006).

RESULTS

Preliminary analyses

Maximum of 1.8% and 0.5% of data were missing in items in the student and community samples, respectively. Listwise deletion was used in handling missing data. Skewness (from -0.13 to 0.83 in community sample, and from -0.04 to 1.16 in student sample), as well as kurtosis (from -0.83 to -0.11 and -0.74 to 0.60, respectively) did not exceed the critical limits (Kline, 2010).

Confirmatory Factor Analysis

Factor structure. The four-factor structure of BASES scores in the student sample had unacceptable model fit: S-B $\chi^2(98) = 342.804$, $p < .001$, CFI = .916, RMSEA = .088 with 90% CI = .078 - .098, SRMR = .077. Next, the error covariances between Items 3 and 10, and Items 10 and 14 were added due to high modification indices and similar wording among the items. The fit indices were within acceptable values: S-B $\chi^2(96) = 270.487$, $p < .001$, CFI = .940, RMSEA = .075 with 90% CI = .064 - .085, SRMR = .066. All factor loadings for items were significant and ranged from .69 to .96 (Appendix). The analysis has sufficient statistical power ($1-\beta = .91$) taking RMSEA(H) = .07, RMSEA(H_0) = .05, $df = 98$, and sample size $N = 325$. CFA in the community sample demonstrated an acceptable model fit for the four-factor structure of BASES scores: S-B $\chi^2(98) = 307.775$, $p < .001$, CFI = .929, RMSEA = .075 with 90% CI = .065 - .084, SRMR = .059. All factor loadings were significant and ranged from .68 to .96 (Appendix). The analysis has sufficient statistical power ($1-\beta = .95$) taking RMSEA(H) = .07, RMSEA(H_0) = .05, $df = 98$, and sample size $N = 385$.

Construct validity. The construct validity of the Polish BASES was examined using a CFA framework. As model fit was established both in student and community sample, a single and integrative approach was used to analyze the data from the two samples ($n = 710$). The four-factor model of the BASES fit the data satisfactorily: S-B $\chi^2(98) = 492.686$, $p < .001$, CFI = .930, RMSEA = .075 with 90% CI = .069 - .082, SRMR = .062. All factor loadings were significant and ranged from .69 to .95. Convergent validity was adequate, as suggested by CR values above .70 and AVE values above the suggested threshold of .50

(Table 1). Moreover, the square roots of AVEs for each BASES subscale were higher than correlations of a subscale and other subscales; thus, discriminant validity of the Polish BASES was demonstrated (Table 1).

Table 1. *The Convergent and Discriminant Validity Indices of the BASES (Study 1, n = 710)*

	CR	AVE	Hubristic pride	Shame	Guilt	Authentic pride
Hubristic pride	.949	.825	.908			
Shame	.896	.685	-.545	.828		
Guilt	.903	.702	-.363	.696	.838	
Authentic pride	.936	.785	.771	-.383	-.395	.886

Note. The diagonal values in bold are the square roots of AVEs of the subscales, while the values under the bolded ones are the correlations between the respective subscales.

STUDY 2: FURTHER EVIDENCE FOR FACTOR STRUCTURE, MEASUREMENT INVARIANCE ACROSS SEX, AND VALIDITY OF THE POLISH BASES

METHOD

Participants and Procedures

A separate sample of 443 individuals (55,3% women) participated in the study. The age ranged from 19 to 77 years ($M = 39.51$, $SD = 15.66$) and BMI values ranged from 15.46 kg/m² to 39.86 kg/m² ($M = 24.85$, $SD = 3.92$). The participants were recruited by trained data collectors via personal contacts and received questionnaires personally at their homes or work sites. They were informed that the research investigated various aspects of human functioning. After informed consent was given verbally, respondents completed a paper-and-pencil version of the questionnaire in secluded areas and returned it in a sealed envelope. Participants did not receive any reward. To reduce common method bias, we used the following procedural remedies: proximal separation between measures, eliminating common scale properties, and a multiple study cover story (Podsakoff, MacKenzie, & Podsakoff, 2012).

Measures

Body and appearance self-conscious emotions. To assess body and appearance self-conscious emotions, the Polish version of the BASES was utilized.

Body appreciation. Body appreciation was measured with Body Appreciation Scale-2 (BAS-2; Tylka & Wood-Barcalow, 2015) adapted in Polish by Razmus and Razmus (2017). Answers in ten items (e.g. *I feel good about my body*) were given on a 5-point scale from 1 (*Never*) to 5 (*Always*). An average score was computed for each participant, with higher scores representing high levels of body appreciation. Scores on the Polish BAS-2 showed a one-factor solution with acceptable fit indices, adequate validity, and internal consistency (Razmus & Razmus, 2017). In the present sample, Cronbach α was .95.

Self-esteem. Participants completed the Rosenberg's Self-Esteem Scale (Rosenberg, 1965; Polish adaptation: Łaguna, Lachowicz-Tabaczek, & Dzwonkowska, 2007). This widely-used unidimensional measure consists of 10 statements (e.g. *I take a positive attitude toward myself*) with five reverse-coded items. Respondents were asked to assess the extent to which they agreed with each statement on a 4-point scale, ranging from 1 (*Strongly agree*) to 4 (*Strongly disagree*). The scores were averaged with higher results demonstrating high self-esteem. Evidence of adequate internal consistency and construct validity of the Polish RSES scores has been demonstrated (Łaguna et al., 2007). In the present study, Cronbach α was .86.

Positive affect. We used the Positive and Negative Affect Schedule – Expanded Form (Watson & Clark, 1994) in Polish adaptation by Fajkowska & Marszał-Wiśniewska (2009). The 10-item General Positive Affect scale was used. Using a 5-point scale ranging from 1 (*Very slightly*) to 5 (*Very much*), participants assessed the extent to which they had felt in a particular way (e.g. *enthusiastic*) within the last week. Scores were computed by averaging scores derived from the General Positive Affect subscale. Higher results indicate greater intensity of positive affect. The Polish version of PANAS-X is a psychometrically sound measure with good test-retest reliability, adequate internal consistency, and adequate discriminant and convergent validity (Fajkowska & Marszał-Wiśniewska, 2009). In our study, Cronbach α was .87 for the General Positive Affect Scale.

Positive orientation. Positive orientation was measured with the Positivity Scale (P Scale; Caprara et al., 2012; Polish adaptation: Łaguna, Oleś, & Filipuk, 2011). The scale includes eight items (e.g. *I look forward to the future with hope and enthusiasm*) and participants are supposed to respond by choosing an answer

from 1 (*Strongly disagree*) to 5 (*Strongly agree*). One item is reversely coded. An overall score was computed as the mean of all items. Higher scores reflect high levels of positive orientation. A one-factor structure, adequate internal consistency and convergent validity of the Polish Positivity Scale has been supported (Łaguna et al., 2011). Cronbach α for the present sample was .85.

Depression. To assess depressive symptoms, the Centre for Epidemiological Studies – Depression Scale short form was used (CES-D; Radloff, 1977; Polish translation: Ziarko, Kaczmarek, & Haładziński, 2013). Respondents were asked to rate how often they had felt or behaved in a particular way within the last week using a scale ranging from 0 (*Rarely or none of the time, less than 1 day*) to 3 (*All of the time, 5 – 7 days*). Two items are reversely scored. Scores on all 10 items (e.g. *I felt fearful*) were computed by averaging scores, with higher values demonstrating high levels of depression. The Polish version of the CES-D has been shown to have adequate construct validity, temporal stability, and internal consistency (Ziarko et al., 2013). In the present study, Cronbach α was .86.

Statistical analyses

We tested common method bias by employing Harman’s single factor test to check if a single factor would account for a large part of the variance in all included variables (Fuller, Simmering, Atinc, Atinc, & Babin, 2016).

Confirmatory Factor Analysis (CFA) using Mplus v.7.0 (Muthén & Muthén, 2012) was performed to test factor structure of the Polish BASES. Considering the multivariate non-normality estimate, models were tested using maximum likelihood estimation with robust standard errors (MLR). The procedures for assessing model fit as described in Study 1 were followed.

To test measurement invariance across sex, we first examined the factor structure of the Polish BASES for men and women separately. After the fit of the model was established, we used Multigroup Confirmatory Factor Analysis (MGCFA). Measurement invariance (configural, metric, and scalar) was tested by fitting a sequence of increasingly restrictive models: (1) unconstrained model (M1, configural invariance), (2) model in which all factor loadings are equivalent across groups (M2, metric invariance), (3) model which assumes both factor loadings and intercepts to be equal across groups (M3, scalar invariance) (Meredith, 1993). The absolute difference in CFI (Δ CFI), RMSEA (Δ RMSEA), and SRMR (Δ SRMR) was estimated. The difference less than .010 in CFI, less than .015 in RMSEA, and less than .030 in SRMR would indicate measurement invariance (Chen, 2007; Cheung & Rensvold, 2002). To evaluate the significance of

the latent mean differences between men and women, we used the parameters of the last model (M3) in which the latent factor means in men were constrained to zero, whereas the latent means in women were freely estimated.

Convergent validity of the Polish BASES was assessed using zero-order Pearson correlation coefficients of BASES scores with scores on measures of body appreciation, self-esteem, positive affect, positive orientation, and depression, separately for men and women. The internal consistency of the scales was measured with Cronbach alpha coefficient.

RESULTS

Preliminary analyses

A maximum of 0.9% of data were missing from anyone item. Skewness (from -0.04 to 0.61) and kurtosis (from -0.98 to -0.10) did not exceed the critical limits (Kline, 2010). Listwise deletion was used in handling missing data. Exploratory factor analysis with one factor and an unrotated solution evidenced that this factor explained about 31,5% of variance in all the variables. Therefore, we can conclude that the collected data are fairly free from common method bias (Fuller et al., 2016).

Factor structure

The parent four-factor structure of BASES scores had model fit indices of: S-B $\chi^2(98) = 363.496$, $p < .001$, CFI = .912, RMSEA = .078 with 90% CI = .070 - .087, SRMR = .050. All factor loadings for items were significant and ranged from .70 to .84.

Measurement invariance across sex

Measurement invariance across sex was investigated. The four-factor structure of the Polish BASES provided an acceptable fit to the data in both sex subsamples when error covariance between Items 2 and 9 (due to high modification indices and items similar wording) was taken into account (Table 2). Having determined a baseline model for each sex subsample separately, the MGCFA was performed (Byrne, 2008). As shown in Table 2, configural (M 1), metric (M 2), and scalar (M 3) invariance between the sexes was revealed.

Table 2. Polish BASES Measurement Invariance Across Sex (Study 2)

Models	S-B χ^2	df	p	RMSEA	SRMR	CFI	Model Comparison	Δ RMSEA	Δ SRMR	Δ CFI
Men ($n = 197$)	221.196	97	.001	.077	.051	.905				
Women ($n = 244$)	181.876	97	.001	.067	.057	.944				
M1. Configural invariance	439.305	194	.001	.077	.055	.919	–	–	–	–
M2. Metric invariance	459.857	210	.001	.075	.063	.917	M2 vs. M1	.002	.008	.002
M3. Scalar invariance	507.783	226	.001	.077	.070	.907	M3 vs. M2	.002	.007	.010

Latent means comparisons showed that men and women did not differ significantly in hubristic ($p = .284$, $d = 0.13$) and authentic ($p = .330$, $d = 0.11$) pride. Women scored significantly higher than men on guilt (.201 units, $SE = .080$, $p < .012$, $d = 0.28$) and marginally significantly higher on shame (.164 units, $SE = .085$, $p = .055$, $d = 0.22$).

Internal consistency

The Polish BASES demonstrated adequate internal consistency, with $\alpha = .83$ for Shame, $\alpha = .85$ for Guilt, $\alpha = .82$ for Hubristic pride, and $\alpha = .86$ for Authentic pride.

Convergent validity

The Polish BASES scores have shown good convergent validity (Table 3). Both for men and women, BASES shame and guilt were positively related to depression, yet negatively related to body appreciation, self-esteem, positive affect, and positive orientation. In both sex subsamples, hubristic and authentic pride were significantly and positively correlated with body appreciation, self-esteem, positive affect, and positive orientation, but negatively correlated with depression.

Table 3. Participants' Mean Scores, Standard Deviations, and Zero-Order Pearson Correlations Coefficients Between Polish BASES Scores and Scores on Other Measures Used for Validation (Study 2)

Variables	M_m	SD_m	1	2	3	4	5	6	7	8	9	M_w	SD_w
1. Shame	2.33	0.90		.66**	-.52**	-.43**	-.63**	-.57**	-.36**	-.54**	.41**	2.48	0.90
2. Guilt	2.58	0.99	.79**		-.28**	-.32**	-.41**	-.33**	-.23**	-.38**	.24**	2.77	0.93
3. Hubristic pride	2.55	0.90	-.39**	-.36**		.74**	.53**	.47**	.36**	.43**	-.35**	2.45	0.86
4. Authentic pride	2.63	0.94	-.38**	-.41**	.75**		.45**	.44**	.36**	.41**	-.29**	2.57	0.90
5. Body appreciation	3.45	1.00	-.57**	-.52**	.52**	.57**		.66**	.45**	.70**	-.47**	3.39	0.93
6. Self-esteem	2.85	0.59	-.61**	-.53**	.39**	.48**	.69**		.61**	.68**	-.63**	2.85	0.52
7. Positive affect	3.22	0.78	-.50**	-.44**	.52**	.52**	.66**	.68**		.53**	-.45**	3.15	0.68
8. Positive orientation	3.54	0.72	-.61**	-.56**	.50**	.56**	.74**	.77**	.69**		-.57**	3.47	0.73
9. Depression	10.90	6.47	.61**	.47**	-.35**	-.42**	-.60**	-.73**	-.64**	-.69**		11.94	6.24

Note. In the bottom left triangle, descriptive statistics and correlation coefficients for men are presented; the upper right triangle refers to women; m = men, w = women; * $p < .05$, ** $p < .001$ (two-tailed).

GENERAL DISCUSSION

Two studies were conducted to investigate the factor structure and psychometric properties of the Polish BASES. The research was the first step in studying body-related self-conscious emotions in Poland. Findings of the two studies indicated that the scale has a four-factor structure with adequate factor loadings, both in student and community samples, which is consistent with the original BASES (Castonguay et al., 2014). Four-factor structure of the Polish BASES differs slightly from the structure of the Spanish version of the scale (Alcaraz-Ibáñez & Sicilia, 2018), where item 7 for guilt was deleted. It is worth pointing, that demonstrated by error covariances some Polish items within factors appeared to be more similar than they were for the original scale. We may hypothesize that this resulted from the wording which was more alike in Polish than in English version of these items. Using a CFA framework, both convergent and discriminant validity of the Polish BASES was evidenced in the first study.

Analysis in an age-diverse sample in Study 2 revealed full scalar invariance of the BASES across sex which is consistent with the previous study (Alcaraz-Ibáñez & Sicilia, 2018). It enables to investigate sex differences in body-related self-conscious emotions. Comparisons between Polish men and women demon-

strated that women scored higher on body and appearance shame and guilt, which is in line with those of past reports that indicate higher body dissatisfaction in women than in men (Hoyt & Kogan, 2001; MacNeill et al., 2017). They also corroborate the findings demonstrating higher intensity of body-related shame and guilt in female than in male samples (Alcaraz-Ibáñez & Sicilia, 2018; Conradt et al., 2007; Else-Quest et al., 2012; Pila et al., 2016; Solomon-Krakus & Sabiston, 2017). In the present study, men and women did not differ significantly on authentic and hubristic pride, consistently with the results of Pila's and colleagues' study in a Canadian sample (2016), but contrary to other research (Alcaraz-Ibáñez & Sicilia, 2018; Swami et al., 2017), where women scored lower on body-related pride measure. We hypothesize that gender differences are less evident nowadays, especially when positive but not negative body image is investigated. For instance, there are some studies which demonstrate, that men and women do not differ significantly on body appreciation (Razmus & Razmus, 2017; Swami, Ng, & Barron, 2016). It suggests that future research in this area is needed to understand how men and women experience their positive body image, considering other variables, such as demographics and socio-economic status (Castonguay et al., 2013; Else-Quest et al., 2012).

The second study provided evidence of adequate internal consistency of all Polish BASES subscales, which is in line with previous reports (Alcaraz-Ibáñez & Sicilia, 2018; Castonguay et al., 2014). Convergent validity of the Polish BASES was examined with correlation coefficients between BASES subscales and related variables. Associations occurred in expected directions which supports the scale's validity. Both in men and women, shame and guilt were positively related to depression, but negatively related to body appreciation and indicators of subjective well-being (i.e. positive affect, positive orientation, and self-esteem), which is consistent with the findings of previous studies (Alcaraz-Ibáñez & Sicilia, 2018; Brunet et al., 2017; Castonguay et al., 2014; Chen & Russo, 2010; Conradt et al., 2007; Razmus & Razmus, 2017). Concurrently, higher levels of authentic and hubristic pride were associated with higher body appreciation, self-esteem, positive affect, and positive orientation. The results support formerly reported relationships of positive body-related emotions with positive body image (Razmus & Razmus, 2017) and other positive characteristics (Castonguay et al., 2013, 2014; Razmus & Razmus, 2017; Swami et al., 2017). As suggested in previous research, authentic and hubristic pride were negatively related to depression (Alcaraz-Ibáñez & Sicilia, 2018; Castonguay et al., 2014). These results not only provide evidence that BASES is a valid measure of body-related self-conscious emotions, but also imply that body and ap-

pearance self-conscious emotions may predict individuals' well-being. This may be applied in clinical interventions and mental health promotion (Castonguay et al., 2014).

Findings should be considered in light of several limitations. First, two types of BASES reliability, i.e. composite reliability and Cronbach alpha, were examined. Future research would benefit from evaluating temporal stability (test-retest method), which is a more conservative method of estimating reliability. Second, the research did not investigate psychometric properties of the Polish BASES in clinical samples (e.g. in individuals with eating disorders). Providing evidence on the scale's factor structure, validity and reliability in clinical settings would considerably extend the scope of its application.

Despite these limitations, some strengths of the research warrant mention. The Polish BASES was developed using both back-translation and bilingual group design in order to maximize and evaluate accuracy and quality of the newly established language version. To assess psychometric properties of the developed scale, two studies in three independent samples were conducted. Broad spectrum of investigated psychometric properties comprised factor structure, construct and convergent validity, as well as measurement invariance across sex. Taken together, the findings suggest that the Polish BASES is a psychometrically appropriate instrument to measure body and appearance self-conscious emotions in a Polish-speaking population.

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APPENDIX

The BASES Items with Factor Loadings, Means and Standard Deviations (Study 1)

English version <i>In general, I have felt ...</i>	Polish version	Student sample (<i>n</i> = 325)			Community sample (<i>n</i> = 385)		
		Loading	<i>M</i>	<i>SD</i>	Loading	<i>M</i>	<i>SD</i>
Shame							
1. ashamed of the way I look	1. Wstydę się tego, jak wyglądam	.78	2.16	0.93	.73	2.18	0.93
5. inadequate when I think about my appearance	5. Czuję się niedoskonały/niedoskonała, gdy myślę o swoim wyglądzie	.84	2.64	1.14	.72	2.61	1.00
8. ashamed of my appearance	8. Wstydę się swojego wyglądu	.93	1.93	1.03	.86	2.08	0.98
16. ashamed that I am a person who is unattractive	16. Jest mi wstyd, że jestem nieatrakcyjną osobą	.88	1.80	1.02	.88	2.05	1.09
Guilt							
4. guilty that I do not do enough to improve the way I look	4. Czuję się winny/winna, że nie robię wystarczająco dużo, aby poprawić swój wygląd	.76	2.73	1.04	.73	2.91	1.09
7. guilty that I look the way I do	7. Czuję się winny/winna, że wyglądam, tak jak wyglądam	.69	2.10	1.09	.68	2.29	1.11
11. regret that I do not work on improving my appearance	11. Żałuję, że nie pracuję nad poprawą swojego wyglądu	.96	2.62	1.10	.90	2.93	1.14
13. regret that I do not put effort into my appearance	13. Żałuję, że nie wkładam wysiłku, aby dobrze wyglądać	.92	2.47	1.06	.94	2.77	1.11
Authentic pride							
3. proud of the effort I place on maintaining my appearance	3. Jestem dumny/dumna z wysiłku, jaki wkładam w pielęgnowanie swojego wyglądu	.75	2.95	1.04	.85	3.19	1.10
10. proud about my effort to improve the way I look	10. Jestem dumny/dumna z wysiłku, jaki wkładam w poprawianie swojego wyglądu	.71	2.80	1.03	.96	3.07	1.11
12. proud that I have achieved my appearance goals	12. Jestem dumny/dumna, że osiągnąłem/osiągnęłam swoje cele związane z wyglądem	.81	2.79	1.03	.92	3.07	1.09
14. proud of my appearance efforts	14. Jestem dumny/dumna z wysiłku wkładanego w swój wygląd	.85	2.99	1.03	.95	3.14	1.08

		Hubristic pride					
2. proud that I am more attractive than others	2. Jestem dumny/dumna, że jestem bardziej atrakcyjny/atrakcyjna niż inni	.87	2.70	1.08	.89	2.94	1.11
6. proud that I am a great looking person	6. Jestem dumny/dumna, że świetnie wyglądam	.86	2.91	1.09	.89	3.13	1.06
9. proud of my superior appearance	9. Jestem dumny/dumna, że wyglądam lepiej niż inni	.85	2.65	1.05	.94	2.88	1.13
15. proud that I am an attractive person	15. Jestem dumny/dumna, że jestem atrakcyjną osobą	.94	3.03	1.10	.95	3.13	1.08



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