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Factor Structure and Psychometric Properties of a Bahasa Malaysia (Malay) Translation of the Body Appreciation Scale-2 (BAS-2)

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**Abstract**

The 10-item Body Appreciation Scale-2 (BAS-2) is a widely-used measure of a facet of positive body image. Here, we examined the psychometric properties of a Bahasa Malaysia (Malay) translation of the BAS-2 in a community sample of Malaysian Malay and Chinese adults (*N* = 781). Participants completed the Malay BAS-2 alongside demographic items and measures of subjective happiness, life satisfaction, actual-ideal weight discrepancy (women only), drive for muscularity (men only), and internalisation of appearance ideals. Exploratory factor analyses with a Malay subsample indicated that BAS-2 scores reduced to a single dimension with all 10 items in women and men, although the factor structure was similar but not identical across sex. Confirmatory factor analysis indicated that the one-dimensional factor structure had adequate fit following modifications. BAS-2 scores were partially scalar invariant across sex (with no significant sex differences) and ethnicity (Malay participants had significantly higher body appreciation than Chinese participants), as well as had adequate internal consistency. Evidence of construct and incremental validity was also provided through associations with additional measures and the prediction of subjective happiness over-and-above other variables, respectively. The availability of the Malay BAS-2 should help advance research on the body appreciation construct in Malay-speaking populations.

**Keywords**: Body appreciation; Positive body image; Test adaptation; Malaysia, Psychometrics

**1. Introduction**

In the past decade, there has been a dramatic growth in interest in the concept of positive body image (see Daniels, Gillen, & Markey, 2018), particularly as accumulating evidence suggests that positive and negative body image are independent constructs that do not necessarily fall along the same continuum (for reviews, see Tylka, 2011, 2012, 2018; Tylka & Wood-Barcalow, 2015a). A core facet of positive body image is the construct of *body appreciation*, which can be defined as “accepting, holding favorable opinions toward, and respecting the body, while also rejecting media-promoted appearance ideals as the only form of human beauty” (Tylka & Wood-Barcalow, 2015a, p. 53). The construct was originally measured using the Body Appreciation Scale (BAS), a 13-item measure with scores that were found to be one-dimensional in samples of U.S. adults (Avalos, Tylka, & Wood-Barcalow, 2005). A later study further reported that this one-dimensional factor structure was invariant across U.S. college women and men (Tylka, 2013).

However, not all studies have been able to reproduce the one-dimensional factor structure of BAS scores (e.g., Swami et al., 2011; Swami & Chamorro-Premuzic, 2008). In particular, translational studies conducted with several non-English-speaking samples suggested that BAS scores were better conceptualised as two-dimensional, consisting of body appreciation and body image investment components, respectively (for a review, see Swami, 2018). Tylka and Wood-Barcalow (2015b) identified additional limitations of the BAS, including low item-factor loadings on some items, differential wording on one item for women and men, and item-content that had not kept pace with developments in the field of positive body image. To overcome these limitations, Tylka and Wood-Barcalow (2015b) refined the BAS by deleting several poor-performing items and developing additional items that better reflected the concept of positive body image, as contemporaneously understood. The result of this refinement was the Body Appreciation Scale-2 (BAS-2), a 10-item measure consisting of 5 items from the original BAS and 5 new items.

Exploratory factor analysis (EFA) and confirmatory factor analyses (CFAs) with college and community samples from the U.S. indicated that scores on the BAS-2 had a one-dimensional factor structure, as well as good test-retest reliability over a 3-week period, adequate internal consistency coefficients, and good convergent, incremental, and discriminant validity (Tylka & Wood-Barcalow, 2015b). Scores on the measure have also been found to be invulnerable to priming in Canadian university women (Dignard & Jarry, 2019). In addition, the one-dimensional factor structure of BAS-2 scores has been upheld in a wide range of non-English-speaking groups (for a partial review, see Swami, 2018). Thus, EFA studies have supported the one-dimensional structure of BAS-2 scores in college samples from Hong Kong (Swami & Ng, 2015), Iran (Atari, 2016), the Netherlands (Alleva, Martijn, Veldhuis, & Tylka, 2016), and the United Arab Emirates (Vally, D’Souza, Habeeb, & Bensumaidea, 2018), and a community sample from Serbia (Jovic, Sforza, Jovanonic, & Jovic, 2017). Additional support for the one-dimensional factor structure of BAS-2 scores comes from CFA studies with a mixed staff-and-student sample from mainland China (Swami, Ng, & Barron, 2016), college samples from France (Kertechian & Swami, 2017), Iran (Hosseini, Karimi, & Rabiei, 2018), Japan (Namatame, Uno, & Sawamiya, 2017), and Romania (Swami, Tudorel, Goian, Barron, & Vintila, 2017), adolescents from Brazil (Ibáñez, Cren Chiminazzo, Sicilia Camacho, & Teíxeira Fernándes, 2017), Denmark, Portugal, and Sweden (Lemoine et al., 2018), teachers from Turkey (Anlı, Akın, Eker, & Özcelik, 2015), and community samples from Poland (Razmus & Razmus, 2017) and Spain (Swami, García, & Barron, 2017).

In the parent study, Tylka and Wood-Barcalow (2015b) also reported that BAS-2 scores achieved full measurement (i.e., configural, metric, and scalar) invariance between women and men. However, examinations of sex invariance in other cultural groups have returned more equivocal results. Full measurement invariance between women/girls and men/boys was demonstrated in samples from China (Swami, Ng, et al., 2016), France (Kertechian & Swami, 2017), Japan (Namatame et al., 2017), Poland (Razmus & Razmus, 2017), Spain (Swami, García et al., 2017), Portugal, and Sweden (Lemoine et al., 2018). On the other hand, only partial scalar invariance was demonstrated with adolescents from Brazil (Ibáñez et al., 2017) and Denmark (Lemoine et al., 2018), and only metric but not scalar invariance was obtained with a sample from Romania (Swami, Tudorel, et al., 2017). Likewise, where sex differences on BAS-2 scores have been examined, results have been mixed: no significant differences were reported between women and men from China (*d* = 0.16; Swami, Ng, et al., 2016), Poland (*d* < 0.01; Razmus & Razmus, 2017), and Spain (*d* = 0.04; Swami, García, et al., 2017), whereas other studies have reported that men and boys have significantly higher scores than women and girls (Atari, 2016; Ibáñez et al., 2017; Kertechian & Swami, 2017; Lemoine et al., 2018), although effect sizes have generally been small-to-moderate (*d*s = 0.15-0.48).

More conclusive has been evidence of the construct validity of BAS-2 scores across cultural and linguistic groups. BAS-2 scores are consistently positively associated with indices of well-being, including self-esteem (Alleva et al., 2016; Atari, 2016; Lemoine et al., 2018; Namatame et al., 2017; Razmus & Razmus, 2017; Swami, García, et al., 2017; Swami & Ng, 2015; Swami, Ng, et al., 2016; Swami, Tudorel, et al., 2017), life satisfaction (Atari, 2016; Ibáñez et al., 2017; Namatame et al., 2017; Swami, García, et al., 2017; Swami & Ng, 2015; Swami, Ng, et al., 2016; Swami, Tudorel, et al., 2017), subjective happiness (Swami, Tudorel, et al., 2017), gratitude (Homan & Tylka, 2018), psychological well-being (Lemoine et al., 2018; Swami, Weis, Barron, & Furnham, 2018), and positive life orientation (Alleva et al., 2016; Razmus & Razmus, 2017). In addition, BAS-2 scores are significantly and positively associated with scores on measures of appearance and body satisfaction (Alleva et al., 2016; Alleva, Paraskeva, Craddock, Diedrichs, 2018), body areas satisfaction (Swami, García, et al., 2017), and body pride (Razmus & Razmus, 2017; Vally et al., 2018), and negatively correlated with internalisation of the thin ideal (Jovic et al., 2017), symptoms of disordered eating (Marta-Simões & Ferreira, 2019; Namatame et al., 2017; Swami, Tudorel, et al., 2017), social physique anxiety (Ibáñez et al., 2017), body shame (Razmus & Razmus, 2017), weight discrepancy in women (Jovic et al., 2017; Swami & Ng, 2015; Swami, Ng, et al., 2016) and body dysmorphic symptomatology (Hosseini et al., 2018). Associations between BAS-2 scores and body mass index (BMI) are less clear-cut: while most studies have reported significant and negative correlations (Alleva et al., 2016; Ibáñez et al., 2017; Razmus & Razmus, 2017; Swami, Tudorel, et al., 2017), some studies have reported no significant correlations in men (Jovic et al., 2017; Swami & Ng, 2015; Swami, Ng, et al., 2016) and women (Vally et al., 2018), or significant positive correlations in men (Atari, 2016).

* 1. **The Present Study**

As a contribution to the extant literature, the present study examined the factor structure and psychometric properties of a Bahasa Malaysia (Malay) translation of the BAS-2 in Malaysian adults. It should be noted that the body appreciation construct has received some attention in the Malaysian context. In an early study, Swami and Chamorro-Premuzic (2008) reported that scores on a Malay translation of the BAS reduced to two dimensions reflecting general body appreciation (8 items) and body image investment (3 items) in a sample of urban Malaysian women. These authors also reported that there were no significant differences in general body appreciation scores between Malaysian Malay and Chinese women (*d* = 0.11). A later study reported that rural Malaysian participants had significantly higher general body appreciation scores compared to urban participants (ηp2 = .10), although ethnic differences between Malaysian Kadazan-Dusuns, Bajaus, and Muruts did not reach significance (Swami, Kannan, & Furnham, 2011). While these studies are informative, it is important to highlight that they may now be anachronistic given that the construct of body appreciation was measured using the BAS.

In broad outline, therefore, the present study sought to examine the psychometric properties of a novel translation of the BAS-2 in Malay. This is important for reasons that have been extensively reviewed elsewhere (e.g., Swami, 2006, 2015; Swami & Barron, 2016; Swami, Tovée, & Harris, 2013), including the relative lack of psychometrically valid tools for the assessment of body image in Malay-speaking populations, the unique trajectories of Malaysian lived experiences (e.g., as a nation undergoing a nutritional and lifestyle transition in tandem with rapid industrialisation, political and economic fluctuations, and an increasing rate of obesity; see Swami et al., 2013), and the ethnic heterogeneity of the Malaysian population. In terms of the latter, it should be pointed that out that, while previous studies have assessed ethnic differences in general body appreciation in Malaysian samples (Swami & Chamorro-Premuzic, 2008; Swami et al., 2011), measurement invariance *vis-à-vis* body appreciation scores between ethnic groups – a precondition for assessing between-group differences in latent scores (Chen, 2007; Davidov, Dülmer, Schlüter, Schmidt, & Meuleman, 2012) – has not been previously assessed either in Malaysia (or elsewhere).

More specifically, the present study had a number of inter-related aims. First, we sought to examine the factor structure of scores on a Malay translation of the BAS-2. To do so, we followed best-practice recommendations in conducting an EFA followed by CFA (Swami & Barron, 2018; Worthington & Whittaker, 2006), which allowed for an exploration of item behaviour with regards to sample-derived (i.e., through the EFA) and hypothesised (i.e., based on the parent study, the extant translational literature, and the results of the EFA) models for BAS-2 scores. Based on the literature reviewed above, we expected that Malay BAS-2 scores would reduce to single dimension with all 10 items in both EFA and CFA. Further, we examined the extent to which the derived factor structure would be invariant at the configural, metric, and scalar levels between women and men, as well as between the two major ethnic groups in Malaysia (i.e., Malaysian Malays, who make up about 55% of the Malaysian population, and Malaysian Chinese, who make up about 23%; Department of Statistics Malaysia, 2017). Here, we predicted that Malay BAS-2 scores would achieve full measurement invariance across sex and ethnic groups.

In addition, we also examined internal consistency coefficients of BAS-2 scores and examined indices of construct validity. In terms of the latter, we included translated and validated measures of well-being (i.e., life satisfaction and subjective happiness), body image (actual-ideal weight discrepancy in women and drive for muscularity in men), and perceptions of media influence and internalisation of societal ideals of appearance. Evidence of construct validity would be demonstrated through significant positive correlations between BAS-2 scores and scores on measures of well-being, significant negative correlations with scores on measures of negative body image, and significant negative correlations with scores on perceived media influence and internalisation of appearance ideals. We also assessed the convergent validity of BAS-2 scores through associations with self-reported BMI, with the expectation that significant negative correlations would emerge in both women and men. Finally, we examined incremental validity of BAS-2 scores by considering the extent to which these scores predicted subjective happiness above-and-beyond associations with negative body image and media influences.

**2. Method**

**2.1. Participants**

The initial participant pool consisted of 863 individuals, but we omitted 82 participants (Malaysian Indian *n* = 49, other ethnicity *n* = 33) who did not meet ethnicity inclusion criteria (see below). This left a total sample of 390 women (Malay *n* = 270, Chinese *n* = 120) and 391 men (Malay *n* = 271, Chinese *n* = 120). All participants were recruited from the Malaysian state of Selangor and the Federal Territory of Kuala Lumpur. The former has the largest the largest economy of all states in Malaysia by gross domestic product, a high standard of living, and the lowest poverty rate in the country (Department of Statistics Malaysia, 2016). The Federal Territory of Kuala Lumpur (enclaved within Selangor) meanwhile is the cultural, financial, and economic centre of Malaysia. Taken together, both research sites represent highly industrialised and economically advanced regions in Malaysia. The total sample ranged in age from 18 to 63 years (*M* = 27.27, *SD* = 10.00) and in self-reported BMI from 14.69 to 45.45 kg/m2 (*M* = 23.52, *SD* = 5.04). The majority of the sample were single (73.5%), while 25.2% were married, and the remainder of another marital status. In terms of educational qualifications, 0.3% had completed primary education, 13.6% had completed secondary education, 52.6% had an undergraduate degree, 20.0% had a further degree, and 13.6% had some other qualification.

**2.2. Measures**

**2.2.1. Body appreciation.** Participants completed a Bahasa Malaysia (Malay) translation of the BAS-2 (Tylka & Wood-Barcalow, 2015b). This is a 10-item measure in which items were rated on a 5-point scale, ranging from 1 (*never*; Malay: *tidak pernah*) to 5 (*Always*; Malay: *sentiasa*). The translational procedure is described below and the items in English and Malay are reported in Table 1.

**2.2.2. Life satisfaction.** Life satisfaction was measured using the Satisfaction with Life Scale (SLS; Diener, Emmons, Larsen, & Griffin, 1985; Malay translation: Swami & Chamorro-Premuzic, 2009), a 5-item scale that taps individuals’ assessments of the quality of their lives on the basis of their own unique criteria (sample item: “I am satisfied with my life”). All items were rated on a 5-point scale (1 = *strongly disagree*, 5 = *strongly agree*), and an overall score was computed as the mean of all items. Higher scores on this scale reflect greater life satisfaction. Scores on the Malay version of the SLS have been shown to have adequate internal consistency and good construct validity (Swami & Chamorro-Premuzic, 2009). In the present work, omega for scores on this scale was .83 (95% CI = .81-.85).

**2.2.3. Subjective happiness.** The survey package included the Subjective Happiness Scale (SHS; Lyubomirsky & Lepper, 1999; Malay translation: Swami, 2008). This is a molar measure of the extent to which individuals believe they are happy or unhappy people. The SHS consists of 4 items, two of which ask respondents to characterise themselves based on absolute ratings and ratings relative to peers. Two further items present brief descriptions of happy and unhappy individuals, and ask respondents to rate the extent to which the descriptions are accurate of themselves. All items were rated on 7-point scales and an overall score was computed as the mean of all items. Higher scores on the SHS reflect greater subjective happiness. Scores on the Malay version of the scale have adequate internal consistency, good patterns of construct validity, and good test-retest reliability over a 1-month period (Swami, 2008). In the present study, omega for SHS scores was .80 (95% CI = .75-.85).

**2.2.4. Drive for muscularity.** Men were asked to complete the Drive for Muscularity Scale (DMS; McCreary & Sasse, 2000; Malay translation: Swami, Barron, Lau, & Jaafar, 2016). The DMS consists of 16 items that measure an individual’s desire to have a more muscular body (sample item: “I wish that I were more muscular”). All items were rated on a 6-point scale (1 = *always*, 6 = *never*), and scores were reverse-coded so that higher scores reflect greater drive for muscularity. Like the parent English version, scores on the Malay translation of the DMS has been found to reduce to two highly-correlated factors (Swami, Barron, et al., 2016), both of which load on to a higher-order drive for muscularity dimension (present study subscale *r* = .67). For this reason, we computed an overall DMS score in the present study. Scores on the Malay version of the DMS evidence adequate internal consistency and good convergent validity in Malaysian men (Swami, Barron, et al., 2016). In the present study, omega for the overall DMS scores in men was .88 (95% CI = .87-.90).

**2.2.5. Weight discrepancy.** Women completed the Photographic Figure Rating Scale (PFRS; Swami, Salem, Furnham, & Tovée, 2008; Malay translation: Swami et al., 2013), a figural rating scale that depicts 10 photographic images of women ranging from emaciated to obese. Participants were asked to select the figure that most closely matched their own body and the figure that they would most like to possess on a 10-point scale, ranging from 1 (*figure with the smallest body size*) to 10 (*figure with largest body size*). A measure of actual-ideal weight discrepancy was computed as the difference between absolute current and ideal ratings, so that higher scores reflect greater weight discrepancy. Previous work has shown that the PFRS has adequate patterns of construct validity (Swami, Stieger, et al., 2012), including in Malaysian women (Swami et al., 2013). Men did not complete the PFRS because no male version of the PFRS is available.

**2.2.6. Appearance ideals.** All participants were asked to complete the Sociocultural Attitudes Toward Appearance Questionnaire-3 (SATAQ-3; Thompson, van den Berg, Roehrig, Guarda, & Heinberg, 2004; Malay translation: Swami, 2009). This is a 30-item scale measuring the multi-dimensional impact of sociocultural influences on body image, with items rated on a 5-point scale (1 = *definitely disagree*, 5 = *definitely agree*). Although scores on the English version of the scale reduce to four dimensions, Swami (2009) reported that scores on the Malay version consist of three dimensions tapping perceived pressure and general internalisation of appearance ideals (14 items; sample item: “I’ve felt pressure from TV and magazines to diet”), the extent to which different sources of information are considered important in terms of appearance ideals (9 items; sample item: “Magazines advertisements are an important source of information about fashion and ‘being attractive’”), and internalisation of an athletic ideal (5 items; sample item: “I try to look like sports athletes”); two items are discarded in the Malay version of the SATAQ-3. In the present study, participants were only asked to complete the former two subscales of the Malay SATAQ-3 and subscale scores were computed as the mean of all relevant items. Scores on the Malay version of the SATAQ-3 have been shown to have adequate internal consistency coefficients and convergent validity (Swami, 2009). Although a newer version of the SATAQ is available (i.e., SATAQ-4; Schaefer et al., 2014), this measure has not been translated and validated for use in Malay-speaking populations. In the present study, omega was .90 (95% CI = .88-.91) for Pressure and Internalisation-General and .71 (95% CI = .68-.74) for Information.

**2.2.7. Demographics**: Participants were asked to provide their demographic details consisting of sex, age, highest educational attainment, ethnicity, height, and weight. The latter two items were used to compute participants’ self-reported BMI as kg/m2. Self-reported height and weight data have been demonstrated to be highly correlated with actual measurements (*r*s ≥ .94) in Malaysian samples (Kee et al., 2017).

**2.3. Test Adaptation**

Following best-practice recommendations for the test adaptation of body image instruments (Swami & Barron, 2018), we translated the BAS-2 from English to Malay using the five-stage procedure proposed by Beaton, Bombardier, Guillemin, and Ferraz (2000). In the first step, an informed and an uninformed translator independently forward-translated the BAS-2 items from English to Malay. In the second step, the two translations were scrutinised by a third independent and blind translator, who resolved discrepancies between the translations and produced a synthesised translation. In the third step, two new independent translators who were naïve to the BAS-2 back-translated the synthesised translation into English (Brislin, 1970). In a fourth step, the forward- and back-translations were examined by a bilingual committee comprising all the aforementioned translators, a methodologist, and the first to fourth authors. Two major issues1 were discussed and resolved through consensual discussion by the committee, resulting in a pre-final version of the Malay BAS-2. In a fifth step, the pre-final version was pre-tested in a sample of 40 individuals (women = 60.0%) who were fluent in Malay. These participants were asked to rate each item for understanding on a 5-point scale (1 = *do not understand at all*, 5 = *understanding completely*). The mean responses per item were then assessed (overall *M* = 3.98, *SD* = 0.46, range = 3.57-4.47) and 4 items with relatively lower ratings of understanding (*M*s < 4.0) were returned to the committee for further consideration. Following committee discussion, minor grammatical adjustments were made to Items 1, 2, 3, and 4 to improve grammatical clarity while maintaining semantic and item equivalence. The items of the final translation used in the present study are reported in Table 1.

**2.4. Procedures**

Ethics approval was obtained from the relevant Institutional Review Board (approval identification: PU IRBHR0166). Between May and September 2018, the second to fourth authors – all of whom are trained in psychological research methods – directly recruited participants from areas of congregate activities (e.g., parks, recreational areas, markets). Potential participants were approached and, if they met inclusion criteria (Malaysian citizens of Malay or Chinese ethnicity2, of adult age, and fluent in Malay), they were provided with brief information about the project. Individuals who agreed to take part in the study provided written informed consent and were given a paper-and-pencil questionnaire for completion. Participants completed the anonymous questionnaire in portable and private stations set up for the purposes of the study. The order of presentation of the scales described above was counterbalanced for each participant, and demographic items were always presented last. Upon return of completed questionnaires, participants were provided with written debriefing information. Participants completed the questionnaire voluntarily and were remunerated with gift vouchers worth RM5 (about USD1.20 at the time of the study).

**2.5. Analytic Strategy**

Missing data were not missing completely at random as determined by Little’s (1988) Missing Completely at Random (MCAR) test, χ2(1645) = 1869.57, *p* < .001. However, missing data made up only 1.1% of the total dataset, so we imputed these individual missing data points using the multiple imputation technique. To examine the factor structure of Malay BAS-2 scores, we used a two-step, EFA-to-CFA analytic strategy, as recommended by Swami and Barron (2018) for the test adaptation of body image instruments. To ensure adequate sample sizes for all analyses, EFAs were performed with Malay women and men, whereas the CFA was performed with both Malay and Chinese participants of both sexes. Thus, the Malay sample was first split using a computer-generated semi-random seed, resulting in one split-half for EFA (women *n* = 149, men *n* = 157) and a second split-half for CFA (Malay women *n* = 121, Malay men *n* = 114); the latter was combined with data from Chinese participants (women *n* = 120, men *n* = 120). There were no significant differences between the two Malay subsamples, or between Malay and Chinese participants, in terms of mean age and BMI, or in the distribution of educational attainments (all *p*s > .237; full results available from the corresponding author).

Data from the first split-half were subjected to principal-axis EFA in IBM SPSS Statistics v. 24, conducted separately for women and men. Rather than base sample size requirements on *ad hoc* guidelines, which have been criticised as imprecise (Preacher & MacCallum, 2002), we followed Worthington and Whittaker’s (2006) recommendation that, if item communalities are ≥ .50 or there are 10:1 items per factor with factor loadings of about .40, then a sample size of 150-200 may be adequate; if communalities are ≥ .60 or there is a minimum of 4:1 items per factor with factor loadings above .60, then smaller samples are adequate. In the Malay female subsample, item communalities were ≥ .62 and in the Malay male subsample, item communalities were ≥ .53, suggesting that our subsample sizes were adequate for EFA. In addition, both subsamples met assumptions for EFA based on item distributions, average item correlations, and item-total correlations (Clark & Watson, 1995). To determine whether our data were factorable, we computed the Kaiser-Meyer-Olkin measure of sampling adequacy (which should ideally be ≥ .80; Kaiser, 1974) and Bartlett’s test of sphericity (which should be significant). For the EFAs, a quartimax rotation was used, as we expected a single, orthogonal factor (Pedhazur & Schmelkin, 1991). Factor extraction was based on the Kaiser (1970) or mineigen greater than 1 criterion and Cattell’s (1966) Scree test, both of which are considered adequate when there is an expectation of extracting a single factor. Item retention was based on Comrey and Lee’s (1992) recommendation that items with “fair” loadings (i.e., ≥ .33) should be retained. Finally, the degree of factor similarity across women and men was assessed using Tucker’s (1951) congruence coefficient, with values between .85 and .94 corresponding to fair similarity across groups and values ≥ .95 suggesting that factor structures can be considered equal across groups (Lorenzo-Seva & ten Berge, 2006).

Data from the second split-half of Malay participants and all Chinese participants were subjected to CFA using the lavaan (Rosseel, 2012), semTools (Jorgensen, Pornprasertmanit, Schoerman, & Rosseel, 2018), and MVN packages (Korkmaz, Goksuluk, & Zararsiz, 2014) with *R* (*R* Development Core Team, 2014). Proactive Monte Carlo simulations (Marcoulides & Chin, 2013) indicated that a sample size of 220 would be sufficient for this analysis (our *n* = 475). Our plan was to examine fit of the one-factor model of BAS-2 scores, as well as any factor structure identified by the EFAs, if different. Assessment of the present data for normality indicated that they were neither univariate (Sharipo-Wilks *p* < .001), nor multivariate normal (Mardia’s skewness = 960.01, *p* < .001, Mardia’s kurtosis = 24.79, *p* < .001), so parameter estimates were obtained using the robust maximum likelihood method with the Satorra-Bentler correction (Satorra & Bentler, 2001). To assess goodness-of-fit, we used the normed model chi-square (χ²/df), with values < 3.0 considered indicative of good fit (Hu & Bentler, 1999) and values up to 5.0 considered adequate (Wheaton, Muthén, Alwin, & Summers, 1977). We also used the Steiger-Lind root mean square error of approximation (RMSEA) and its 90% CI to provide a correction for model complexity. Recommendations for RMSEA vary, but generally values close to .06 are considered to be indicative of good fit and values of about .07-.08 indicative of adequate fit (Steiger, 2007). The standardised root mean square residual (SRMR) assesses the mean absolute correlation residual and is a badness-of-fit index: the smaller the values, the better the model fit. A cut-off value for SRMR indicating a reasonable fit is recommended to be < .09. The comparative fit index (CFI) measures the proportionate improvement in fit by comparing a target model with a more restricted, nested baseline model. The CFI reflects a goodness-of-fit index and is recommended to be close to or > .95 for adequate fit (Hu & Bentler, 1999). The Tucker-Lewis index (TLI) indicates a level of relative fit, with values close to or > .95 for adequate fit (Hu & Bentler, 1999). Bollen’s Incremental Fit Index (BL89) was also used, with values close to or > .95 indicating an acceptable fit (Hu & Bentler, 1999).

Using the CFA subsample, we also assessed measurement invariance at the configural, metric, and scalar levels between sex (women and men) and ethnicity (Malay and Chinese) using multi-group CFA (Chen, 2007, 2008). Configural invariance implies that the latent BAS-2 variable and the pattern of loadings of the latent variable on indicators are similar across groups (i.e., the unconstrained latent model should fit the data well in all groups). Metric invariance implies that the magnitude of the loadings is similar across groups and is tested by comparing two nested models consisting of a baseline model and an invariance model. Because the Δ*χ*² statistic is overly stringent to determine criterion invariance (Meade, Johnson, & Braddy, 2008), we used ΔCFI < .01 as an indicator of metric invariance (Cheung & Rensvold, 2002; Meade, Johnson, & Braddy, 2008). Finally, scalar invariance implies that both the item loadings and item intercepts are similar across groups and is examined using the same nested-model comparison strategy as with metric invariance (Chen, 2007). For scalar invariance, Chen (2007) suggested that invariance is supported when ΔCFI < .01 *and* ΔRMSEA < .015 *or* ΔSRMR < .030, although other scholars suggest that ΔCFI < .01 is sufficient (Cheung & Rensvold, 2002).

Throughout, internal consistency was assessed using omega, with values greater than .70 reflecting adequate internal reliability (Dunn, Baguley, & Brunsden, 2014). In the CFA portion of the dataset, evidence of convergent validity was assessed using the Fornell-Larcker criterion (Fornell & Larcker, 1981). Convergent validity was assessed by calculating the average variance extracted (AVE), with values ≥ .50 considered adequate (Malhotra & Dash, 2011). Between group differences in BAS-2 across sex and ethnicity were only investigated should scalar or partial scalar invariance be established (Davidov et al., 2012). This would be done using a 2 × 2 analysis of variance (ANOVA), with sex (women vs. men) and ethnicity (Malay vs. Chinese) as independent variables and BAS-2 scores as the dependent variable. Finally, to assess convergent validity, we used the total sample and examined bivariate correlations between BAS-2 scores and measures of well-being (life satisfaction and subjective happiness), body image (weight discrepancy in women and drive for muscularity in men), perceived media influence and internalisation of appearance ideals, and self-reported BMI. Finally, incremental validity was assessed using a multiple hierarchical regression, with a statistically significant increment in *R*2 deemed adequate support for incremental validity when accounted for by BAS-2 scores.

**3. Results**

**3.1. Exploratory Factor Analysis**

For the Malay female subsample (*n* = 149), Bartlett’s test of sphericity, χ2(45) = 814.84, *p* < .001, and the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy, KMO = .88, indicated that the BAS-2 items had adequate common variance for factor analysis. The results of the EFA revealed two factors with λ > 1.0, though inspection of the scree plot suggested a single primary factor with a steep cut-off to a secondary factor. To determine how many factors to extract, we used parallel analysis (Hayton, Allen, & Scarpello, 2004), which is less likely that the mineigen greater than 1 criterion and the Scree test to over-retain factors (Velicer, Eaton, & Fava, 2000). Parallel analysis works by creating a random dataset with the same number of cases and variables as the actual dataset. Factors in the actual data are only retained if their eigenvalues are greater than the eigenvalues from the random data (Hayton et al., 2004). In the present subsample, parallel analysis indicated that only a single factor should be extracted: only the first factors from the actual data had λ greater than the criterion λ generated from the random data (i.e., 5.45 [actual data] compared to 3.28 [random data]). The second factor derived from the actual data had an λ that was lower than the corresponding criterion λ generated from the random data (i.e., 1.17 [actual data] compared to 2.11 [random data]). As such, we retained a single factor, which explained 54.5% of the common variance. As reported in Table 1, factors loadings were minimally “fair” (i.e., .38-.86). Omega for all 10 BAS-2 items in this subsample was .88 (95% CI = .86-.91).

For the Malay male subsample (*n* = 157), Bartlett’s test of sphericity, χ2(45) = 638.75, *p* < .001, and the KMO measure of sampling adequacy, KMO = .90, again indicated that the BAS-2 items had adequate common variance for factor analysis. The results of the EFA revealed a single factor with λ > 1.0 and inspection of the scree plot suggested a single primary factor with a steep cut-off to a secondary factor. This factor had an λ = 4.98 and explained 49.83% of the common variance in the data. Factor loadings are reported in Table 1 and, as can be seen, loadings were generally good (i.e., .61-.76). Omega for the 10-item BAS-2 total score this subsample was .88 (95% CI = .86-.91). Finally, we assessed the degree of factor similarity across the Malay female and male subsamples using Tucker’s congruence coefficient, which was .85 and suggested similar but not equal factor structures.

**3.2. Confirmatory Factor Analysis**

In the second split-half subsample (*n* = 475), we examined the fit of a one-factor model of BAS-2 scores. Fit indices were: SBχ²(35) = 163.468, SBχ²normed = 4.67, robust RMSEA = .103 (90% CI = .088-.120), SRMR = .051, robust CFI = .920, robust TLI = .890, BL89 = .915. Since fit indices were not found to be at acceptable intervals, suggested modification indices were considered to improve model fit. Specifically, modification indices were consulted to free error covariances between Items 6 and 7, 1 and 6, and 3 and 4. These modifications resulted in an adequately fitting model, SBχ²(32) = 111.454, SBχ²normed = 3.48, robust RMSEA = .080 (90% CI = .068-.103), SRMR = .043, robust CFI = .950, robust TLI = .930, BL89 = .945. In this subsample, omega was .88 (95% CI = .85-.91). The standardised estimates of factor loadings were all adequate (see Figure 1). The convergent validity for this model was adequate, as AVE was greater than .50 (AVE = .57).

**3.3. Sex and Ethnic Invariance**

Next, we tested for measurement across sex for the full subsample and across ethnicity between Malays and Chinese (see Table 2 for full metrics). For sex, indices indicated that configural and metric invariance was found. However, values for ΔCFI and ΔRMSEA were above acceptable levels for scalar invariance. Therefore, univariate scores were examined to relax constraints within the model. Item 1 was found to have the greatest difference between women and men, and relaxing this constraint resulted in adequate partial scalar invariance (see Table 2). Omega was adequate for women (.91, 95% CI = .88-.84) and men (.89, 95% CI = .86-.92). Similarly, for ethnicity, indices indicated that configural and metric invariance, but not scalar invariance, was obtained. Freeing three items that had the greatest difference between Malay and Chinese participants (Items 6, 2, and 8) produced acceptable partial scalar invariance. Omega was adequate in both Malay participants (.89, 95% CI = .86-.92) and Chinese participants (.90, 95% CI = .88-.92).

We, therefore, computed a 2 × 2 ANOVA with sex and ethnicity as the independent factors and BAS-2 scores as the dependent variable. The results indicated no significant Sex × Ethnicity interaction, *F*(1, 471) = 0.20, *p* = .659, ηp2 < .01, and no main effect of Sex, *F*(1, 471) = 0.92, *p* = .337, ηp2 < .01. Conversely, there was a significant main effect of Ethnicity, *F*(1, 471) = 27.49, *p* < .001, ηp2 = .06, with Malay participants (*M* = 4.17, *SD* = 0.60) having significantly higher body appreciation than Chinese participants (*M* = 3.88, *SD* = 0.59).

**3.4. Construct and Incremental Validity**

We examined the construct validity of BAS-2 scores through associations with scores on additional measures included in the present study and using the total sample (with analyses conducted separately for women and men). As reported in Table 3, body appreciation in women was significantly and positively associated with life satisfaction and subjective happiness, and negatively associated with actual-ideal weight discrepancy, and internalisation of appearance ideals, and BMI. The association with perceived media influence did not reach significance. In men, body appreciation was significantly and positively associated with life satisfaction and subjective happiness, and negatively associated with perceived media influence and internalisation of appearance ideals and information about appearance ideals. The associations between body appreciation with drive for muscularity and BMI, respectively, did not reach significance in our male sample3.

To test for incremental validity, we conducted multiple hierarchical regressions, with subjective happiness scores (as a molar index of psychological well-being) as the criterion variable and weight discrepancy (for women), drive for muscularity (for men), and perceived media influence and internalisation of appearance ideals all entered in a first step, while BAS-2 scores were entered in a second step. In women, the first step of the regression was significant, *F*(3, 386) = 9.16, *p* < .001, Adj. *R*2 = .06, as was the second step, *F*(3, 385) = 20.45, *p* < .001, Adj. *R*2 = .17, with indices suggestive of incremental validity, Δ*F* = 50.76, *p* < .001, Δ*R* = .11, *p* < .001 (see Table 4 for regression coefficients). In men, the first step of the regression was significant, *F*(3, 387) = 8.61, *p* < .001, Adj. *R*2 = .05, as was the second step, *F*(3, 386) = 18.97, *p* < .001, Adj. *R*2 = .16. Indices were again suggestive of incremental validity, Δ*F* = 46.97, *p* < .001, Δ*R* = .11, *p* < .001 (see Table 4). In both sets of regressions, body appreciation was the strongest predictor of subjective happiness in the second step and multicollinearity was not a limiting factor (all variance inflation factors < 1.48).

**4. Discussion**

In the present study, we examined the factor structure and psychometric properties of a Malay translation of the BAS-2. In broad outline, our findings showed that scores on the Malay BAS-2 had a one-dimensional factor structure including all 10 items. More specifically, the results of EFA indicated that BAS-2 scores reduced to a single dimension in Malay women and men, and the results of CFA indicated an adequately-fitting one-dimensional model. These findings are consistent with both the parent study conducted with U.S. college and community samples (Tylka & Wood-Barcalow, 2015b), as well as samples from a diverse range of linguistic and cultural backgrounds (Alleva et al., 2016; Anlı et al., 2015; Atari, 2016; Hosseini et al., 2018; Ibáñez et al., 2017; Jovic et al., 2017; Kertechian & Swami, 2017; Lemoine et al., 2018; Namatame et al., 2017; Razmus & Razmus, 2017; Swami & Ng, 2015; Swami, Ng, et al., 2016; Swami, García, et al., 2017; Swami, Tudorel, et al., 2017; Vally et al., 2018). In general, therefore, it appears to be the case that the BAS-2 construct is one-dimensional across all populations that have been examined to date, including Malaysian adults.

However, the factor structure of Malay BAS-2 scores should be considered in light of two issues. First, our EFA indicated the possibility of extracting two distinct factors for Malay women, although parallel analysis indicated that a one-dimensional model with all items was superior. Furthermore, EFA loadings in Malay women were deflated compared to loadings in men (particularly Items 1, 6, and 5). Second, our CFA results indicated that adequate fit was only obtained following the freeing of error covariances between three pairs of items. This is suggestive of a degree of item-content overlap in the Malay BAS-2. Although Tylka and Wood-Barcalow (2015b) did not indicate that modifications were necessary in U.S. samples, some CFA studies have freed error covariances to achieve adequate fit (Kertechian & Swami, 2017; Swami, Ng, et al., 2016; Swami, García, et al., 2017). Items pairs with freed covariances have varied from study to study, but the pairing of Items 6 and 7 recurs here and in other studies (e.g., Kertechian & Swami, 2017) and it may be, that in translational forms, these items are closer in semantic meaning than in English (e.g., because of linguistic similarities in the meaning of “feeling love” toward and “appreciating” one’s body).

In terms of sex invariance, our results suggested that scores on the Malay BAS-2 achieved configural and metric invariance, but not full scalar invariance; instead, we found evidence of partial sex invariance. Furthermore, Tucker’s coefficient indicated that the factor structures in the EFAs were similar, but not equal, across Malay women and men. In general, this is consistent with previous reports of partial sex invariance in adolescents from Brazil (Ibáñez et al., 2017) and Denmark (Lemoine et al., 2018), although it falls short of full scalar invariance reported in the parent study (Tylka & Wood-Barcalow, 2015b) and elsewhere (Kertechian & Swami, 2018; Lemoine et al., 2018; Namatema et al., 2017; Razmus & Razmus, 2017; Swami, García, et al., 2017; Swami, Ng, et al., 2016). Notably, there was no sex difference in mean BAS-2 scores in the present study, which is consistent with the proposition that sex differences on this construct, where significant, tend to be small-to-moderate in terms of effect sizes (see Swami, 2018). It seems likely that cultural norms and identities interact with gendered experienced to influence the magnitude of sex differences in body appreciation uncovered across cultures (Swami, 2018).

Likewise, our data provide evidence of configural and metric ethnic invariance, but not full scalar invariance. Instead, we found evidence of partial scalar invariance across Malaysian Malays and Chinese. To our knowledge, this is the first study to provide evidence of ethnic invariance in within-country ethnic groups (as opposed to between-country national groups). Furthermore, our analyses indicated that Malay participants had significantly higher body appreciation than Chinese participants, with a medium effect size. This can be contrasted with previous studies reporting no significant ethnic differences in body appreciation (operationalised using the BAS) in the Malaysian context (Swami et al., 2011), including between Malays and Chinese (Swami & Chamorro-Premuzic, 2008), although these studies did not establish that body appreciation scores were invariant across ethnicity – a precondition for examining between-group latent differences.

Explaining the ethnic difference found in the present study is difficult in the absence of further studies, but may be based on unique ethno-cultural features associated with being Malay in Malaysia (cf. Swami, 2015; Swami et al., 2013). For example, Swami (2008) has discussed how majority status and relatively greater political power among ethnic Malays may translate into higher indices of psychological well-being, which may be extended to include body appreciation. Another explanation is more prosaic: although Malay is the national language in Malaysia, it is more likely to be the first language of ethnic Malays compared to ethnic Chinese, who are more likely to have a first language in Chinese (typically Mandarin or other Chinese varieties, such as Hokkien, Hakka, or Cantonese). This difference may have introduced a degree of bias in item responses (cf. Candell & Hulin, 1986). One way to determine the extent to which the ethnic difference reported here is robust would be to ask participants in Malaysia to complete the BAS-2 in their first languages, although this will first require appropriate test adaptation of the scale for use in Malaysian Chinese participants (see Hambleton, Merenda, & Spielberger, 2005).

The results of the present work also indicated that BAS-2 scores had adequate internal consistencies (omega in all cases ≥ .88), which is consistent with previous studies (e.g., Tylka & Wood-Barcalow, 2015b). In addition, we found adequate evidence of construct validity insofar as body appreciation scores were significantly and positively associated with indices of life satisfaction and subjective happiness in both women and men, which is consistent with previous studies (Atari, 2016; Ibáñez et al., 2017; Namatame et al., 2017; Swami, García, et al., 2017; Swami & Ng, 2015; Swami, Ng, et al., 2016; Swami, Tudorel, et al., 2017). In addition, body appreciation was significantly and negatively associated with weight discrepancy in women and the internalisation of appearance ideals in both sexes, which mirrors previous findings (Jovic et al., 2017; Swami & Ng, 2015; Swami, Ng, et al., 2016).

Unexpectedly, however, body appreciation was not significantly associated with drive for muscularity in men in the present work. It should be noted that, where previous studies have reported relationships between these constructs, associations have tended to be weak (e.g., Benford & Swami, 2014; Campana, Tavares, Swami, & da Silva, 2013). For example, one recent study of British men reported that the association between body appreciation and drive for muscularity was weak (*r* = -.15; Alleva et al., 2018), and it may be that other variables (e.g., sexual orientation, conformity to masculine norms) exert mediating or moderating effects, which we were unable to examine here. Likewise, associations between body appreciation and BMI in the present study were equivocal, with the relationship reaching significance in women but not in men. Conversely, evidence of incremental validity was established in the present work, with BAS-2 scores emerging as the strongest predictor of subjective happiness once other variables had been accounted for.

Some strengths of the present study include the use of a five-stage strategy to translate the BAS-2 into Malay and the recruitment of a community sample. Conversely, the use of an opportunistic recruitment strategy means that our sample is unlikely to be representative of the wider population at the research site, let alone in other Malaysian states or regions. In a similar vein, the present study was focused on the two major ethnic groups in Malaysia, namely ethnic Malays and Chinese, and as a consequence we neglected other ethnic groups (although it should be noted that Malaysia is extremely heterogeneous ethnically and it may impractical to include representatives of all ethnic groups in a single study). Nevertheless, future work could extend the present study by including more diverse Malaysian samples, including those from other states, regions, and ethnic groups, as well as from sites varying in urbanicity. The latter might be particularly useful given a previous study reporting that rural Malaysians had significantly higher BAS scores compared to urban Malaysians (Swami et al., 2011) and may help highlight factors that promote more positive body appreciation. Other limitations of the present study include the lack of an examination of the test-retest reliability of BAS-2 scores. In future work, it would also be useful to include a wider range of variables that would allow for the establishment of additional indices of construct validity, although this will need to be balanced with the availability of suitable translated and validated measures in Malay (Swami & Barron, 2017).

In conclusion, the present study provides evidence that scores on a Malay translation of the BAS-2 are psychometrically valid. More specifically, the results of EFA and CFA indicated that Malay BAS-2 scores were best considered as one-dimensional, with adequate internal consistency coefficients, partial invariance across sex and ethnicity, and adequate indices of construct and incremental validity. The availability of the BAS-2 in Malay offers opportunities to advance early research (e.g., Swami & Chamorro-Premuzic, 2008) on the body appreciation construct in the Malaysian context and provides an invaluable tool for scholars studying positive body image more generally. In addition, the Malay BAS-2 should complement existing body image and health-related measures in the arsenal of Malaysian practitioners. This is particularly important as Malaysian scholars have called for the promotion of body appreciation as a means of developing intuitive eating among Malaysian populations (Gan & Yeoh, 2018).

**Footnotes**

1 The first issue was the translation of the expression contained in Item 8 (“I walk holding my head high”). While this expression is idiomatic in English, there is no clear equivalent in Malay and producing a literal translation (“*saya tegakkan kepala*”) would result in a loss of semantic meaning. Therefore, following the recommendation of Sechrest, Fay, and Zaidi (1972) for dealing with idiomatic expressions in test adaptation, the committee elected to produce a translation that captured the idiomatic expression (i.e., “*saya berasa yakin pada diri sendiri*”, which translates as “I am confident in myself”). The second issue related to difficulty in translating the word “beautiful” in Item 10. In Malay, a literal translation (“*cantik*”) is gendered, typically used for female targets, and would not be appropriate for completion by male participants. The committee, therefore, opted to include both feminine and masculine terms (i.e., “*cantik/tampan*”) in the translation.

2 Due to an administrative oversight, this inclusion criterion was only included two weeks after data collection began. In addition, because demographic items were always presented last in the questionnaire, some participants verbally reported meeting inclusion criteria when invited to participate, but later indicated that they were neither Malay nor Chinese. These participants were removed from the present analyses.

3 To examine whether the relationship between body appreciation and BMI in men may be non-linear, we also computed the bivariate correlation with BMI2. This relationship also did not reach significance in our male sample, *r* = .02, *p* = .876.

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Table 1. *Body Appreciation Scale-2 Items in English and (in Italics) Bahasa Malaysia (Malay) and Associated Item-Factor Loadings for Malay Participants from the First Split-Half Subsample.*

|  |  |  |
| --- | --- | --- |
| BAS-2 items | Women | Men |
| 1. I respect my body / *Saya menghormati badan saya*. | .38 | .61 |
| 2. I feel good about my body / *Saya berasa baik tentang badan saya*. | .82 | .74 |
| 3. I feel that my body has at least some good qualities / *Saya rasa badan saya mempunyai sekurang-kurangnya beberapa ciri baik*. | .81 | .73 |
| 4. I take a positive attitude towards my body / *Saya mengambil sikap positif terhadap badan saya*. | .80 | .73 |
| 5. I am attentive to my body’s needs / *Saya prihatin terhadap keperluan badan saya*. | .48 | .75 |
| 6. I feel love for my body / *Saya rasa kasih sayang terhadap badan saya*. | .45 | .77 |
| 7. I appreciate the different and unique characteristics of my body / *Saya menghargai ciri-ciri badan saya yang berbeza dan unik*. | .49 | .68 |
| 8. My behaviour reveals my positive attitude toward my body; for example, I hold my head high and smile / *Tingkahlaku saya mendedahkan sikap positif saya terhadap badan saya; misalnya, saya berasa yakin pada diri saya and sering senyum*. | .72 | .66 |
| 9. I am comfortable in my body / *Saya selesa dengan badan saya*. | .86 | .73 |
| 10. I feel like I am beautiful even if I am different from media images of attractive people (e.g., models, actresses/actors) / *Saya rasa saya cantik/tampan walaupun saya berbeza daripada imej-imej media yang menunjukkan orang atraktif (misalnya, model, pelakon*). | .76 | .65 |

Table 2. *Measurement Invariance Across Sex and Ethnicity in the Second Split-Half Subsample.*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Model | χ² | *df* | CFI | RMSEA | SRMR | Model Comparison | Δ*χ*² | ΔCFI | ΔRMSEA | Δ*df* | *p* | PGFI |
| Sex | Configural | 148.464 | 64 | .941 | .094 | .044 |  |  |  |  |  |  | .489 |
|  | Metric | 158.922 | 73 | .939 | .090 | .056 | Configural vs. metric | 10.458 | .002 | .004 | 9 | .031 | .557 |
|  | Scalar | 186.721 | 82 | .930 | .060 | .060 | Metric vs. scalar | 27.799 | .009 | .030 | 9 | < .001 | .625 |
|  | Partial scalar | 225.464 | 81 | .937 | .087 | .058 | Metric vs. partial scalar | 13.562 | .002 | .003 | 8 | .094 | .618 |
| Ethnicity | Configural | 143.525 | 64 | .939 | .090 | .044 |  |  |  |  |  |  | .489 |
|  | Metric | 155.849 | 73 | .937 | .089 | .060 | Configural vs. metric | 12.324 | .002 | .001 | 9 | .251 | .558 |
|  | Scalar | 219.062 | 82 | .908 | .101 | .072 | Metric vs. scalar | 63.213 | .029 | .011 | 9 | < .001 | .625 |
|  | Partial scalar | 233.837 | 79 | .929 | .091 | .063 | Metric vs. partial scalar | 26.231 | .008 | .002 | 6 | < .001 | .603 |

*Note*. CFI = Comparative fit index; RMSEA = Steiger-Lind root mean square error of approximation; SRMR = standardised root mean square residual; PGFI = Parsimony goodness of fit index.

Table 3. *Associations between Body Appreciation and Additional Measures Included in the Study and for the Total Sample, Reported for Women (Upper Diagonal) and Men Separately.*

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| 1. Body appreciation |  | .47\*\* | .41\*\* | - | -.27\*\* | -.27\*\* | -.05 | -.16\* |
| 1. Satisfaction with life | .37\*\* |  | .43\*\* | - | -.12\* | -.16\* | -.13\* | .05 |
| 1. Subjective happiness | .35\*\* | .40\*\* |  | - | -.17\* | -.20\*\* | .04 | -.05 |
| 1. Drive for muscularity | -.03 | -.13\* | -.11\* |  | - | - | - | - |
| 1. Actual-ideal weight discrepancy | - | - | - | - |  | .28\*\* | .05 | .67\*\* |
| 1. Pressure and internalisation | -.16\* | -.12\* | -.25\*\* | .35\*\* | - |  | .36\*\* | .23\*\* |
| 1. Information | -.15\* | .05 | -.08 | .12\* | - | .43\*\* |  | .07 |
| 1. Body mass index | -.01 | .08 | .08 | -.03 | - | .14\* | .06 |  |

*Note*. *N* = 781. \* *p* < .05, \*\* *p* < .001.

Table 4. *Results of Multiple Hierarchical Regressions Testing for Incremental Validity of Body Appreciation Scores in Women and Men.*

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  | Women | | | | | Men | | | | |
|  | |  | B | *SE* | β | *t* | *p* | B | *SE* | β | *t* | *p* |
| Step | 1 | Weight discrepancy/Drive for muscularitya | -.07 | .03 | -.11 | -2.17 | .030 | -.02 | .05 | -.02 | -0.42 | .674 |
|  |  | Internalisation and pressure | -.23 | .06 | -.22 | -3.93 | < .001 | -.32 | .07 | -.26 | -4.45 | < .001 |
|  |  | Information | -.16 | .07 | -.12 | -2.23 | .026 | -.07 | .08 | -.05 | -0.91 | .364 |
|  | 2 | Weight discrepancy/Drive for muscularitya | -.02 | .03 | -.04 | -0.78 | .434 | -.04 | .05 | -.04 | -0.74 | .459 |
|  |  | Internalisation and pressure | -.13 | .06 | -.12 | -2.21 | .027 | -.21 | .07 | -.17 | -2.99 | .003 |
|  |  | Information | -.08 | .07 | -.06 | -1.19 | .234 | -.04 | .07 | -.03 | -0.52 | .607 |
|  |  | Body appreciation | .52 | .07 | .36 | 7.13 | < .001 | .52 | .07 | .33 | 6.85 | < . 001 |

*Note.* aActual-ideal weight discrepancy was included in the regression for women and drive for muscularity was included in the regression for women.



*Figure 1.* Path diagram and estimates for the one-dimensional model of Body Appreciation Scale-2 scores. The large oval is the latent construct, with the rectangles representing measured variables, and the small circles with numbers representing the residual variables (variances). The path factor loadings are standardised with significance levels were determined by critical ratios (all *p* < .001).