Brief research report

Factor structure of the Body Appreciation Scale among Indonesian women and men: Further evidence of a two-factor solution in a non-Western population

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A B S T R A C T

While the Body Appreciation Scale (BAS) reduces to a single dimension among Western samples, a two-factor solution has been found among non-Western populations. The present study examined the factor structure of the BAS among Indonesian women and men, a previously neglected population. A total of 262 women and 278 men in Jakarta, Indonesia, completed an Indonesian version of the BAS. Factor analyses revealed the existence of two factors that were only moderately correlated: a dominant 10-item factor representing general body appreciation and a second 3-item factor representing adaptive body image investment. However, only general body appreciation met criteria for acceptable internal consistency; thus, additional analyses were conducted with this factor alone. There were no significant ethnic differences in general body appreciation, but men had significantly higher body appreciation than women. Suggestions for future research, particularly in terms of uncovering culture-specific factors that contribute to positive body image, are discussed.

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Introduction

In recent years, some scholars have lamented the fact that research on body image has tended to focus on pathology and that research on positive body image remains limited (Smolak & Cash, 2011; Tylka, 2011). One attempt to overcome this dearth in the literature was the development of the 13-item Body Appreciation Scale (BAS; Avalos, Tylka, & Wood-Barcalow, 2005), a measure of body appreciation. Even so, there remains some discussion as to item loadings, given discrepancies between studies, relating to two items.

However, the BAS needs to be examined in a range of cultural contexts to ensure that its scores are reliable and valid with individuals of various cultural groups. Among Western samples, the BAS has been shown to reduce to a single dimension (Avalos et al., 2005; Swami, Stieger, Haubner, & Voracek, 2008). The scale has also been shown to have good patterns of validity and reliability among Western samples, and body appreciation scores are associated with caregiver eating messages (Kroon Van Diest & Tylka, 2010), acceptance of cosmetic surgery (Swami, 2009), intuitive eating (Augustus-Horvath & Tylka, 2011), perfectionism (Iannantuono & Tylka, 2012), and personality traits (Swami, Hadji-Michael, & Furnham, 2008).

Among non-Western samples, however, the BAS does not reduce to a single dimension. Swami and Chamorro-Premuzic (2008) reported that, among a sample of Malaysian women, the BAS was better conceptualised as comprising two factors. A dominant factor consisting of eight items was labelled ‘General body appreciation’, whereas a second factor comprising three items was labelled as an adaptive form of ‘Body image investment’ (two further items did not load onto either factor). Consistent with the advice of these authors, recent studies among Malaysian samples have used only the former factor when measuring body appreciation (Swami, Kannan, & Furnham, in press). More recently, examinations of the factor structure of the BAS among Portuguese-speaking Brazilian (Swami, Campana, Fereira, Barrett, Harris, & Tavares, 2011) and Korean (Swami, Hwang, & Jung, 2012) samples have also supported a two-factor solution, although in these studies the two non-loading items adequately load onto the dominant factor. These studies indicate that, among non-Western samples, the BAS should be considered as consisting of two distinct factors, only one of which conceptually taps body appreciation. Even so, there remains some discussion as to item loadings, given discrepancies between studies, relating to two items.

Among non-Western samples, however, the BAS fails to reduce to a single dimension. Swami and Chamorro-Premuzic (2008) reported that, among a sample of Malaysian women, the BAS was better conceptualised as comprising two factors. A dominant factor consisting of eight items was labelled ‘General body appreciation’, whereas a second factor comprising three items was labelled as an adaptive form of ‘Body image investment’ (two further items did not load onto either factor). Consistent with the advice of these authors, recent studies among Malaysian samples have used only the former factor when measuring body appreciation (Swami, Kannan, & Furnham, in press). More recently, examinations of the factor structure of the BAS among Portuguese-speaking Brazilian (Swami, Campana, Fereira, Barrett, Harris, & Tavares, 2011) and Korean (Swami, Hwang, & Jung, 2012) samples have also supported a two-factor solution, although in these studies the two non-loading items adequately load onto the dominant factor. These studies indicate that, among non-Western samples, the BAS should be considered as consisting of two distinct factors, only one of which conceptually taps body appreciation. Even so, there remains some discussion as to item loadings, given discrepancies between studies, relating to two items.
To this end, the present study examined the factor structure of the BAS among Indonesian women and men. Indonesia is a useful context in which to consider these issues for a number of reasons. First, Indonesia is experiencing rapid urbanisation, which has led to substantial nutritional and lifestyle changes (Lipoeto, Wattanapenpaiboon, Malik, & Wahlqvist, 2004). Second, rapid economic development over the past two decades has resulted in greater Western influence, particularly in affluent parts of the country. Conversely, challenges to this change have come in the form of a resurgence in a shared national identity and the growth of political Islam (Cole, 2008). Third, the available evidence suggests that the thin ideal is dominant in socioeconomically developed regions of the country (Swami et al., 2010; Swami, Henderson, Custance, & Tovée, 2011). Finally, Indonesia is ethnically heterogeneous, allowing for an examination of both gender and ethnic differences in body appreciation.

In summary, the present study examined the factor structure of the BAS among an Indonesian sample, as well as gender and ethnic differences in this context. In terms of gender differences, we expected that men would have greater body appreciation than women, which is consistent with the suggestion that women cross-culturally experience greater pressure to conform to corporeal ideals than men. On the other hand, given that previous work in neighbouring Malaysia has suggested no ethnic differences in body appreciation (Swami & Chamorro-Premuzic, 2008), we did not expect to uncover significant differences between the ethnic groups surveyed in Indonesia. Finally, we examined associations between body appreciation scores and participant body mass index (BMI), with the expectation of negative relationship, as those who appreciate their bodies may be less likely to binge eat or eat in the absence of hunger.

Method

Participants

Participants of this study were 262 women and 278 men from Jakarta, Indonesia. Located on the northwest coast of Java, Jakarta is the capital and largest city in Indonesia, and serves as the nation’s cultural and political centre. In 2007, the city’s Gross Regional Domestic Product was around US$ 56 billion, with the largest contributions coming from finance and business, tourism, and manufacturing. In this study, 48.1% of participants were of Javanese ancestry, 43.7% were of Sundanese ancestry, and 8.1% were of Chinese ancestry. Participants ranged in age from 19 to 75 years ($M = 43.19, SD = 12.95$) and in BMI from 13.52 to 35.65 kg/m$^2$ ($M = 22.08, SD = 4.38$).

Measures

Body appreciation. Participants completed the Body Appreciation Scale (Avalos et al., 2005), a 13-item measure of related aspects of positive body image. Items were rated on a 5-point scale (1 = Never, 5 = Always). One item on the scale is gender-specific, requiring the presentation of different items to women and men. For this study, the BAS was translated into Indonesian (Bahasa Indonesia), the official language of Indonesia, using the standard back-translation technique. An independent translator initially translated the BAS into Indonesian and a second translator then translated this version back into English. Differences between the translation and back-translation were settled by agreement between the two translators.

Demographics. Participants provided their demographic details consisting of sex, age, ethnicity, height, and weight. The latter two variables were used to compute participants’ BMI.

Procedure

Permission for this study was obtained from the relevant university ethics committee. Participants were recruited using convenience sampling from public locations in Jakarta by a research assistant. Potential participants were approached on a first-come, first-served basis in locations such as marketplaces and shopping complexes, and were invited to take part in a study on well-being. Upon agreement to participate, they provided informed consent, completed a paper-and-pencil survey, and returned the survey to the research assistant in a sealed envelope. All data were treated confidentially and anonymously, and participants were debriefed once they had returned their surveys. Participation was on a voluntary basis and participants were not remunerated for participation.

Statistical Analyses

In order to examine the factor structure of the Indonesian BAS, we computed principal-axis exploratory factor analysis (EFA) for women and men separately using quartimax rotation (because of the expectation of the emergence of a general factor; Pedhazur & Schmelkin, 1991). The number of factors to be extracted was determined by factor eigenvalues ($\lambda$) above 1.0 (EGV1) and based on the scree-plot criterion (Cattell, 1966). However, these techniques can lead to factor over-retention (Patil, McPherson, & Friesner, 2010), so parallel analysis was also conducted. This technique generates eigenvalues from random datasets that match the actual dataset in terms of the number of participants and variables, and is considered a more accurate technique for determining the number of factors to retain from EFA (Hayton, Allen, & Scarpello, 2004). To examine between-group differences in factor scores, we computed a $3 \times 2$ analysis of variance (ANOVA; ethnicity: Javanese versus Sundanese versus Chinese; gender: women versus men). Finally, we examined bivariate correlations between factor scores and participant BMI.

Results

Female Sample

For the female sample, Bartlett’s test of sphericity, $\chi^2(78) = 2596.48$, $p < .001$, and the KMO measure of sampling adequacy, $KMO = .90$, showed that the BAS items had adequate common variance for factor analysis. The EGV1 criterion and examination of the scree-plot suggested it was possible to extract three factors after five iterations. However, parallel analysis showed that the first two eigenvalues for the random data (1.74 and 1.44) were smaller than their real data counterparts (6.66 and 1.85), whereas the third eigenvalue for the random data (1.38) was larger than the third eigenvalue for the real data (1.16), suggesting that two factors should be retained (see Table 1 for item loadings). The first factor mirrored the General Body Appreciation factor extracted by Swami and Chamorro-Premuzic (2008), but also included the two non-loading items from that study (# 7 and 11; explaining 51.2% of the variance; $\alpha = .93$). The second factor included three items that Swami and Chamorro-Premuzic (2008) suggested reflected an adaptive component of Body Image Investment (explaining 14.2% of the variance; $\alpha = .72$). The two factors were moderately correlated ($r = .37$), suggesting they were measuring different constructs.

Male Sample

For the male sample, Bartlett’s test of sphericity, $\chi^2(78) = 2798.23$, $p < .001$, and the KMO measure of sampling adequacy, $KMO = .89$, both indicated that the BAS items had adequate common variance for factor analysis. The EGV1 criterion
and the scree-plot suggested extraction of three factors after five iterations. On the other hand, parallel analysis indicated that the first two eigenvalues for the random data (1.88 and 1.64) were smaller than their real data counterparts (6.61 and 1.87), whereas the third eigenvalue for the random data (1.47) was larger than the third eigenvalue for the real data (1.24). These results suggest that two factors should be retained (item loadings are reported in Table 1). The first factor of General Body Appreciation was identical to that among female participants (explaining 50.8% of the variance; $\alpha = .90$). The second factor included three items related to adaptive Body Image Investment (explaining 14.4% of the variance; $\alpha = .68$). The two factors were only moderately correlated ($r = .34$).

### Further Analyses

Because the Body Image Investment factor did not meet conservative criteria for acceptable internal consistency ($\alpha \geq .80$; Kline, 1999), all further analyses were conducted with the General Body Appreciation factor alone. The results of the ANOVA indicated that there was no significant main effect of ethnicity (Javanese $M = 3.48, SD = 0.86$; Sundanese $M = 3.54, SD = 0.83$; Chinese $M = 3.46, SD = 0.74$; $F(2, 540) = .31, p = .732$, $\eta^2_p < .01$, and no significant ethnicity by gender interaction, $F(2, 540) = .60, p = .548$, $\eta^2_p < .01$). On the other hand, there was a significant main effect of gender (women $M = 3.32, SD = 0.86$; men $M = 3.67, SD = 0.78$), with women having significantly lower General Body Appreciation than men, $F(1, 540) = 18.17, p < .001$, $\eta^2_g = .03$. Finally, General Body Appreciation was significantly correlated with BMI among both women ($r = -.30, p < .001$) and men ($r = -.22, p < .001$).

### Discussion

These results suggest that the Indonesian version of the BAS reduces to two distinct dimensions, only one of which taps the construct of body appreciation. This stands in contrast to studies that have reported a one-dimensional factor structure for the BAS among Western samples (Avalos et al., 2005; Swami, Hadji-Michael, et al., 2008; Swami, Stieger, et al., 2008), but is consistent with the two-factor solution achieved with Malaysian (Swami & Chamorro-Premuzic, 2008), Brazilian (Swami, Campana, et al., 2011), and Korean samples (Swami et al., 2012). Taken together, the available evidence suggests that three items of the BAS are distinguishable from the construct of body appreciation among non-Western samples.

One possible explanation for these findings is that they are caused by specific linguistic issues related to Austronesian languages, particularly the way in which ego-related items are interpreted (see Swami, in press). However, given that similar findings have been reported with an Indo-European language (Swami, Campana, et al., 2011) and a language isolate (Swami et al., 2012), this explanation seems unlikely. Another possibility is that item directionality affected the present results, with negatively worded items producing lower item-factor loadings (Schmitt & Stults, 1985). It is also possible the variables that contribute to body appreciation differ across cultures (Swami & Chamorro-Premuzic, 2008). While bodily acceptance and respect seem to be common constructs of body appreciation across samples (Wood-Barcalow et al., 2010), it could be that items related to autonomy over, and adaptive investment in, the body are not associated with body appreciation among non-Western samples.

In the present study, we also found that men had significantly higher positive body appreciation than women, and the small effect size of this difference ($\eta^2_g = .03$) is consistent with previous work (Swami, Hadji-Michael, et al., 2008; Swami, Stieger, et al., 2008). In contrast, we found no significant difference in body appreciation between Javanese, Sundanese, and Chinese participants. This is consistent with previous work showing no significant difference in general body appreciation between Malaysian Malay and Chinese women (Swami & Chamorro-Premuzic, 2008), although it does not rule out the possibility of ethnic differences among other ethnic groups or in other cultural contexts (Swami, Airs, Chouhan, Padilla Leon, & Towell, 2009). Finally, we found that general body appreciation was significantly and negatively correlated with BMI, which provides preliminary evidence of the construct validity of the Indonesian BAS.

A number of limitations of the present study should be noted. First, the opportunistic method of sampling precludes generalisation of our findings to the total population, as it is unlikely that our sample was representative. Relatedly, the focus on a sample of women and men from Jakarta very likely obscures regional differences in body appreciation within the Indonesian context. For example, recent work has suggested that there are differences in body appreciation as a function of urbanisation in Malaysia (Swami et al., in press) and, in a similar vein, it would also be useful to examine socioeconomic differences in body appreciation in Indonesia. Second, although the focus of our work was on establishing the factor structure of the Indonesian BAS, the fact that we did not include additional measures of body image means that further validation of the Indonesian BAS remains lacking. Specifically, in future work, it will be necessary to conduct more comprehensive investigations of the validity of the BAS, although this work may itself be hampered by the lack of appropriate scales in Indonesian. Finally, it may also be useful for future work to more explicitly examine cross-cultural
differences in adaptive body image investment: it is possible, for example, that this construct, which is undersampled in the BAS, represents another aspect of positive body image that differs across cultures.

These limitations aside, the present work has implications for the conceptualisation of body appreciation in different cultural contexts. There is a need to more fully understand the different ways in which positive body image is constructed in non-Western settings. A useful starting point may be the type of qualitative research that has been conducted in the West (e.g., Wood-Barcalow et al., 2010), which may help to identify culture-specific concepts related to body appreciation. Until such research has been conducted, scholars wishing to measure body appreciation among Indonesian samples may be advised to only use the 10 items that tap General Body Appreciation.

References


