



Factor structure and psychometric properties of the Body Appreciation Scale among adults in Hong Kong



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ABSTRACT

Previous research has suggested that the factor structure of Body Appreciation Scale (BAS), a widely-used measure of positive body image, may not be cross-culturally equivalent. Here, we used confirmatory factor analysis to evaluate the conceptual equivalence of a Chinese (Cantonese) translation of the BAS among women ($n = 1319$) and men ($n = 1084$) in Hong Kong. Results showed that neither the one-dimensional nor proposed two-dimensional factor structures had adequate fit. Instead, a modified two-dimensional structure, which retained 9 of the 13 BAS items in two factors, had the best fit. However, only one of these factors, reflective of General Body Appreciation, had adequate internal consistency. This factor also had good patterns of construct validity, as indicated through significant correlations with participant body mass index, self-esteem, and (among women) actual-ideal weight discrepancy. The present results suggest that there may be cultural differences in the concept and experience of body appreciation.

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Introduction

Body image scholars are increasingly paying attention to the concept and experience of positive body image, overturning the traditional focus on pathology and distress (Tylka, 2011). Indeed, this emphasis on adaptive or healthy aspects of body image is now viewed as being “essential to the field” (Smolak & Cash, 2011, p. 472), which in turn requires reliable and valid scales that can measure the concept. One of the most widely used measures of positive body image is the Body Appreciation Scale (BAS; Avalos, Tylka, & Wood-Barcalow, 2005), a 13-item measure that taps into four qualities of positive body image, namely holding positive opinions of the body, acceptance of the body despite its imperfections, respect for the body, and protection of the body through the rejection of unrealistic ideals. Viewed in this way, body appreciation is not simply the experience of body satisfaction, but rather encompasses a protective processing style in relation to one's corporeal experiences and the adoption of flexible ideals of beauty (Holmqvist & Frisén, 2012; Wood-Barcalow, Tylka, & Augustus-Horvath, 2010).

Part of the reason for the widespread adoption of the BAS is the evidence in support of its validity in a number of cultural groups.

Thus, the scale's one-dimensional factor structure has been supported using exploratory and confirmatory factor analyses with samples from the US (Avalos et al., 2005; Cotter, Kelly, Mitchell, & Mazzeo, in press), Austria (Swami, Stieger, Haubner, & Voracek, 2008), Spain (Jáuregui-Lobera & Bolaños-Ríos, 2011), and Turkey (Swami, Özgen, Gökçen, & Petrides, in press). In addition, Tylka (2013) reported that scores on the scale showed measurement invariance among US women and men, although men had significantly higher body appreciation than did women. A number of studies have also provided evidence for the convergent validity of the BAS, primarily through significant associations with other indices of body image. More specifically, positive correlations have been reported with body satisfaction, body esteem, and appearance evaluation, while negative associations have been found with body dissatisfaction, social physique anxiety, body shape concerns, body image avoidance, and skin tone dissatisfaction (Avalos et al., 2005; Swami, Henry, Peacock, Roberts-Dunn, & Porter, 2013; Swami, Salem, Furnham, & Tovée, 2008; Swami, Steiger, et al., 2012; Swami, Tran, et al., 2013; Tiggemann & McCourt, 2013).

BAS scores are also positively correlated with scores on measures of psychological well-being, including self-esteem, optimism, life satisfaction, self-compassion, and subjective happiness (Avalos et al., 2005; Dalley & Vidal, 2013; Swami, Aïrs, Chouhan, Padilla Leon, & Towell, 2009; Swami, Tran, Stieger, Voracek, & The YouBeauty.com Team, in press; Wasylkiw, MacKinnon, & MacLellan, 2012), and negatively associated with measures of

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psychological distress, including maladaptive perfectionism, thin-ideal internalisation, attachment anxiety, and the Big Five trait of Neuroticism (Avalos et al., 2005; Iannantuono & Tylka, 2012; Swami, 2009; Swami, Steiger, et al., 2012; Swami, Tran, et al., 2013; Tylka & Kroon van Diest, 2013). Supporting patterns of validity for the BAS have also been reported among select populations, including dancers (Langdon & Petraccia, 2010; Swami & Harris, 2012; Swami & Tovée, 2009) and fashion models (Swami & Szmigielska, 2013). Finally, BAS scores are also significantly and positively associated with emotional intelligence (Swami, Begum, & Petrides, 2010), sexual functioning and behaviours (Satinsky, Reece, Dennis, Sanders, & Bardzell, 2012; Winter & Satinsky, 2014), and health behaviours (Andrew, Tiggemann, & Clark, *in press*), and negatively with femininity ideology (Swami & Abbasnejad, 2010).

Although this work points to the BAS as a valid measure of positive body image, one limiting issue concerns its factorial validity among some non-Western groups, where the scale's one-dimensional structure has been disputed. Thus, in a sample of Malaysian women, Swami and Chamorro-Premuzic (2008) reported that the BAS reduced to two dimensions, with a dominant factor labelled 'General Body Appreciation' (eight items) and a secondary factor labelled 'Body Image Investment' (three items). Two items did not load onto either factor and were subsequently dropped from analyses, a strategy that has been followed in other studies with Malaysian women (Swami, 2010; Swami, Kannan, & Furnham, 2012). A subsequent study among Portuguese-speaking Brazilian women and men also arrived at a 2-factor solution, but in which the two previously non-loading items loaded onto the dominant factor (Swami, Campana, et al., 2011). Exploratory factor analyses of the BAS among South Korean women and men (Swami, Hwang, & Jung, 2012), Indonesian women and men (Swami & Jaafar, 2012), and Polish women (Taylor, Szpakowska, & Swami, 2013) have supported the latter 2-factor solution. Among Zimbabwean women, on the other hand, support was found for the 10-item General Body Appreciation factor, while the Body Image Investment factor failed to converge (Swami, Mada, & Tovée, 2012).

Broadly speaking, these studies suggest that three items on the BAS may be distinguishable from the construct of body appreciation among some non-Western populations. Swami and Jaafar (2012) have concluded that this is unlikely to have been caused by linguistic idiosyncrasies in the non-Western populations that have been sampled to date (e.g., the way in which ego-centred terms are interpreted in some languages). Nor does it seem likely that the bi-dimensionality is caused by ignorable method effects, given that both positively and negatively worded items appear in the Body Image Investment factor. Rather, it appears that the constructs that contribute to body appreciation vary across cultures (Swami & Chamorro-Premuzic, 2008). That is, those constructs associated with the General Body Appreciation factor – primarily body acceptance and respect – seem to be common to the concept of body appreciation across cultures; on the other hand, items related to adaptive investment in the body do not appear to be cross-culturally stable. This perspective is supported by the relative independence of the factors among non-Western samples, with studies reporting small-to-moderate inter-factor correlations where the secondary factor had adequate internal consistency (Swami & Jaafar, 2012; Taylor et al., 2013).

The issue of the dimensionality of the BAS has important implications for researchers studying body appreciation generally and for cross-cultural research on body appreciation specifically. At the most basic level, it is important that scholars examine the factorial structure of the BAS when using translated versions of the scale. Notably, Romanian (Dumitrescu, Zetu, Teslaru, Dogaru, & Dogaru, 2008), Russian (Durneva & Meshkova, 2013), Iranian (Pakpour, Zeidi, Ziaeiha, & Burri, 2014), and Thai (Pisitsungkagarn, Taephant, & Attasaranya, *in press*) translations of the BAS have been prepared

and, in each of these cases, the developers have treated derived scores as one-dimensional. The preceding review problematises such an analytic strategy, as it cannot be assumed that body appreciation will share the same conceptual structure across different cultures. A more substantive implication concerns the practical use of BAS scores: insofar as the BAS assesses two related though distinct concepts related to body appreciation among some populations, this limits opportunities for cross-cultural comparisons of BAS scores and points to possible cross-cultural differences in the antecedents and/or outcomes of body appreciation.

The Present Study

As a contribution to ongoing discussions, we used confirmatory factor analysis (CFA) to evaluate the conceptual equivalence of the BAS in a large sample of adults in Hong Kong. This approach allows us to apply previously defined models to observed data in order to examine the similarity across cultures of the pattern linking items to dimensions, of the loading of items to dimensions, and of the relationships between measured concepts (Meredith & Teresi, 2006). More specifically, we examined the fit of the one-dimensional structure proposed in the parent study (Avalos et al., 2005), the two-dimensional alternative model with all items included (Swami, Campana, et al., 2011; Swami, Hwang, et al., 2012; Swami & Jaafar, 2012; Taylor et al., 2013), and the two-dimensional model with two items deleted (Swami & Chamorro-Premuzic, 2008). To the extent that the one-dimensional structure of the BAS is not supported in the present study, it would be inadvisable to assume that the instrument is cross-culturally equivalent (Swami & Chamorro-Premuzic, 2008); in this scenario, statistical comparisons of body appreciation from different cultural groups may not be warranted, which in turn would require alternative methods and further analyses to identify the core domains of body appreciation that are relevant across cultures.

As a recently developed non-Western setting with a standard of living and infrastructure similar to Western Europe or North America, Hong Kong is a useful site in which to examine issues related to body appreciation for a number of reasons. First, sedentary activities (Bauman et al., 2011; Xie, Stewart, Lam, Viswanath, & Chan, 2014) coupled with declining physical fitness levels (for a review, see Fu, Guo, & Zang, 2012) and the increased availability of processed foods (Asia Pacific Cohort Studies Collaboration, 2004) have contributed to the high prevalence of obesity in Hong Kong, rates that now converge towards that of Western countries (Griffiths, 2010; So et al., 2008). This, in turn, has contributed to the increased prevalence of negative body image among Hong Kong adults (Cheung et al., 2011), adolescents (Lai et al., 2013), and children (Knowles, Ling, Thomas, Adab, & McManus, *in press*; Li et al., 2007), with studies suggesting rates that are comparable to, if not higher than, those in the West (Hui & Brown, 2013). This is notable because negative body image is known to be a risk factor for depressive symptoms and psychological distress among respondents in Hong Kong (Fung, Stewart, Ho, Wong, & Lam, 2010).

However, there are also differences with the West: the fact that economic development from pre- to post-industrial living conditions in Hong Kong was achieved over a relatively short period of time may have resulted in different attitudes towards, and outcomes of, adiposity compared to the West (Wang, Leung, & Schooling, *in press*). For example, some scholars have postulated that body weight may be less important to negative body image and symptoms of disordered eating among Chinese populations (Mellor et al., 2013), where conversely perceived social pressure may be heightened as compared to the West (e.g., Jackson & Chen, 2007). In addition, despite significant improvements in the status of women (Lee & Collins, 2008), familial, educational, and societal structures continue to promulgate restrictive prescriptions

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