Factor Structure and Psychometric Properties of the Thai Version of the Body Appreciation Scale-2

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Abstract
The purpose of this study is to develop and validate the Thai version of the Body Appreciation Scale-2 (BAS-2). Previous empirical research suggests that body appreciation is associated with a number of positive psychological outcomes such as life-satisfaction and self-esteem in female samples. A total number of 217 Thai females, whose mean age was 47.1 years old (SD = 1), participated in the current study. They responded to the Thai version of the BAS-2, which was developed through backtranslation process, along with the Physical Body Experiences Questionnaires (PBE) and the Body Surveillance (BS) subscale from the Objectified Body Consciousness Scales. Scores from the latter two measures were empirically shown to be positively and negatively associated with that of BAS-2, respectively; their completions were thus used to examine convergent validity of the Thai version of the BAS-2. Data analyses demonstrated that the Thai version of the BAS-2 had high internal consistency (α = .90). Corrected item-total correlations for its items were significant, ranging between .53 and .75, suggesting that no item removal or revision was needed. Factor structure analysis revealed that the Thai version of the BAS-2 had a unidimensional factor structure. As for its convergent validity, the BAS-2 scores were and negatively associated with the BS subscale scores, r = .23, p < .001, and positively associated with the PBE scores, r = .42, p < .001. The Thai version of the BAS-2 appears be a reliable and valid measure of body appreciation for Thai females.

Keyword: Cross-Cultural Scale Development, Positive Body Image, Body Appreciation, Embodiment, Body-Surveillance

Introduction

Body appreciation is one of the most extensively studied features of positive body image. The construct encompasses love, respect, appreciation, and acceptance of one's body regardless of its appearance, and it protects the body against the negative influence of body-related media exposure (Avalos, Tylka, & Wood-Barcalow, 2005). It is associated positively with psychological well-being (i.e., life-satisfaction, self-esteem, and self-compassion) and negatively with disordered eating and body preoccupation (Avalos et al., 2005).

A robust body of evidence suggests that body appreciation is psychologically beneficial. For example, body appreciation is associated with self-esteem. Wasylkiw, MacKinnon, and MacLellan (2012) suggested that women with high self-esteem tend to evaluate their body in a more positive light. Additionally, these authors also found that being compassionate toward oneself is linked to greater appreciation toward one's body. Furthermore, a comprehensive study on well-being in British adults suggested that body appreciation is related to three indicators of well-being namely emotional (i.e., life satisfaction), social (i.e., how well an individual function as a member of a large society) and psychological (i.e., autonomy and personal growth) indicators (Swami, Weis, Barron, & Furnham, 2018).

Body appreciation is associated with body image disturbance and disordered eating (Avalos et al., 2005). Conversations concerning weight loss and dieting are linked to decreased appreciation of one's body; in contrast, conversations about exercise are linked to increased body appreciation through focusing on bodily functions and abilities rather than appearance (Wasylkiw & Butler, 2014). Swami (2009) found that individuals with low body appreciation are more likely to view cosmetic surgery positively as they perceive it as the means to enhance or repair their appearance. Individuals who appreciate their bodies are more likely to exercise regularly, seek health care, and less likely to have body image related issues such as engaging in maladaptive eating habits which could develop into eating disorders or seeking plastic surgery in order to alter their appearance (American Psychiatric Association, 2000; Tylka, 2011; Tiggemann & Lynch, 2001). Furthermore, Avalos and Tylka (2006) found body appreciation to be associated with intuitive eating or eating according to inner bodily signals (i.e., hunger and satiety cues) rather than situational cues (i.e., diet plan or time of day).

Given the significance of body appreciation for both the domain of body image and psychological well-being and functioning, Avalos et al. (2005) developed the 13-item Body Appreciation Scale (BAS) to assess body appreciation. The BAS has a unidimensional factor loading and, adequate internal consistency, test-retest reliability, and construct validity (Avalos et al., 2005). However, some of the items are not gender-neutral, which complicates the administration process (Avalos et al., 2005). Furthermore, cross-cultural studies show inconsistent factor loadings (i.e., a two-factor solution was found in Brazilian and Polish samples; Taylor, Szpakowska, & Swami, 2013; Swami et al., 2011). In 2015, Tylka and Wood-Barcalow revised the original BAS. Specifically, they reworded some of the items to make them more gender-neutral, as well as rephrasing and replacing items that had low factor. Furthermore, they added several new items based on recent findings on the positive body image construct. The revised version is called the Body Appreciation Scale-2 (BAS-2). The only available

Thai version of the BAS was developed from the original BAS by Liptapanlop in 2015. Given that the recently developed BAS-2 was not yet available in Thai, the researcher aimed to develop and validate psychometric properties of the BAS-2 in Thai using a sample of Thai females.

Therefore, the current study was proposed to develop the Thai version of the BAS-2. Data will be collected from Thai females, the gender group reported to be particularly vulnerable to compromised body satisfaction (e.g. Avalos and Tylka, 2006). Backtranslation process (Brislin, 1970) would be employed. The psychometric properties of the translated measure would be examined. These included internal consistency, factor structure, criterion validity, and convergent validity. The constructs of body surveillance and embodiment were selected as criteria to investigate convergent validity of the BAS-2.

Body surveillance has been consistently examined in the body image literature. It refers to the belief that the society places emphasis on outward appearance. This belief may lead women to constantly check their bodies and compare what they see to societal expectations or influences (McKinley & Hyde, 1996). Overtime, their appreciation for the bodies becomes bounded by their body appearances, thus lowering their body appreciation (Avalos et al., 2005). Consistent with this notion, a number of studies found body appreciation to be correlated negatively with body surveillance (Alleva, Tylka & Kroon Van Diest, 2020 2017; Menzel, 2010; Pellizer, Tiggemann & Clark, 2016).

In contrast to body surveillance, embodiment has been found to be positively relate to body appreciation. Embodied individuals have deep and comfortable intrapersonal connections with their bodies, allowing them to attend and respond to their bodily needs while appreciating all aspects of their body (Menzel & Levine, 2011). In line with this, several studies found body appreciation to be positively correlated with embodiment (e.g., Pellizer, Tiggemann & Clark, 2016; Menzel, 2010). Based on their associations with body appreciation, body surveillance and embodiment would be used to examine concurrent validity of the Thai version of the BAS-2.

Method

The researcher obtained permission to use the BAS-2 from the developers (Tylka & Wood-Barcalow, 2015) and was granted ethical approval for the study (IRB: 247.1/62) from Chulalongkorn University Research Ethics Review Committee for Research Involving Human Subjects. The BAS-2, and the Physical Body Experiences Questionnaires (PBE; Menzel, 2010) were translated into Thai by a bilingual speaker. They were then translated back to English by another bilingual speaker. Afterward, an English speaker blind to the procedure compared the backtranslated to the original versions. The Thai versions were then reviewed by the experts for face validity.

Regarding the number of participants needed in this study, G*power suggested that there should be at least 20 participants for each predictive variable. However, to allow for missing data and to maximize statistical power, the participant number was raised to 217 (Pan, Liu, Miao, & Yuan, 2018). Participants in this study were 217 Thai females. Participants ranged in age from 18 to 61 years, and the average age was 47.1 years old (*SD* = 1). Participants completed the survey package online in the following

order: demographic information, the BAS-2, the PBE, and the Body Surveillance (BS) subscale (McKinley & Hyde, 1996). Participants took approximately 15-20 minutes to complete the measures.

The BAS-2

The BAS-2 was a measure of body appreciation. It contained 10 items which inquired the extent to which participants held favourable opinions toward, accepted, and respected their bodies on a 5-point Likert scale (1 = "Never" and 5 "Always"). Examples of the items were "I feel that my body has at least some good qualities" and "I respect my body". All items were positively worded. Higher scores on the BAS-2 indicated greater levels of body appreciation. The possible score range was between 5 and 50. The BAS-2 demonstrated evidence of construct validity, good test-retest reliability stability over a 3-week period (r = .90), and good internal consistency (α = .97) (Tylka & Wood-Barcalow, 2015).

The BS Subscale

Based on the past literature (e.g., Mercurio & Landry, 2008; Tiggemann & Lynch, 2001), the researcher chose the BS subscale from the Objectified Body Consciousness Scales (McKinley & Hyde, 1996) as a measure of body surveillance in the present study. The eight items of the BS subscale assessed the extent to which women monitored their bodies and placed emphasis on how they looked rather than how they felt on a 7-point Likert Scale (1= "Strongly disagree" and 7 = "Strongly agree"). An example of the items was "I often worry about whether that clothes I'm wearing make me look good." Two items were positively worded and six items negatively worded. The BS subscale scores were calculated by first reverse-scoring the negatively worded items and summing these and scores from the other items. Higher BS subscale scores indicated greater levels of body surveillance. The possible score range was between 6 and 48. The BS subscale was translated into Thai by Liptapanlop (2015) and showed adequate to good internal consistency (α = .76-.89) and stability over a 2-week period, (r = .79; McKinley & Hyde, 1996). Its Cronbach's alpha in the present study was .65.

The PBE

The PBE (Menzel, 2010) was an 18-item measure of embodiment or the extent to which participants felt connected to their bodies. It covered four characteristics of embodiment namely mind/body connection, body acceptance, physical competence, and knowledge of physical limits. Participants responded to the PBE items on a 7-point Likert scale (1 = "Not at all true about me" and 7 = "Very true about me"). Examples of the items were "I respect my body's physical limits," "I enjoy using my body to explore new skills," and "I feel good inside my body." Sixteen items were positively worded and two items (i.e., items 1 and 16) negatively worded. The PBE scores were calculated by first reverse-scoring the negatively worded items and summing these and scores from the other items. Higher PBE scores indicated greater levels of embodiment. The possible score range was between 18 and 126. The PBE showed adequate construct validity and high internal consistency in female undergraduate samples (α = .94; Menzel, 2010), yoga (α = .89-.91), and non-yoga practitioners (α = .90; Mahlo & Tiggemann, 2016). Its Cronbach's alpha in the present study was .86.

Data analyses

IBM SPSS Statistics 22 was be used for data analyses. Descriptive statistics including means and standard deviations were calculated for participants' demographic information and each measure in the present study. To examine reliability of the Thai version of the BAS-2, its Cronbach's coefficient alpha and corrected item-total correlations (CITCs) were computed. The Structural Equation Model with a maximum likelihood estimation using IBM SPSS Amos 22 was utilized to examine its model fit. Eight indicators of model fit were used: chi-square ($\chi 2$), chi-square per degree of freedom ($\chi 2/df$), root mean square error of approximation (RMSEA), Tucker and Lewis Index (TLI), normed fit index (NFI), comparative fit index (CFI), goodness of fit index (GFI) and adjusted goodness of fit index (AGFI) were used to determine the overall fit of the tested model (Reuterberg & Gustafsson, 1992). To examine convergent validity of the BAS-2, Pearson product-moment correlation coefficients between the BAS-2 and BS subscales scores, and the BAS-2 and PBE scores were computed.

Results

The Thai version of the BAS-2 demonstrated acceptable internal consistency ($\alpha = .90$). Furthermore, CITCs for its 10 items, ranging between .53 and .75, were significant. CFA revealed that a single-factor solution was a good fit for the measure, $\chi 2 = 2.19$, $df = 30$, $p = .000$; CFI = .966; TLI = .949, and RMSEA = .074.

Item discrimination for high and low score groups test was analyzed using between-participants *t*-test. The results showed significant difference in body appreciation scores between low- and high-score groups.

Table 1. *Descriptive statistics of BAS-2, PBE, and BS subscale scores and their intercorrelations (*N = *217).*

Scale	*M*	*SD*	Actual Range	Possible Range	1	2	3
BAS-2	4.47	0.49	1-5	1-5	-		
BS Subscale	2.93	0.73	1-6	1-6	-.23**	-.12	-
PBE	5.18	0.57	1-7	1-7	.42**	-	

**$p < .01$

To examine convergent validity of the BAS-2, Pearson product-moment correlation coefficient was calculated. As shown in Table 1, the BAS-2 scores were significantly and negatively associated with the BS subscale scores and positively associated with the PBE scores.

Discussion

The aim of this study was to investigate the psychometric properties of the Thai version of the BAS-2 (Tylka & Wood-Barcalow, 2015). The internal consistency of the BAS-2 ($\alpha = .90$) was acceptable, and it should be noted that this was within the same range as that reported in the original study ($\alpha = .97$; Tylka & Wood-Barcalow, 2015). The internal consistency of the BAS-2 was also comparable to the internal consistency coefficients reported for other versions of the BAS-2 such as the French ($\alpha = .92$;

Kertechian & Swami, 2017), Polish (α = .93; Razmus & Razmus, 2017), and Spanish (α = .90; Swami, Alias Garcia, & Barron, 2017) versions. Furthermore, none of the BAS-2 items demonstrated CITCs below 0, indicating that no items needed to be revised or removed.

Results from CFA supported the unidimensional factor structure of the BAS-2. This finding is consistent with the factor structure of the BAS-2 reported in the original study (Tylka & Wood-Barcalow, 2015) and studies in Iran (Atari, 2016), Poland (Razmus & Razmus, 2017), Denmark, Sweden, and Portugal (Lemoine et al., 2018). The consistency of the factor structure of the BAS-2 across countries suggests that the measure has the potential to be used for cross-cultural comparisons of body appreciation and promote greater understanding of positive body image.

Regarding its convergent validity, a negative correlation was found between the BAS-2 and BS subscale scores. This is consistent with previous studies which showed that individuals with high levels of body appreciation tend to have lower levels of body surveillance such that they are more likely to reject societal appearance standards and do not habitually monitor their outward appearance from an observer view (Wood-Barcalow, Tylka, Augustus-Horvath, 2010; Holmqvist & Frisen, 2012). In contrast, individuals who are not frequently monitoring their looks may be more likely to recognise other aspects of their body, other than looks, such as its ability to demonstrate strength, to learn new movement, and to support us in daily activities (Wood-Barcalow et al., 2010; Holmqvist & Frisen, 2012).

The finding that the BAS-2 and PBE were positively correlated is also in line with previous research. Menzel and Levine's (2011) found a positive association between body appreciation and embodiment. They suggested that embodied individuals tend to have deep and comfortable intrapersonal connections with their bodies, which allows them to attend and respond to bodily needs while appreciating with all aspects of their bodies. Additionally, individuals who respect, appreciate, and accept their bodies regardless of their appearances may have positive connection with their bodies and feel that they are trustworthy and competent.

Future Directions

As a robust body of evidence suggests that body appreciation is associated with many positive outcomes including greater self-compassion (Wasylkiw, MacKinnon & MacLellan, 2012), self-esteem (Swami, Stieger, Haubner & Voracek, 2008), lower attachment anxiety and avoidance, maladaptive perfectionism and depression (Iannantuono & Tylka, 2012), future research should employ these related variables to examine the validity of the Thai version of the BAS-2. Additionally, the present study only consisted of female participants, future study could employ male samples to examine the wider application of the Thai version of the BAS-2.

Conclusion

The Thai translation of the BAS-2 has acceptable good psychometric properties, suggesting that it is a reliable and valid measure of body appreciation among Thai females.

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