



Brief research report

# Factor structure and psychometric properties of a state version of the Body Appreciation Scale-2

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## ABSTRACT

Body appreciation is an important construct in the growing area of positive body image. It is often assessed with the recently revised Body Appreciation Scale-2 (BAS-2; Tylka & Wood-Barcalow, 2015) and regarded as a trait-level variable. In light of the growing research interest in positive body image, there is a need for a validated measure of body appreciation that is sensitive to fluctuations in body appreciation; thus, the present study examined the factor structure and psychometric properties of a state version of the BAS-2 (SBAS-2). Similar to the BAS-2, the state version had a one-factor solution. It also had satisfactory convergent validity, incremental validity, and internal consistency. The measure was sensitive to situational contexts. The SBAS-2 will likely meet the needs of researchers interested in exploring the dynamic nature of body appreciation.

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## Introduction

Body appreciation (BA) is a central construct in the positive body image literature. It is defined as accepting one's body regardless of its size or deviations from cultural ideals, respecting the body by engaging in health-promoting behavior, and protecting the body by rejecting or filtering unrealistic media ideals (Avalos, Tylka, & Wood-Barcalow, 2005). The most comprehensive extant measure of BA is the Body Appreciation Scale-2 (BAS-2; Tylka & Wood-Barcalow, 2015), which retained the desirable psychometric properties of its predecessor, the Body Appreciation Scale (Avalos et al., 2005), but was revised to incorporate more recent developments in the field of positive body image. The BAS-2 has a unidimensional factor structure, good reliability (internal consistency and test–retest), and its validity has been upheld via links with greater perceived self-attractiveness, lower body dissatisfaction, and higher psychological well-being even after controlling for appearance evaluation and body dissatisfaction (Tylka & Wood-Barcalow, 2015). The BAS-2 has been translated into Dutch, Persian, Cantonese, and Standard Chinese, and the unidimensional factor structure and construct validity of the measure was confirmed in each of these translations (Alleva, Martijn, Veldhuis, & Tylka, 2016; Atari, 2016; Swami & Ng, 2015; Swami, Ng, & Barron, 2016).

To date, BA has been treated as a stable, persistent, trait-like construct; however, it is likely that for most people, levels of BA fluctuate across time and situational contexts. Body image in general is known to have a dynamic, malleable, “state” component (e.g., Tiggemann, 2001). Thus, it would be valuable to develop a measure to assess the state component of BA. Such a measure would be particularly useful in experimental work that seeks to manipulate contextual factors to determine their impact on BA. The purpose of the studies reported here was to adapt and validate a state measure of BA.

## Study 1

Study 1 sought to examine the factor structure, internal consistency, convergent validity, and incremental validity of a state version of the BAS-2 (hereafter referred to as the SBAS-2), as well as sex differences in state BA. Consistent with previous literature, it was hypothesized that (a) the modified BAS-2 would retain its one-factor structure, (b) state BA would be positively correlated with life satisfaction and self-esteem, even when controlling for general feelings about the body, (c) state BA would be negatively correlated with body mass index (BMI), and (d) men and women would have similar levels of state BA.

## Method

**Participants and procedure.** After obtaining IRB approval, participants were recruited from Amazon's Mechanical Turk (MTurk),

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an online “workplace” that offers “workers” tasks to be completed in exchange for monetary compensation. It is recognized as a source of quality data for social science research, and tends to provide greater diversity than college samples (Buhrmester, Kwang, & Gosling, 2011). A brief description of the study including compensation (\$0.75) was posted on the MTurk website along with a link to the online survey.

The final sample consisted of 246 individuals (104 women and 142 men) ranging in age from 18 to 69 ( $M=32.31$ ,  $SD=10.50$ ). They identified as White (72.7%), Asian American (13.7%), African American (5.8%), Latina/Latino (5.4%), Native American (0.5%) or multiracial (2.0%).

## Measures

**State body appreciation.** The 10-item Body Appreciation Scale-2 (BAS-2; Tylka & Wood-Barcalow, 2015) was used as the basis for the SBAS-2. After obtaining permission from the first author of the scale (T.L. Tylka, personal communication, December 22, 2015), the modifiers “at this moment” or “right now” were placed in front of each item (in alternating order to minimize repetitiveness). The anchors of the 5-point response scale were adjusted so that they were consistent with transient mood states (that is, participants were asked to indicate the extent to which they agreed with each statement, rather than asking how frequently they felt a particular way). The SBAS-2, including anchors, is presented in Appendix A.

**General state body image.** The six-item Body Image States Scale (BISS; Cash, Fleming, Alindogan, Steadman, & Whitehead, 2002) was used to assess transient feelings about the body and physical appearance (e.g., “Right now I feel extremely physically attractive”). Each item was rated on a 9-point scale, ranging from extremely positive to extremely negative. This scale has shown construct validity via correlations with body image trait measures and has demonstrated sensitivity to situational contexts (Cash et al., 2002). Cronbach’s alpha for this study was .84.

**Life satisfaction.** The five-item Satisfaction With Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985) gauges participants’ overall assessment of the quality of their lives using a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). The SWLS demonstrated good psychometric properties among college students and older adults (Diener et al., 1985). In this study, Cronbach’s alpha was .94.

**Self-esteem.** The Single-Item Self-Esteem Scale (SISE; Robins, Hendin & Trzesniewski, 2001) was used to assess self-esteem. The SISE consists of the item, “I have high self-esteem” to which participants respond using a 5-point scale ranging from 1 (*not very true of me*) to 5 (*very true of me*). The SISE was strongly correlated with the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965) across different populations (Robins et al., 2001).

**Body mass index.** Participants reported their height and weight, which were used to calculate body mass index.

## Results

Consistent with the development of the BAS-2, factor analysis was performed separately by sex (Tylka & Wood-Barcalow, 2015).

**Exploratory factor analysis for the male subsample.** Descriptive statistics for the SBAS-2 items are presented in Table 1. Skewness and kurtosis were within acceptable limits (that is, skewness values <3 and kurtosis values <10; Kline, 2005). The

**Table 1**  
Means, standard deviations, and item-factor loadings for men and women.

	Male subsample		Female subsample		Sex effect <i>t</i> -test
	<i>M</i> ( <i>SD</i> )	Loading	<i>M</i> ( <i>SD</i> )	Loading	
1	3.71 (1.02)	.92	3.71 (1.96)	.88	0.00
2	3.47 (1.18)	.90	3.41 (1.19)	.92	−0.36
3	3.99 (0.94)	.83	3.87 (1.02)	.85	−0.89
4	3.63 (1.14)	.94	3.59 (1.15)	.95	−0.29
5	3.70 (0.98)	.69	3.81 (0.85)	.72	0.86
6	3.38 (1.12)	.89	3.38 (1.11)	.91	−0.01
7	3.55 (1.08)	.84	3.57 (1.17)	.92	0.12
8	3.39 (1.20)	.88	3.60 (1.15)	.89	1.37
9	3.70 (1.17)	.92	3.54 (1.20)	.89	−1.04
10	3.39 (1.22)	.82	3.62 (1.21)	.85	1.52

Note: *p*-values for all *t*-tests  $\geq .13$ .

Kaiser–Meyer–Olkin Test of sampling adequacy indicated that the SBAS-2 items had adequate common variance for factor analysis ( $KMO = .946$ ) and Bartlett’s Test of sphericity was significant, indicating that the correlation matrix was factorable,  $\chi^2(45) = 1548.91$ ,  $p < .001$ . Principal-axis exploratory factor analysis (EFA) with quartimax rotation was used based on the expectation of a single, general factor. Results of the EFA revealed one factor with an eigenvalue greater than 1.00 ( $\lambda = 7.73$ ), and this factor explained 77.28% of the total item variance. Factor loadings for each item were very good based on Tabachnick and Fidell’s (2013) recommendations (all  $\geq .69$ ), and are presented in Table 1. Cronbach’s alpha for the SBAS-2 was .97 for men.

**Exploratory factor analysis for female subsample.** Means and standard deviations for the 10 SBAS-2 items are presented in Table 1. Skewness and kurtosis were within acceptable limits for all items. The Kaiser–Meyer–Olkin measure of sampling adequacy,  $KMO = .95$ , and Bartlett’s Test of sphericity,  $\chi^2(45) = 1193.59$ ,  $p < .001$  upheld the factorability of the correlation matrix. Results of the EFA revealed one factor with an eigenvalue greater than 1.00 ( $\lambda = 7.96$ ), explaining 79.60% of the total item variance. All item-factor loadings were excellent ( $\geq .72$ ) and are presented in Table 1. Internal consistency for the SBAS-2 was very good,  $\alpha = .97$ , for women.

**Between-group comparisons.** In order to compare item and full-scale differences between men and women, a series of independent samples *t*-tests were performed using a Bonferroni corrected *p*-value ( $.05/11 = .004$ ), and results are presented in Table 1. There were no significant differences between men and women for any of the individual SBAS-2 items (all  $ps \geq .13$ ) or the mean of all 10 items,  $t(244) = 0.14$ ,  $p = .89$ .

**Convergent and incremental validity.** Means, standard deviations, and intercorrelations for the SBAS-2, the BISS, life satisfaction, self-esteem, and BMI are presented in Table 2. For both sexes, greater state body appreciation was associated with more positive transient feelings about the body and its appearance. Greater state body appreciation was also positively associated with life satisfaction and self-esteem, and inversely associated with BMI.

In order to determine whether the SBAS-2 would explain variance in life satisfaction and self-esteem above and beyond the variance accounted for by more general state feelings about the body, partial correlations were computed. For men, the correlations between (a) state body appreciation and life satisfaction and (b) state body appreciation and self-esteem remained significant when controlling for general state body image,  $r_{(SBAS-2)(LifeSat).BISS} = .35$ ,  $p < .001$ ;  $r_{(SBAS-2)(Self-esteem).BISS} = .42$ ,  $p < .001$ . Results were similar for women,  $r_{(SBAS-2)(LifeSat).BISS} = .31$ ,  $p = .001$  and  $r_{(SBAS-2)(Self-esteem).BISS} = .38$ ,  $p < .001$ . These results indi-

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