The Body Appreciation Scale-2: Translation and Validation in the Greek Language

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Abstract
The psychometric properties of a Greek translation of the 10-item Body Appreciation Scale-2 (BAS-2) was examined. A total of 193 Greek-speaking female university students from Cyprus completed the BAS-2, along with measures of appearance satisfaction, investment in appearance, weight-related anxiety, self-esteem and body image quality of life. Principal-axis factor analysis indicated that the Greek version of the BAS-2 scores had a one-dimensional factor structure. A Confirmatory Factor Analysis confirmed the unidimensionality of the measure. Further analyses indicated that Greek BAS-2 scores evidenced internal consistency, test-retest reliability and convergent validity with the other variables of interest. These results suggest that the Greek version of the BAS-2 has adequate psychometric properties and can be used within the Greek-speaking populations.

Keywords: body appreciation, positive body image, scale translation, psychometrics, Cyprus

Positive body image is comprised of several characteristics. According to Tylka and Wood-Barcalow (2015a), the definition and key characteristics of positive body image include appreciating the beauty and functions of the body, accepting the body even though it may not match idealized images, holding an overall favorable view of the body which can be radiant to others, accepting imperfections and emphasizing assets and protecting the body from negative influences. Even though many body-image-related measures were developed, the Body Appreciation Scale (Avalos, Tylka, & Wood-Barcalow, 2005) has been the most widely used for the assessment of the above key characteristics (Swami, 2018). Furthermore, and while the original BAS had been found to have satisfactory internal consistency and construct validity, studies have found significant limitations in its cross-cultural adaptation (Swami, Ng, & Barron, 2016) where some supported a one-dimensional factor structure (Swami, Stieger, Haubner, & Voracek, 2008) and others a two-dimensional structure (Ng, Barron, & Swami, 2015).

Considering mainly the changes in the conceptualization of body appreciation as a separate construct as well as the cultural effects on body image and the necessity for cross-cultural research, Tylka and Wood-Barcalow (2015b) revised the measure and developed the Body Appreciation Scale-2 (BAS-2). As compared to the original 13-item measure, and after three consecutive studies, the final BAS-2 kept five of the original items of the BAS and five new items were added, totaling 10 items. In these three validation studies of the BAS-2, Tylka and
Wood-Barcalow (2015b) found a one-dimensional factor structure as well as satisfactory internal consistency, test-retest reliability and construct validity. More specifically, the BAS-2 was validated in university and community samples and results were stable across a 3-week test-retest. Furthermore, results were invariant across males and females and the unidimensional factor of the BAS-2 was negatively related to body mass index, body dissatisfaction, body surveillance and disordered eating and positively correlated to appearance satisfaction, intuitive eating, self-esteem and proactive coping. In the three studies, Exploratory and Confirmatory Factor Analyses were conducted in order to confirm the factor structure across university and community samples as well as males and females.

Furthermore, an extensive literature review revealed that the factor structure of the BAS-2 has been assessed in eight languages other than English, mainly occurring the last two years. Specifically, Swami, and Ng (2015) assessed the BAS-2 in the Cantonese language and Swami et al. (2016) in the Standard Chinese language. Moreover, Atari (2016) assessed the measure in Iranian and Alleva, Martijn, Veldhuis, and Tylka (2016) in Dutch. Additionally, Swami, Barron, Tudorel, Goian, and Vintila (2017) assessed the BAS-2 in Romanian, Swami, García, and Barron (2017) in Spanish, Alcaraz Ibáñez, Chiminazzo, Sicilia, and Fernandez (2017) in Brazilian Portuguese and Razmus and Razmus (2017) in Polish. The two Chinese, the Iranian, the Dutch and the Romanian validation were conducted on university samples whereas the Spanish and the Polish versions were conducted on community samples. The Brazilian Portuguese validation was conducted on adolescents. Furthermore, the Brazilian Portuguese and the two versions of the Chinese validations used only Confirmatory Factor Analysis whereas the Iranian, Spanish and Polish validations used both Exploratory and Confirmatory Factor Analysis. The Dutch validation conducted only Exploratory Factor Analysis. Interestingly, in all eight of these studies, the exploratory and confirmatory factor structure (where used) of the BAS-2 revealed that all ten items loaded onto a single factor. Furthermore, these eight studies have also found very good Cronbach’s α internal consistency values ranging from .87 to .93 in women and .84 to .91 in men. Based on this one-dimensional factor structure and very high internal consistency scores, one can conclude that, thus far, the measure provides good cultural adaptation. The studies mentioned above have also assessed the construct validity of the BAS-2 and found positive correlations between the BAS-2 and self-esteem, appearance satisfaction, physical conditioning, life satisfaction and life orientation and negative correlations with Body Mass Index, body objectification and disordered eating. Even though the measure provided very good psychometric properties, some invariances were noticed across the two genders (Swami et al., 2016; Atari, 2016).

Cyprus is of great interest in the body image literature due to four reasons: a) a great emphasis is placed by individuals on their social/appearance/body image which started after the economic boost that followed the Turkish invasion in 1974, b) the year-round warm weather resulting in more revealing clothing to be worn, c) evidence of high levels of body image dissatisfaction and d) a lack of a prevention culture (Argyrides, Kkeli, & Koutsantoni, 2015). However, there is a great lack of related-measures assessing the multiple aspects of body image in the Greek language and nothing is available to this date to assess the characteristics of positive body image described above. Therefore, the purpose of the current study was to investigate the psychometric properties of the BAS-2 in the Greek language initially using females, and thus, adding another possibility for within-culture and cross-cultural investigations. Additionally, the purpose of the study was to assess the construct validity BAS-2 and its relationship to other measures.

It was expected that the Greek version of the BAS-2 will show adequate psychometric properties. The following specific hypotheses were tested:
H1: The items in the Greek BAS-2 will have significant loadings (≥ .40) on a single factor.

H2: The internal consistency of the composite score of the Greek BAS-2 will be ≥ .75.

H3: The test-retest reliability will exceed a coefficient of .80.

H4: There will be satisfactory goodness of fit indices on the Confirmatory Factor Analysis.

H5: The Greek BAS-2 will correlate positively with appearance satisfaction, body areas satisfaction, self-esteem and body image quality of life while negatively correlating with appearance-related anxiety, thereby confirming its convergent validity.

Method

Participants

The participants of the current study were 193 female Greek-speaking undergraduate and graduate students (Mage = 22.3, SD = 4.98; Range 18-28) with Body Mass Indices between 14.3 and 40.9 Kg/m² (M = 23.42, SD = 6.31). The majority of the sample were Greek-Cypriots (89.11%; n = 172) with a small percentage of non-Greek-Cypriots (10.89%, n = 21), which overall reflects the demographic make-up of the Republic of Cyprus. All participants’ primary language was Greek as they self-reported in the demographic questionnaire.

Measures

Body Appreciation Scale-2

The BAS-2 (Tylka & Wood-Barcalow, 2015b) is comprised of 10 items that are rated on a 5-point Likert-type scale ranging from Never (receiving a score of 1) to Always (receiving a score of 5). As previously reported, the BAS-2 has valid psychometric properties. On the previous version of the BAS-2, a total score on the BAS-2 was derived by computing all 10 items where higher scoring indicated higher body appreciation.

Multidimensional Body – Self Relations Questionnaire – Appearance Scales

In order to assess satisfaction with appearance, body areas satisfaction and weight-related anxiety, three of the subscales of the Greek version of the Multidimensional Body – Self Relations Questionnaire – Appearance Scales (MBSRQ – AS; Cash, 2000; Argyrides & Kkeli, 2013 for the Greek version) were used. Specifically, the 7-item Appearance Evaluation subscale was used which assesses feelings of physical attractiveness and satisfaction with one’s looks, the 9-item Body Areas Satisfaction Scale measuring satisfaction with specific parts of the body and the 4-item Overweight Preoccupation subscale which assesses weight-related anxiety. The MBRSQ-AS items are rated on a 5-point Likert-type scale ranging from Very Satisfied (receiving a score of 5) to Very Dissatisfied (receiving a score of 1) or Strongly Agree (receiving a score of 5) to Strongly Disagree (receiving a score of 1). The subscales used from the MBSRQ-AS have very good psychometric properties with coefficients above .80 across both genders and several cultural groups. For the current sample, the Cronbach’s alphas for the three scales were .87, .86 and .90 respectively.

Rosenberg Self-Esteem Scale

In order to assess levels of global self-worth and self-esteem, the 10 item Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965; Spanea, Anagnostopoulos, Kalatzi-Azizi, & Skarlos, 2005 for the Greek version) was
used. The RSES assesses positive and negative beliefs and perceptions about one’s self. All items are answered on a 4-point Likert-type scale ranging from Strongly Agree (receiving a score of 0) to Strongly Disagree (receiving a score of 3). Five items of the measure are reverse-scored and a sum is calculated with higher scores indicating higher global self-esteem. The RSES also has excellent reported reliability coefficients across both genders and cultural groups ranging from .87 to .93. For the current sample, the internal consistency alpha was .89.

**Body Image Quality of Life Inventory**

In order to assess body-image-related quality of life, the 19-item Body Image Quality of Life Inventory (BIQLI; Cash & Fleming, 2002; Argyrides, 2017 for the Greek version) was used. The measure assesses the effects of one’s body image on various self-experiences and life contexts. All items are answered on a 7-point Likert-type scale ranging from Very Negative Effect (receiving a score of -3) to a Very Positive Effect (receiving a score of +3). The measure has reported reliability coefficients of .95. For the current sample, the internal consistency alpha was .91.

**Translation Procedure**

In translating the BAS-2 to Greek, Stalikas et al.’s (2012) recommendations were followed and thus, a forward and backward translation method was used. During this process, the English BAS-2 was translated to Greek by a professional translator and then a different professional translator back-translated the Greek version to English. The two translations were then evaluated by two professional psychologists who specialize in body-image issues. Minor discrepancies were discussed and corrected. These discrepancies revolved around the idiom of Item 8 of the BAS-2 which makes reference to “holding the head up high and smiling”. After consultation and discussion, the collaborators concluded that for the Greek language, the eighth item should be adapted to “not looking down and smiling” and not holding the head up high as in the English language. When the final version of the questionnaire was concluded, the version was administered to a convenience sample of 15 undergraduate female students ($M_{age} = 19.8, SD = 1.3$) who were asked to answer the questionnaire and provide the researcher with thoughts and questions about the clarity of the questionnaire. No concerns were raised therefore, no changes were deemed necessary after this pilot study.

**Procedure**

Upon ethics approval, participants were recruited from a private university in Cyprus using online advertisements and collegial encouragement of the students to participate. Data were collected between January and March 2018 and there was no remuneration given for participation in the study. During a scheduled lecture hour, participants were informed of the nature of the study, signed a consent form and answered the questionnaires anonymously, which took approximately 20 minutes. When participants returned their completed questionnaires, a debriefing document was given to them which included an option to provide their e-mail address in case they were interested in seeing any articles generated from the results. Non-native Greek speaking individuals were not allowed to take part in the study.
Results

Preliminary Analyses

All data were entered and analyzed using SPSS 23.0. No missing data were identified. A preliminary descriptive analysis indicated that the skewness and kurtosis values of the data were all below critical limits (< 3 for skewness and < 10 for kurtosis). These numbers applied to the total scale as well as the individual items. Therefore, no item transformation was necessary. Data were also found suitable for the use of Exploratory Factor Analysis (as suggested by Clark and Watson, 1995) based on item distribution, average correlation with other items and item-total correlations.

Exploratory Factor Analysis

Since the study hypothesized a one-dimensional factor (H1) and modeling the example of the Dutch and Romanian translations (Alleva, Martijn, Veldhuis, & Tylka, 2016; Swami, Barron, et al., 2017), an exploratory principal axis factor analysis was conducted using the quartimax rotation method (Kline, 2005 as cited in Alleva et al., 2016) (See Table 1). The Kaiser-Meyer-Olkin Test for Sampling Adequacy revealed an overall value of .94 while all KMO values on individual items were above .86. In addition, the Bartlett’s test of sphericity indicated that the items of the Greek version of the BAS-2 met the criteria for principal components analysis, χ²(45) = 953.45, p < .001. The Factor Analysis that followed clearly indicated a one factor solution with an eigenvalue of 5.89 (significantly above Kaiser’s criterion of 1) and accounting for 60.81% of the variance. Factor loadings were interpreted using Tabachnick and Fidell’s (2013) recommendations, with loadings of .71 and above considered excellent, .63-.70 considered very good, .55-.62 considered good, .33-.54 considered fair, and .32 or lower considered poor. Therefore, Hypothesis 1 is supported.

Table 1
Items of the Greek Version of the Body Appreciation Scale-2 and Item Factor Loadings

<table>
<thead>
<tr>
<th>Item</th>
<th>Greek Version</th>
<th>Factor Loading</th>
</tr>
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<tbody>
<tr>
<td>1. I respect my body.</td>
<td>Σέβομαι το σώμα μου.</td>
<td>.73</td>
</tr>
<tr>
<td>2. I feel good about my body.</td>
<td>Νιώθω καλά με το σώμα μου.</td>
<td>.90</td>
</tr>
<tr>
<td>3. I feel that my body has at least some good qualities.</td>
<td>Νιώθω ότι κάποια από τα χαρακτηριστικά του σώματός μου είναι ωραία.</td>
<td>.81</td>
</tr>
<tr>
<td>4. I take a positive attitude towards my body.</td>
<td>Εξωθήθη στάση απέναντι στο σώμα μου.</td>
<td>.88</td>
</tr>
<tr>
<td>5. I am attentive to my body’s needs.</td>
<td>Δίνω προσοχή στις ανάγκες που έχει το σώμα μου.</td>
<td>.85</td>
</tr>
<tr>
<td>6. I feel love for my body.</td>
<td>Αγαπώ το σώμα μου.</td>
<td>.69</td>
</tr>
<tr>
<td>7. I appreciate the different and unique characteristics of my body.</td>
<td>Εκτιμώ τα διαφορετικά και μοναδικά χαρακτηριστικά του σώματός μου.</td>
<td>.71</td>
</tr>
<tr>
<td>8. My behavior reveals my positive attitude toward my body; for example, I hold my head high and smile.</td>
<td>Η συμπεριφορά μου φανερώνει τη θετική μου στάση προς το σώμα μου (π.χ. δεν σκύβω το κεφάλι και χαμογελώ)</td>
<td>.77</td>
</tr>
<tr>
<td>9. I am comfortable in my body.</td>
<td>Νιώθω άνετα μέσα στο σώμα μου.</td>
<td>.79</td>
</tr>
<tr>
<td>10. I feel like I am beautiful even if I am different from media images of attractive people (e.g., models, actresses/actors).</td>
<td>Νιώθω ότι είμαι ομορφότερη, ακόμη κι αν διαφέρω από ελκυστικά πρότυπα που παρουσιάζονται στα μέσα μαζικής ενημέρωσης (π.χ., μοντέλα, ηθοποιοί, κλπ.).</td>
<td>.85</td>
</tr>
</tbody>
</table>

Note. 60.81% of the variance is explained. N = 193.
Internal Consistency

The Cronbach’s alpha value of the Greek translation of the BAS-2 was .92 with item-total correlations ranging from .35 to .83 and are considered acceptable. This finding provides support to the second hypothesis of the study.

Test-retest reliability

A sub-sample of 45 females returned to respond to the BAS-2 items three weeks after their initial participation in order to assess for test-retest reliability. The correlation between the two administrations was very high ($r = .91, p < .001$), evidencing very good test-retest reliability of the Greek version of the scale. This finding provides support to the third hypothesis of the study.

Confirmatory Factor Analysis

In order to assess the fit of the unidimensional factor extracted from the Exploratory Factor Analysis, a Confirmatory Factor Analysis (CFA) was conducted using the Analysis of Moment Structures Program (AMOS v.22). For the present analysis, standard goodness of fit indices were selected a priori and included the Steiger-Lind root mean square error of approximation (RMSEA), the standardized root mean square residual (SRMR) and the comparative fit index (CFI) (Hu & Bentler, 1999). The one-dimensional structure (see Figure 1) provided an acceptable fit to the data: $\chi^2(35, N = 193) = 665.62, p < .05, CFI = .943, RMSEA = .045, SRMR = .047$. Therefore, the fourth hypothesis is supported.

Convergent Validity

Convergent validity was assessed by examining bivariate correlations between the total score of the Greek version of the BAS-2 and the other measures of interest. As can be seen in Table 2, the total BAS-2 was significantly and positively related to appearance satisfaction, satisfaction with specific parts of the body, self-esteem and body image quality of life and negatively correlated to weight-related anxiety and body mass index. Therefore, the fifth hypothesis of the study was also supported.

Discussion

The current study aimed to examine the factor structure of the Body Appreciation Scale-2 after being translated in the Greek language and administered to 193 females. A Principal-Axis Factor Analysis indicated that the Greek version of the BAS-2 had a one-dimensional factor where all 10 items loaded significantly and a Confirmatory Factor Analysis further supported this unidimensionality. The current findings are consistent with previous findings where the BAS-2 was translated and its psychometric properties were assessed (Alleva, Martijn, Veldhuis & Tylka, 2016; Atari, 2016; Razmus & Razmus, 2017; Swami, Barron, Tudorel, Goian, & Vintila, 2017; Swami, Garcia, & Barron, 2017; Swami & Ng, 2015; Swami, Ng, & Barron, 2016; Tylka & Wood-Barcalow, 2015b). In addition, the internal consistency and test-retest reliability of the Greek translation of the BAS-2 was also found to be satisfactory. Moreover, there was evidence for convergent validity as the construct of body appreciation measured by the BAS-2 was positively correlated to appearance satisfaction, satisfaction with certain
parts of the body, self-esteem and body image quality of life and negatively related to anxiety related to appearance and weight and body mass index. The directions of these relationships are in line with the convergent validity assessment of the BAS-2 in other languages as well. For example, the positive relationship between body appreciation and global self-esteem and negative relationship with disordered eating.

If one combines the increasing need for measures that can be used cross-culturally and the cultural differences of the body image construct, one can conclude that the presence of a measure that can assess important aspects of this construct cross-culturally is evident (Swami, Barron, et al., 2017; Tylka & Wood-Barcalow, 2015b). The present study contributes significantly to the evidence of the use of the BAS-2 in another language and allows for a possible cross-cultural invariance assessment of the scale. As Swami et al. (2016) argued, there is a need to expand our understanding of positive and negative body image and make any necessary adaptations that would be culturally sensitive. The scores of the Greek version of the BAS-2 seem valid and reliable and this tool can be used for the assessment of body appreciation in Greek-speaking populations.

Furthermore, and as found in previous assessments of the psychometric properties of the BAS-2, total scores negatively correlated with Body Mass Index (Alleva et al., 2016; Atari, 2016; Swami & Ng., 2015; Swami et al., 2016) providing evidence of the internalization of the thin beauty ideal where lower body mass index would reflect a more positive body appreciation.

Figure 1. Graphic representation of the Greek BAS-2 factorial structure.
Even though the current study is significantly contributing to the limited body image literature in Greek-speaking populations, it has its limitations as well. The convenience sample used in the study may serve as a limitation since certain groups may have been over or underrepresented. The age-group of the sample is also limited. Furthermore, and as previous research in Cyprus indicated (Argyrides & Kkeli, 2013), the self-reporting of the body mass index may have biases and inaccuracies. Moreover, no males were used in the study. Last but not least, no measures to assess discriminant validity were used. However, even with the presence of these limitations, the contribution of the use of this measure in Greek is important nevertheless.

Future research should take into account and be guided by the limitations mentioned above. Previous research has found some inconsistencies in body image between the Greek-speaking populations of Cyprus to the ones of Greece (Kkeli, Koutsantoni, & Argyrides, 2016). Therefore, the psychometric properties of the Greek BAS-2 could be investigated further in the country of Greece. Previous research has also found significantly elevated levels of investment in appearance in Cyprus (Kkeli, Koutsantoni, & Argyrides, 2016). Future research should also assess a possible contributing factor between high levels of investment in one’s appearance and body appreciation. Mediating variables such as socioeconomic status and age should also be investigated. Furthermore, the gender invariance found in previous studies translating the BAS-2 should also be assessed in Greek-speaking men as well as different age groups and socioeconomic statuses.

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Competing Interests
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