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## **Assessing reliability and validity of the 15-item short version of the Attitudes toward Women Scale (AWS) among Turkish students**

By Raquel Delevi<sup>1</sup> and Asli Bugay<sup>2</sup>

### **Abstract**

The purpose of the present study was to adapt the 15-item short version of Attitude toward Women Scale (AWS) (Spence & Helmreich, 1978) into Turkish by first doing the translation of its items and then by investigating its preliminary psychometric properties. AWS and Bem Sex Role Inventory (BSRI) were administered to Turkish college students. Factor structures, convergent validity, and internal reliability were investigated across two independent samples. Result revealed satisfactory internal reliability, convergent and construct validity for the 12-item short version in both samples, suggesting that the scale can be used as a reliable instrument in the Turkish culture to assess attitudes towards women.

*Key words:* Attitudes toward Women Scale, Turkish, reliability, validity, adaptation

Gender role development is one of the most salient factors that influence our lives. In order to understand gender role development, it is essential to first make a distinction between the concepts of “sex” and “gender”. Sex refers to biological mechanisms, including differences in chromosomes, hormonal profiles, internal, and external sex organs. However, gender refers to social expectations of a society or culture from the person to be masculine or feminine. Therefore, while sex is only determined biologically, gender is mostly influenced by social interactions and accordingly, gender roles can vary cross-culturally based on culture specific norms, values, and expectations (Harris, 1994). Gender roles are essential part of our lives, in fact several studies found a strong association between gender roles and several mental health outcomes (Jeon, Jang, Rhee, Kawachi, & Cho, 2007) including depression (Hankin & Abramson, 2001; Nolen-Hoeksema, & Girgus, 1994), stress (Matud, 2004), and anger (Milovchevich, Howells, Drew, & Day, 2001).

Over the last few decades, research in the area of gender has expanded with the help of scales assessing gender attitudes and roles. One of the most popular scales in this area is the Attitudes toward Women Scale (AWS) (Spence & Helmreich, 1972). The AWS is used to assess individual differences in attitudes toward women's rights and roles in the society. The items on this scale taps into normative expectations about appropriate responsibilities and rights for women and contains items about vocational, educational, and intellectual roles of women, freedom and independence, dating, etiquette, sexual behavior, and marital roles and

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responsibilities. As Eagly and Mladinic (1989) have noted, the AWS measures attitudes toward women's rights rather than attitudes toward women.

Initially, AWS consisted of 55 items, four-point Likert-style scale ranging from "strongly agree" to "strongly disagree". While lower scores indicate more traditional, antifeminist views, higher scores on the scale reflect more positive and profeminist attitudes (Spence & Helmreich, 1972). In 1978, Spence and Helmreich revised the scale to create a shorter version, maintaining the good psychometric properties of the scale. The 15-item short version of the scale had satisfactory test-retest reliability (Daugherty & Dambrot, 1986). The scale was also found to have good reliability and construct validity with adolescent samples (Galambos, Petersen, Richards, & Gitelson, 1985). It is important to note that these studies did not report any information regarding the factor structure of the scale. More recently, Whatley (2008) examined the factor structure of the 15-item short version of AWS and confirmed the unidimensionality of the scale. Furthermore, the results indicated that men were more likely to have negative attitudes toward women than do women and these gender differences in AWS are consistent with the literature (Fine-Davis, 1983; Nelson, 1988; Öngen, 2006; Whatley & Riggi, 1992).

Both the 15 and 25-item short versions of AWS have been used widely in recent years and have been found to be associated with many variables including attitudes toward female victims (Kristiansen & Guilietti, 1990; Whatley & Riggio, 1992), attitudes toward rape (Lee, Kim, & Lim, 2010), attitudes toward sex roles in cases of wife assault (Hillier & Foddy, 1993), abortion (Patel, 2009), the differences in male and female criminal activity (Rudolph, 1996), acculturation (Bhanot & Senn, 2007; Kranau, Green & Valencia-Weber, 1982), and psychological well-being (Pyant & Yanico, 1991). Despite its wide use in the field, the cross-validation of the scale remains not fully explored, which is an important consideration given the close link between gender attitudes and culture (Dasgupta, 1998; Wood, 1999). AWS has been used in Korea, Taiwan, and China and was found to have good validity and reliability with these samples (Chia, Allred, & Jerzak, 1997). In addition, the 25-item short version of the scale (Spence, Helmreich, & Stapp, 1973) was adapted into Turkish by Öngen (2006) and was found to have good reliability and validity among Turkish university students.

However, none of these studies reported detailed information about the psychometric properties of the 15-item short version of AWS. Therefore, the aim of the current study was to translate and adapt the Turkish version of AWS into Turkish language and culture and to test its basic reliability and validity. In order to understand the psychometric properties of AWS in the Turkish culture, we conducted two studies. In the first study, we conducted an exploratory factor analysis and also a criterion validity test and in the second study, we conducted a confirmatory factor analysis.

## **STUDY 1**

### **Method**

#### *Participants*

In Study 1, participants consisted of 207 (115 female, 92 male) students from a Turkish university. The ages of the students ranged from 18 to 26 with a mean of 21.2 (SD = 2.19). 46 participants (22.2 %) were freshmen, 45 (21.7 %) were sophomores, 39 (18.8 %) were juniors, 77 (36.2 %) were seniors students. 19 (9.2 %) students categorized their socio-economic status as "low", 182 students (87.9 %) as "middle", and 6 (2.9 %) students as "high".

### *Instruments*

*The 15-item short version of AWS.* Attitude toward Women Scale was originally developed by Spence and Helmreich (1972) to measure the roles and freedoms of women. The authors revised the scale in 1978 to create a shorter version while maintaining the good psychometric properties of the scale. The 15-item short version of the scale had satisfactory test-retest reliability (Daugherty & Dambrot, 1986). Each item is scored on a 4-point Likert type scale. A few sample items are as follows: “swearing and obscenity are more repulsive in the speech of a woman than a man.”, “under modern economic conditions with women being active outside the home, men should share in household tasks such as washing dishes and doing laundry” and “women should worry less about their rights and more about becoming good wives and mothers”. To get a total score in the AWS, all items are totaled after having items 2, 3, 4, 6, 10, 11, and 14 reversely scored.

*The short-version Bem Sex Role Inventory (BSRI).* In order to test the criterion validity of the AWS, we decided to use the short-form Bem Sex Role Inventory (BSRI) which was developed by Bem (1981) to assess feminine and androgynous personality styles. The short version consisted of three subscales with ten items each: the masculine scale (e.g., “e.g., assertive, strong personality, and dominant”, the feminine scale (e.g., “emotional, sympathetic, and understanding.”, and neutral items (e.g., “conscientious, unpredictable, and reliable.”). The scale is a 7-point Likert-type scale ranging from 1 = almost never true to 7 = almost always true. The BSRI has been reported to have adequate psychometric properties. The short version BSRI was adapted to Turkish by Özkan and Lajunen (2005) and the authors reported acceptable internal consistency coefficient for this scale. In the sample of study 1, the alpha reliability coefficients for the masculinity, the femininity and neutral subscales were found to be .82, .75 and .73, respectively.

### **Results**

*Translation and face validity of the 15-item short version of AWS.*

AWS was first translated from English to Turkish independently by three counselors with PhD degrees and were fluent in English. Later, the three translated versions of AWS and its English version were given to two academics in the Departments of Psychology and Counseling to help identify the best translation for each item. Once the best translation was selected, a bilingual person re-translated this Turkish version back to English in order to ensure the equivalence of AWS in two languages. Only a few discrepant items were found between them. Later, a Turkish linguist evaluated the final form and her suggestions were incorporated into the translation. After all the modifications were made, the final version of translation was created which was used in the current study.

### **Factor structure of Turkish version of AWS**

To identify the factor structure of the scale, the items of AWS were subjected to exploratory factor analysis with maximum likelihood. The analysis revealed only one factor with an Eigenvalue greater than unity, and thus indicated that the scale assesses only one dimension as suggested by Whatley (2008). The Eigenvalue associated with the acquired one factor was 4.01 and accounted for 26.76 % of the variance in participants’ responses. Thus, the findings

supported the uni-dimensionality of the scale, consistent with results from the original AWS suggested by Whatley (2008). Factor loadings of each item are presented in Table 1.

**Table 1**  
*Factor Loadings of Turkish version of AWS*

Item Number	Factor Loadings
AWS 9	.697
AWS 15	.669
AWS 7	.652
AWS 8	.645
AWS 13	.628
AWS 6	.621
AWS 5	.604
AWS 2	.514
AWS 12	.494
AWS 10	.410
AWS 11	.397
AWS 4	.325
AWS 3	.237
AWS 14	-.145
AWS 1	.091

As shown in Table 1, all of the items of the 15-item short version of AWS loaded in the expected direction, except for items 1, 3 and 14 which failed to load on any factor. Based on the results, in the current study, the Turkish version of AWS was used as a uni-dimensional scale, without items 1, 3, and 14.

### **Reliability and Criterion-related validity of Turkish version of AWS.**

In order to provide evidence of reliability, the internal consistency coefficient (Cronbach alpha) was calculated for the Turkish version of AWS without the items 1, 3, and 14. The result of Cronbach's alpha was  $\alpha = .81$ , indicating adequate internal consistency. Criterion-related validity of the scale was calculated based on the correlation between the Turkish versions of the 12-item short version of AWS and BSRI-Short. Pearson correlation coefficient revealed a significant negative correlation between AWS and masculinity subscale of BSRI scores ( $r = -.37, p < .01$ ), suggesting that participants with a high AWS score were more likely to score lower on the masculinity subscale of BSRI. In contrast, there was a significant positive correlation

between AWS and femininity subscale of BSRI scores ( $r = .41, p < .01$ ), indicating that participants with a high AWS score also scored higher on the femininity subscale of BSRI (see Table 2).

**Table 2**  
*Correlation matrix of the AWS and BSRI*

	Femininity	Neutral	AWS
Masculinity	.23**	.48**	-.37**
Femininity	-	.37**	.41**
Neutral		-	-.03
AWS			-

*Note:* Masculinity = Masculinity subscale of BSRI; Femininity = Femininity subscale of BSRI; Neutral = neutral subscale of BSRI; AWS = Attitude towards woman scale

\* $p < .05$ , \*\* $p < .001$

## STUDY 2

In Study 2, a confirmatory factor analysis (CFA) was conducted to provide further empirical evidence to establish the validity of the Turkish version of AWS.

## Method

### *Participants*

Study 2 was carried out with a sample of 162 (92 female, 70 male) at the same Turkish university indicated in Study 1. The mean age of the participants was 20.74 years ( $SD = 2.05$ ). 43 participants (26.5 %) were freshmen, 42 (25.9 %) were sophomores, 96 (20.4 %) were juniors, and 44 (27.2 %) were seniors. 29 (17.9 %) students reported their SES to be low, 96 (59.3 %) as middle, and 37 (22.8 %) students indicated high SES.

## Results

### *Confirmatory factor analysis of Turkish version of AWS*

In study 2, both the original the 15-item short version of AWS proposed by (Whatley, 2008) and the 12-item short version of AWS suggested by exploratory factor analysis in study 1 were tested to evaluate and compare their fitness to sample 2. Confirmatory factor analyses (CFA) were conducted to provide information on the construct validity and factor structure of Turkish version of AWS. The CFA was conducted using the AMOS version 18 software (Arbuckle, 2009). The Goodness-of-Fit Index (GFI, value above 0.90), the Comparative Fit Index (CFI, value above 0.80), and the Root Mean Square Error of Approximation (RMSEA, value smaller than .10) were used to assess the adequacy of model fit (Browne & Cudeck, 1993; Schumacker & Lomax, 1996).

First of all, the original 15-item short version of AWS proposed by (Whatley, 2008) was evaluated. Results of the confirmatory factor analysis indicated a poor model fit for the sample 2; [ $\chi^2(90) = 240.74, p < .001; \chi^2/df$ -ratio = 2.67;  $GFI = .89, CFI = .87, RMSEA = .08$ ]. The

goodness-of-fit indexes (CFI, GFI) were beyond the expected critical values, suggesting that the model fit is inadequate.

Subsequently, the 12-item short version of AWS suggested by exploratory factor analysis in study 1 was tested. The results for the 12 items (without 1, 3 and 14 items) single factor model of the Turkish version AWS-short indicated adequate goodness of fit: [ $\chi^2 (54) = 115.56, p < .001; \chi^2/df\text{-ratio} = 1.02; GFI = .95, CFI = .99, RMSEA = .01$ ].

Finally, these two models were compared to determine which model was a better fit to the data by examining the difference in their Akaike Information Criteria (AIC), the lower AIC reflects the better-fitting model. The 12-item short version of AWS AIC value of 249.56 was smaller than the original the 15-item short version of AWS AIC value of 330.74, suggesting that the 12-item short version of AWS model demonstrated better fit. Furthermore, the chi-square difference statistic,  $\chi^2_D$  was used to test the statistical significance of the improvement in fit as 3 items (1, 3 and 14 items) were deleted (Kelloway, 1998). Given the both models results, the chi-square difference was found  $\chi^2_D (36) = 240.74 - 115.56 = 125.18, p < .001$ , showing the overall fit of the 12-item short version of AWS model was statistically better than the 15-item short version of AWS model at .001. Findings supported the single factor of the 12-item short version of AWS with the present data, providing evidence for construct validity of the scale. As a result, the single factor structure was supported by both the results of exploratory and confirmatory factor analyses. Furthermore, the internal consistency coefficient (Cronbach alpha) was calculated for study 2 and was found to be  $\alpha = .83$ .

### **Gender and Socio Economic Status Difference in Turkish version of AWS as a Further Validity**

Two- way ANOVA was conducted to determine the effect of gender (male and female) and socio-economic status (SES; low, middle, high) on students' attitudes toward women. The results suggested that there is a significant main effect for gender ( $F (1, 144) = 33.05, p < .01$ , partial eta squared = .187). Females reported significantly higher scores ( $M = 35.08, SD = 4.87$ ) than males ( $M = 29.36, SD = 6.18$ ). Furthermore, there is a significant main effect for SES level ( $F (2, 144) = 3.08, p < .01$ , partial eta squared = .085) According to Tukey and Scheffe test results, students from higher SES ( $M = 33.41, SD = 1.09$ ) had higher scores than those from lower socio economic status ( $M = 30.76, SD = .60$ ), and this differences is statistically significant ( $p < .01$ ). There is no significant interaction effect of gender and SES level ( $F (2, 144) = .96, p = .383$ , partial eta squared = .013).

### **Discussion**

The purpose of the study was to investigate the reliability and validity of the 15-item short version of AWS across two independent Turkish college samples. First, we conducted an explanatory factor analysis in order to determine the factor structure of the 15-item short version of AWS. The analysis revealed that all items of the short version of AWS loaded in the expected direction, except for items 1, 3, and 14 which failed to load on any factor. The findings supported uni-dimensionality of the scale for the remaining 12 items, consistent with the results from the original 15-item short version of AWS suggested by Whatley (2008). These results also provided empirical evidence for the construct validity of this scale. Following the explanatory factor analysis, confirmatory factor analysis was conducted in order to provide further

information for construct validity and factor structure of Turkish version of AWS. For this aim, the original 15-item short version of AWS proposed by (Whatley, 2008) and the 12-item short version of AWS suggested by exploratory factor analysis in study 1 were compared to determine which model was a better fit to the data by examining the difference in their Akaike Information Criteria (AIC) and the chi-square difference statistic. Findings suggested that the single factor of the 12-item short version of AWS (without 1, 3 and 14 items) provided a better fit the 15-item short version of AWS. As a result, the single factor structure was verified both by the results of exploratory and confirmatory factor analyses, supporting the construct validity of the scale.

Furthermore, in order to examine criterion-related validity of the scale, Pearson correlation coefficients were calculated. Results revealed satisfactory correlations between the AWS and BSRI-Short scores. As expected, while the masculinity subscale of BSRI was negatively correlated with AWS, the femininity subscale of BSRI was positively correlated with AWS. Thus, participants with a high AWS score scored lower on the masculinity subscale of BSRI and higher on the femininity subscale of BSRI. These results are consistent with previous studies that suggested such relationships between AWS and the subscales of BSRI (Bridges, 1978). In addition, the scale presented high internal consistency across two different samples.

Likewise, the results of two-way ANOVA provided further validity evidence for the scale by examining gender and socio-economic status differences in attitudes toward women. Results indicated that women, compared to men, scored significantly higher on the AWS. That is, females are found to have more liberal sex role attitudes than males. The gender differences in attitude toward women in the current study were consistent with the findings of the previous studies as well (Nelson, 1988; Twenge, 1997). In addition, the findings showed that students from higher SES held more liberal attitudes toward women's rights and freedom compared to those from lower SES. These findings are also very reflective of the Turkish culture where higher SES and education are found to be positively associated with more liberal values and beliefs.

It is important to mention some of this study's limitations. First, the sample was not representative of the Turkish population in general. University students in general tend to be more liberal in comparison to the general public. Future studies need to examine the reliability and validity of this measure with samples from different socio-economical, educational, and professional backgrounds. Furthermore, given that the results of this study are based on cross-sectional design, future researchers could address test-retest reliability to determine the instrument's reliability over time. Another limitation was in the assessment of SES where the participants self reported their SES. Future research can assess SES using more objective scales such as Kuppuswamy's (1981) Socioeconomic Status Scale.

In addition, we only examined the attitudes toward women based on gender and socio-economic status in this study. Future studies could also examine other factors such as educational level, parental attitudes toward women, and parenting and better understand how these factors relate to attitudes toward women. In addition, other cultural factors such as racial identity, level of acculturation should be investigated as they can be closely associated with attitudes toward women.

Overall, this study provides evidence that the 12-item short version of AWS can be used as a reliable and valid measure of attitudes toward women for Turkish university samples. We believe that the Turkish adaptation of this instrument will stimulate research in many areas. First, given that Turkey is a traditional society, violence toward women remains to be a serious issue. It is our hope that the AWS will be used to explore the causes of violence toward women and the



attitudes of perpetrators. Second, the instrument can be used to better understand the marital and relationship dynamics of couples in regards to housework, sexuality, parenting, and financial responsibilities. Lastly, the instrument can equally be used as an assessment tool by clinicians working with couples to better understand and raise awareness of clients' gender role expectations.

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