

## RESEARCH

# Turkish Validity and Reliability Study of the Attitudes Toward Transgendered Individuals Scale

## *Trans Bireylere Yönelik Tutum Ölçeği'nin Türkçe Geçerlik ve Güvenirlilik Çalışması*

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### Abstract

The purpose of this study was to adapt the Attitudes Toward Transgendered Individuals Scale to use in Turkish population. The study was conducted with 218 university students. Participants were asked to fill out, Genderism and Transphobia Scale, the Attitudes Toward Transgendered Individuals Scale developed by Walch et al., and demographic information form prepared by the researchers. Construct validity of the scale was first tested by exploratory factor analysis (EFA), followed by confirmatory factor analysis (CFA), and criterion validity of the scale was tested by Pearson correlation coefficient. The reliability value of the scale was calculated by Cronbach alpha coefficient. 158 (72.5%) of the participants defined their gender as female, 58 (26.6%) as male, and 1 (.5%) as other. CFA showed that the goodness of fit of the model was satisfactory (SRMR = .048,  $\chi^2 = 437.534$ ,  $df = 170$ ,  $p < .001$   $\chi^2/df = 2.574$ , IFI = 90, CFI = 90, RMSEA = .08). Factor loadings ranged from .46 to .84. The Turkish form of the scale showed one factor structure, which is fit with the original structure of the scale. The scale also demonstrated excellent internal consistency (Cronbach's alpha = .95, Guttman split-half coefficient = .93). Given the results of statistical analyses, The Attitudes Toward Transgendered Individuals is found to be valid and reliable to use in Turkish population.

**Keywords:** Transgendered individuals, genderism, transphobia.

### Öz

Bu çalışmanın amacı Trans Bireylere Yönelik Tutum Ölçeği'nin Türkçe'ye uyarlanmasıdır. Çalışma 218 üniversite öğrencisi ile yürütülmüştür. Katılımcılardan Cinsiyetçilik ve Transfobi Ölçeği, Walch ve arkadaşları tarafından geliştirilen Trans Bireylere Yönelik Tutum Ölçeği ve araştırmacılar tarafından hazırlanan katılımcı bilgi formun cevaplanması istenmiştir. Ölçeğin yapı geçerliliği öncelikle açılımlı faktör analizi (AFA), ardından ise doğrulayıcı faktör analizi (DFA) ile sınanmış olup, ölçüt geçerliğinin sınanması için Pearson korelasyon katsayısına bakılmıştır. Ölçeğe ilişkin güvenilirlik değeri ise Cronbach alfa katsayısı ile hesaplanmıştır. Katılımcıların 158'inin (%72.5) cinsiyetini kadın, 58'i (%26.6) erkek ve 1'i (%0.5) diğer olarak tanımlamıştır. DFA sonucunda uyum iyiliği değerlerinin kabul edilebilir düzeyde olduğu görülmüştür (SRMR = .048,  $\chi^2 = 437.534$ ,  $df = 170$ ,  $p < .001$   $\chi^2/df = 2.574$ , IFI = 90, CFI = 90, RMSEA = .08). Madde faktör yüklerinin en düşük .50 en yüksek .84 olduğu görülmüştür. AFA ve DFA sonucunda ölçeğin tek faktörlü ve orjinal yapısına uyumlu olduğu tespit edilmiştir. Ölçeğe ait Cronbach alfa değeri .95, Guttman eşdeğer yarılar güvenilirlik katsayısı ise .93 olarak hesaplanmıştır. Yapılan istatistiksel analizler doğrultusunda Trans Bireylere Yönelik Tutum Ölçeği'nin Türk popülasyonu için güvenilir ve geçerli olduğu kabul edilmiştir.

**Anahtar sözcükler:** Trans bireyler, cinsiyetçilik, transfobi.

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**ALTHOUGH** research on transgendered individuals have recently increased, there are still debates at identifying and conceptualizing transgendered individuals, which results from difficulties at distinguishing sex and gender concepts (Lombardi 2009). Sex is defined as the biological differences between men and women, while gender is the manner in which the culture defines, and individuals view both themselves and others (Siann 2005). Recently, transgendered individuals are generally defined as the individuals whose gender identity (sense of oneself as a man or a woman) and gender expression (expression of oneself as male or female in behavior, manner, and/or dress) differs from conventional expectations from their physical sex (Walch et al. 2012).

Clinically, transgenderism is firstly defined as gender identity disorder in the 3rd edition of Diagnostic Statistical Manual of Mental Disorders (American Psychiatric Association 1980). The term “transgenderism” is redefined as gender dysphoria in 2013 with the publication of the 5th edition of Diagnostic Statistical Manual of Mental Disorders American Psychiatric Association 2013). The prevalence of gender dysphoria is 0,005%-0,014% in adult men and 0,002%-0,003% in adult women (American Psychiatric Association 2013). In Turkey, the prevalence of gender dysphoria is unknown as epidemiological research about gender dysphoria is lacking (Turan et al. 2015).

Research with people who are diagnosed with gender dysphoria revealed that they are prone to self-mutilation and suicide attempt (Clements-Nolle et al. 2006, Hoshiai et al. 2010, Spack et al. 2012, Turan et al. 2015). Substance abuse, depression, mood disorders, anxiety disorders, somatization, eating disorders are also common among transgendered individuals (Hepp et al. 2005, Hoshihai et al. 2010, Nemoto et al. 2011, Spack et al. 2012, Bockting et al. 2013, Turan et al. 2015). Depression in transgendered individuals is related with lack of social support, transphobia experiences, suicidal ideation, low education, and economic level (Nemoto et al.2011). Bockting et al. (2013) suggested that psychological disorders experienced by transgendered individuals do not result from gender dysphoria, but from the exposure of stigma in society. Family support, peer support, and pride in being transgendered are protective factors against stigmatization of transgendered individuals in society (Bockting et al. 2013).

Genderism, gender bashing, and transphobia are major concepts, identifying the hate against transgendered individuals (Hill and Willoughby 2005). Hill (2002) described these three concepts. Transphobia is a close term to homophobia. It manifests itself in the fear, disgust, and hate which results in negative reaction to transgendered individuals (Hill 2002). Genderism originates from gender discrimination. It is cultural beliefs and policies that perpetuates negative judgements of people who do not present as stereotypical men or women (Hill 2002). Gender bashing is a behavioral expression of hate and anger toward transgendered individuals. Thus, genderism is the broad negative cultural attitude, transphobia is strengthening negative attitude through fear, hate, and disgust, and gender bashing is violent behavioral act of emotional disgust and fear (Hill 2002).

It is important to understand the reasons of negative attitudes that have negative impacts on transgendered individuals' mental health by taking into consideration of cultural differences. Determining negative attitudes and prejudices against transgendered individuals is necessary to prevent and deal with hate crimes in Turkey. To this end, distinctive scale is needed to examine the attitudes toward transgendered individuals. Developed and adapted scales regarding sexual minorities are already available in Tur-

kish. Hudson and Ricketts Homophobia Scale, adapted to Turkish by Sakallı and Uğurlu (2001), is used to measure attitudes toward homosexuals. Çiçek et al. (2017) developed a scale that measures attitudes toward LGBT individuals. The scale has three subscales as alienation, excessiveness, and disease, and measures the attitudes toward transgendered individuals under the general category of LGBT individuals. Genderism and Transphobia Scale (Hill and Willoughby, 2012) is specifically developed for transgendered individuals and adapted to Turkish by Akın et al. (2014). It measures the three concepts suggested by Hill (2002) as genderism, transphobia, and gender bashing. However, Genderism and Transphobia Scale (GTS) fails to identify or define transgendered persons as the attitudinal target of the items. (Walch et al. 2012). The items such as “I have beat up men who act like sissies” and “People are either men or women” measure behaviors, attitudes, and beliefs against individuals who violates culturally expected gender roles (Walch et al. 2012). Contrary, the Attitudes toward Transgendered Individuals Scale (ATTI) is assessing cognitive evaluations and emotional reactions to transgendered individuals and transgenderism without items assessing overt behavioral expression of stigma in the form of harassment and violence (Walch et al. 2012).

This study aimed to adapt the ATTI in Turkish, and examine the psychometric properties of the Turkish form. A valid and reliable scale will contribute to future studies, which aim to determine the attitudes and prejudices toward transgendered individuals in Turkey. Turkish form of the ATTI will have similar validity, reliability, and factor structure with the original form hypothesis will be tested in this study.

## Method

### *Sample*

The sample consisted of 225 university students, studying in public and private universities. As data from 7 participants were outliers, these 7 participants' responses were excluded. The analyses were conducted with the remaining 218 participants. One hundred and fifty-eight (72.5%) of the participants were women and 58 (26.6%) were men, and 1 (0.5%) was other. They ranged in age from 18 to 29 years old ( $M = 21.07$ ,  $SD = 1.93$ ). Detailed information for the participants are shown in Table 1.

### *Measures*

#### **Demographic Form**

Data about participants' gender, age, marital status, university in which they study, and their social interactions with transgendered individuals were collected by demographic form, prepared by the authors.

#### **The Attitudes toward Transgendered Individuals Scale (ATTI)**

ATTI was developed by Walch et al. (2012) to measure attitudes toward transgendered individuals in American university students. The ATTI scale measures cognitive evaluations and emotional reactions toward transgendered individuals rather than overt behavioral expressions as gender bashing. Definitions of transgendered individuals and transgenderism were provided before participants response the ATTI scale. The ATTI scale is a 20-item scale that uses 5-point Likert-response format. Each item can be answered as strongly agree = 1, agree = 2, neither agree nor disagree = 3, disagree = 4, strongly disagree = 5. The nine items loading negatively on the factor (Items 1, 5, 8, 10,

12, 13, 14, 16, and 17) were reverse-scored, and then all 20 items were summed to create a total score with a potential range of 20–100, with higher scores reflecting greater tolerance and acceptance of transgendered individuals. The scale showed single factor accounting for the 56.7% of the total variance, and the factor loadings range from .69 to .82 (Walch et al. 2012). GTS, developed by Hill and Willoughby (2005), were used to examine criterion-related validity. The ATTI scale were highly correlated with the GTS total ( $r = .85, p < .01$ ). Cronbach alpha coefficient is reported as .96 and .95 in two different samples (Walch et al. 2012).

### Genderism and Transphobia Scale (GTS)

GTS was developed by Hill and Willoughby (2005), and adapted into Turkish by Akin et al. (2014). The original form of the GTS consists of 32 items, but the Turkish form consists of 31 items. The Turkish form of the GTS uses 7-point Likert-response format. Higher scores reflect greater genderism and transphobia. Confirmatory factor analysis of the GTS showed 3 factor structure (genderism, transphobia, and gender bashing) which is not compatible with the original form. Because of the high correlation between the subscales of genderism and transphobia, a two-factor solution was seen as most reasonable, with genderism/transphobia as a solid first factor, and gender-bashing as a strong second factor in the original form of the GTS (Hill and Willoughby). Fit indices of the model were calculated as  $\chi^2 = 1199.30$ ,  $df = 450$ ,  $RMSEA = .079$ ,  $IFI = .82$ ,  $CFI = .82$ . The factor loadings range from .24 to .82. Cronbach alpha coefficient is reported as .81 for genderism, .80 for transphobia, .80 for gender bashing, and .91 for the total score. Item total correlations range from .30 to .77.

**Table 1. Information about participants**

Variable	Group	N	%
Marital Status	Married	2	98.2
	Single	214	0.9
Type of University	Public	136	62.3
	Private	82	37.7
Grade	1 <sup>st</sup> Grade	53	24.3
	2 <sup>nd</sup> Grade	48	22
	3 <sup>rd</sup> Grade	61	28
	4 <sup>th</sup> Grade	54	24.8
Do you have any transgendered friend?	Yes	39	17.9
	No	175	80.3

### Procedure

The original form of the ATTI scale and the necessary permission to adapt the scale were requested from S.E Walch, one of the developers of the ATTI scale, by e-mail. Five academicians who are proficient at both English and Turkish translated the scale from English to Turkish. The pilot form, including the 5 different translations was prepared. Five people who are proficient at both English and Turkish were asked to evaluate 5 different translations of the items in terms of comprehensiveness and meaning. After this process, the scale was reviewed by the authors and linguistic scientist with regard to meaning and cultural differences. The pilot study was conducted with 30 people who are over 18 years of age and have different educational levels. After collecting feedbacks, given by 30 participants in the pilot study, the final Turkish form of the ATTI scale was composed according to comprehensiveness of the items.

Data collection was carried out face-to-face by the authors. The information about the study was given to participants, and informed consent form, including the purpose and contribution of the study, confidentiality of personal information, withdrawal from the study, contact details of the authors, and compensation of potential risks were provided. The scales were given after collecting the signed informed consent form, so participants were assured of the anonymity and confidentiality of their answers. The participants were not asked to write any credentials to response freely, and filled forms were collected in closed envelopes.

### ***Statistical Analysis***

Construct validity of the ATTI scale was examined by exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). Pearson correlation coefficient were calculated for criterion-related validity. Cronbach alpha coefficient as well as Guttman half-split reliability coefficient were calculated to examine the reliability. The effects of gender and having a transgendered friend on the attitudes of transgendered individuals were examined by independent sample t-test. SPSS 24 was used for EFA, Cronbach alpha coefficient, Guttman split-half reliability, and independent sample t-test, while AMOS 23 was used for CFA.

## **Results**

### ***Item Analysis***

The normality of the data was tested, and outliers were removed from the data set. An independent samples t-test was carried out to assess statistical differences between lower and upper 27% groups. It was statistically significant that all items of the ATTI scale can differentiate lower and upper 27% groups. Item total correlations were ranging from .46 to .81 (Table 2).

### ***Reliability***

Cronbach alpha coefficient and Guttman split-half reliability were calculated to measure reliability of the ATTI scale. Cronbach alpha was found to be .95, and Guttman split-half reliability as. 93.

### ***Exploratory Factor Analysis (EFA)***

Exploratory factor analysis (EFA) was carried out to examine the factor structure of the ATTI scale. Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) coefficient and Bartlett's Test of Sphericity were used to examine the suitability of the data for factor analysis. Bartlett's Test of Sphericity was significant ( $p < .001$ ) and KMO coefficient were found to be .952. The principal component analysis was carried out with varimax rotation. As in the original form, the ATTI scale showed one factor structure, explaining 53.9% of the total variance. According to the results of EFA, the factor loadings of the ATTI scale were ranging from .50 to .84 (Table 3).

### ***Confirmatory Factor Analysis (CFA)***

Confirmatory factor analysis was carried out as this study is designed for an adaptation

of the original scale. The fit indices of Chi-square goodness ( $X^2$ )/df Degrees of freedom (df), Standardized Root Mean Square Residual (SRMR), Root Mean Square Error of Approximation (RMSEA), Incremental Fit Index (IFI), Comparative Fit Index (CFI) were used to evaluate the goodness of fit of the model tested in CFA. The fit indices values of the model were calculated as SRMR = .048,  $X^2 = 437.534$ , df = 170,  $p < .001$   $X^2/df = 2.574$ , IFI = 90, CFI = 90, RMSEA = .08. The factor loadings of the items were ranging from .46 to .83. As a result of CFA, the Turkish form of the ATTI scale is compatible with its original one factor structure. The path diagram of the CFA is presented in Figure 1.

**Table 2. The item total correlations of the Attitudes Toward Transgendered Individuals and t-test results of upper and lower 27% groups**

Item Number	Item total correlations (N = 218)	27% lower group (N = 67)		27% upper group (N = 67)		t
	R	M	SD	N	SD	
Item 1	.79***	2.34	.74	4.98	.12	-28.46***
Item 2	.46***	1.85	.74	4.64	.48	-25.76***
Item 3	.78***	2.91	.94	5.00	.00	-18.01***
Item 4	.63***	2.94	.99	5.00	.00	-16.89***
Item 5	.74***	2.17	.77	4.31	.46	-19.26***
Item 6	.61***	1.64	.48	4.92	.26	-48.78***
Item 7	.77***	1.70	.46	4.62	.48	-35.69***
Item 8	.81***	2.76	.78	4.98	.12	-23.04***
Item 9	.71***	2.25	.80	5.00	.00	-27.95***
Item 10	.66***	2.02	.71	4.64	.48	-24.72***
Item 11	.79***	2.28	.75	5.00	.00	-29.45***
Item 12	.49***	1.58	.49	4.49	.50	-33.66***
Item 13	.71***	2.04	.70	4.32	.47	-22.00***
Item 14	.70***	2.25	.80	4.92	.26	-25.82***
Item 15	.65***	2.34	.70	5.00	.00	-30.70***
Item 16	.77***	2.28	.77	4.65	.47	-21.33***
Item 17	.55***	1.88	.70	4.62	.48	-26.16***
Item 18	.75***	1.52	.50	4.62	.48	-36.27***
Item 19	.51***	2.20	.59	4.53	.50	-24.56***
Item 20	.74***	2.17	.71	4.91	.28	-28.96***

\*\*\* $p < .001$ , M = mean, SD = standard deviation, t = differences between groups

**Table 3. Factor loadings of exploratory factor analysis**

Item Number	Factor Loading	Item Number	Factor Loading
Item 1	.833	Item 11	.824
Item 2	.500	Item 12	.525
Item 3	.825	Item 13	.747
Item 4	.683	Item 14	.741
Item 5	.779	Item 15	.685
Item 6	.657	Item 16	.814
Item 7	.803	Item 17	.582
Item 8	.845	Item 18	.791
Item 9	.749	Item 19	.556
Item 10	.707	Item 20	.776

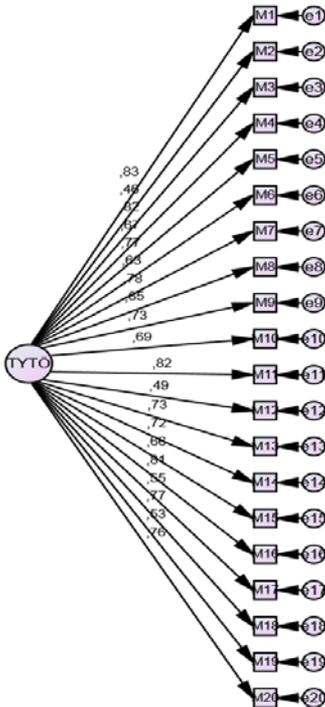
**Table 4. Correlations between the Attitudes toward Transgendered Individuals Scale and the Genderism and Transphobia Scale**

	1	2	3	4	5
1. ATTI	-				
2. GTS Genderism	-.86**	-			
3. GTS Transphobia	-.66**	.74**	-		
4. GTS Gender bashing	-.58**	.63**	.77**	-	
5. GTS Total	-.84**	.96**	.87**	.78**	-
Mean	70.89	46.62	14.56	10.44	71.63
Standart Deviation	16.67	20.69	7.12	5.05	30.22

Pearson correlation, \*\* $p < .01$ , Genderism and Transphobia Scale (GTS), Attitudes Toward Transgendered Individuals Scale (ATTI)

### Criterion-Related Validity

To assess criterion validity, GTS was used. ATTI Scale was negatively correlated with genderism ( $r = -.86$ ), transphobia ( $r = -.66$ ), and gender bashing ( $r = -.58$ ) subscales of the GTS. Moreover, the total score of the GTS ( $r = -.84$ ) was negatively correlated with the ATTI scale. Correlation coefficients, mean and standard deviations of the GTS and the ATTI scales were presented in Table 4.



**Figure 1. Path diagram of the Attitudes Toward Transgendered Individuals Scale**

## Other Results

An independent-samples t-test was conducted to examine whether attitudes toward transgendered individuals varied according to gender. There was a statistically significant difference between women ( $M = 73.39$ ,  $SD = 15.20$ ) and men ( $M = 64.15$ ,  $SD = 18.76$ ),  $t(214) = 3.70$ ,  $p < .001$  (Table 5). An independent-samples t-test was conducted to examine whether attitudes toward transgendered individuals varied according to having a transgendered friend. There was a statistically significant difference between participants who have a transgendered friend ( $M = 82.51$ ,  $SD = 15.40$ ) and participants who do not have a transgendered friend ( $M = 68.62$ ,  $SD = 15.76$ ),  $t(57.13) = 5.06$ ,  $p < .001$  (Table 6).

**Table 5. Independent-samples t-test regarding attitudes toward transgendered individuals and gender**

	Groups	n	M	SD	Se <sub>M</sub>	t-Test		
						t	df	p
ATTI	Women	158	73.39	15.20	1.20	3.70	214	.000***
	Men	58	64.15	18.76	2.46			

\*\*\* $p < .001$ ,  $M$  = mean,  $SD$  = standard deviation,  $Se_M$  = standard error,  $t$  = differences between groups,  $df$  = degrees of freedom, Attitudes Toward Transgendered Individuals Scale (ATTI)

**Table 6. Independent-samples t-test regarding attitudes toward transgendered individuals and having transgendered friend**

	Groups	n	M	SD	Se <sub>M</sub>	t-Test		
						t	df	p
ATTI	Transgendered Friend	39	82.51	15.40	2.46	5.06	57.13	.000***
	No Transgendered Friend	175	68.62	15.76	1.19			

\*\*\* $p < .001$ ,  $M$  = mean,  $SD$  = standard deviation,  $Se_M$  = standard error,  $t$  = differences between groups,  $df$  = degrees of freedom, Attitudes Toward Transgendered Individuals Scale (ATTI)

## Discussion

This study aimed to adapt ATTI, developed by Walch et al. (2012), into Turkish, and examine its psychometric properties. To our knowledge, there is no adaptation study of the ATTI scale in Turkey. The sample was determined by taking into consideration of the item quantity of the ATTI scale. Data from 218 participants were used for statistical analyses. At least 5 participants are necessary for each item in scale adaptation (Büyüköztürk 2002). Thus, necessary condition regarding sample size was ensured for the adaptation study of the 20-item ATTI scale.

To determine construct validity and the explained variance of the ATTI scale, exploratory factor analysis (EFA) was conducted. For performing EFA, Bartlett's Test of Sphericity should be significant and KMO coefficient should be higher than .60 (Tabachnick and Fidell 2007). Bartlett's Test of Sphericity was significant ( $p < .001$ ), and KMO coefficient was found as .952, meaning that our data was suitable for factor analysis. EFA showed that the Turkish form of the ATTI scale is compatible with its original one factor structure and the total variance of the original scale. The factor loadings ranged from .50 to .84. Büyüköztürk (2002) suggests factor loadings of items ranging from .30 to .59 are moderately loaded items. Thus, 2nd, 12nd, 17th and 19th items of the Turkish form of the ATTI scale were moderately loaded items (Table 3). In the original form of the ATTI scale, the factor loadings of these 4 items were higher (.77, .76, .72, and .72) compared to our findings. Factor loading of other 16 items in

our study were high loaded items.

As a result of confirmatory factor analysis, one factor structure of the scale was confirmed. Fit indices values of the model obtained in CFA were found as SRMR .048,  $\chi^2 = 437.534$   $df = 170$ ,  $p < .001$   $\chi^2/df = 2.574$ , IFI=90, CFI=90, RMSEA=.08. If fit indices of  $\chi^2/df$  is equal or less than 3, the model is acceptable (Bollen 1989, Kline 2011). The values of RMSEA and SRMR should be less than .08 (Byrne 2010), and the values of SRMR between .00 and .05 indicate very good fit (Browne and Cudeck 1993). If IFI and CFI is higher than .90, the model is acceptable (Bentler 1990). According to the fit indices of CFA, the model was compatible with the original model. As shown in Figure 1, items' factor loadings were higher than .30 (Büyüköztürk 2002), and fit indices of the model were satisfactory. Thus, the Turkish form of the ATTI scale was valid in our sample. The ATTI scale was also adapted in Thailand by Ngamake et al. (2013). However, the authors extracted 6 items, and the 14 item ATTI scale was regarded as valid and reliable. Compared to the results of Ngamake et al. (2013), it was an important finding to find a compatible model with the original one with all 20 items in our study.

The negative correlation between the GTS and the ATTI scales showed that while genderism and transphobia increases, positive attitudes toward transgendered individuals decreases. Walch et al. (2012) found that total score of the GTS highly correlated ( $r = -.85$  and  $r = -.88$ ) with the ATTI scale in two different samples. As the original form of the GTS consisted of two subscales (genderism/transphobia and gender bashing), genderism and transphobia were calculated together, and this subscale was highly correlated ( $-.88$  ve  $-.90$ ) with the original form of the ATTI scale in two different samples (Walch et al. 2012). The gender bashing subscale weakly correlated ( $r = -.29$  and  $r = -.38$ ) with the original form of the ATTI scale in two different samples (Walch et al. 2012). Given the results of our study, the Turkish form of the ATTI scale showed similar relationships, as in the original form, with genderism ( $r = -.86$ ), transphobia ( $r = -.66$ ) subscales, and the total score ( $r = -.84$ ) of the GTS.

The relationship between gender bashing and the ATTI scale ( $r = -.58$ ) was found higher than the original form of the ATTI scale. The mean score of the ATTI scale in our study ( $M = 70.89$ ) was also found to be lower than the two studies in which the original form was used (Walch et al. 2012,  $M = 72.2$ ,  $76.6$ ). These findings suggested that Turkish university students had lower tolerance toward transgendered individuals, and the negative attitudes of Turkish university students were more related with overt aggressive behaviors toward transgendered individuals compared to American university students. Previous studies suggested that negative attitudes toward transgendered individuals are related with accepting traditional gender roles (Konopka et al. 2019) and homophobia (Hill and Willoughby 2005, Ngamake et al. 2013). In a study about the attitudes toward homosexuals, Sakallı and Uğurlu (2002) found that traditional gender roles are highly accepted among Turkish people, and sexual intercourse should be conducted between only men and women according to views of the participants. Considering the previous results, it is possible to assert that high correlation between attitudes toward transgendered individuals and gender bashing, and higher levels of negative attitudes toward transgendered individuals in Turkish university students could be related with high level acceptance of traditional gender roles in Turkey.

To examine the reliability of the ATTI scale, item analyses were conducted and

Cronbach alpha and Guttman coefficients were calculated. Cronbach alpha coefficient is suitable internal consistency method for Likert-type scales. (Ercan and Kan 2004). According to item analyses, each item significantly differentiated upper and lower 27% groups. Moreover, it was found that item total correlations ranged from .46-.81. It is necessary for each item to be related with the scale at least .30 level for internal consistency (as cited in Can 2013). Since the item total correlation coefficients of the original form of the ATTI scale were not reported, making comparison is not possible with the results of our study. Cronbach alpha coefficient of the Turkish form ( $\alpha = .95$ ) was found similar as in the original form. Cronbach alpha coefficient is greater than .60, which indicates that the scale is very reliable (Özdamar 2004).

The findings of independent samples t-tests, which examined the effects of gender and having a transgendered friend on the attitudes towards transgendered individuals were consistent with previous findings. Consistent with previous research (Willoughby 2005, Nagoshi et al. 2008, Walch et al. 2012, Woodford et al. 2012, Norton and Herek 2013, Fisher et al. 2017, Hill and Konopka et al. 2019), women had more positive attitudes toward transgendered individuals among Turkish university students. Our results also showed that participants having a transgendered friend had more positive attitudes toward transgendered individuals. The result of our study supported previous findings on the positive effects of having a friend from sexual minorities (Sakallı and Uğurlu 2001, Sakallı 2002, Ngamake et al. 2013, Norton and Herek 2013, Barbir et al. 2016, Kanamori and Cornelius-White 2017.). In their study of attitudes toward homosexuals, Sakallı and Uğurlu (2001) stated that people having a homosexual friend would have more positive attitudes toward homosexuals before having a homosexual friend. Whether this is the case for transgendered individuals can be examined in future studies.

Negative attitudes toward transgendered individuals result in economic discrimination, ostracizing, sexual assault, and two times as much violence as the general population (Lombardi et al. 2002). As a result of being discriminated, transgendered individuals stop communicating with family members and their friends, and they keep secret that they are transgendered to be accepted by their social environment (Nemoto et al. 2011). Lombardi et al. (2002) found that 59.5% of the transgendered participants experienced either violence or harassment, 55.5% were exposed to verbal abuse, and 37.1% reported some form of economic discrimination. Transgendered individuals are also exposed to unethical behaviors of healthcare professionals, and they hesitate to consult health institutions after negative experiences (Karataş and Buzlu 2018). Previous studies indicated that negative attitudes toward transgendered individuals and other sexual minorities may originate from conservatism, endorsement of gender binary beliefs (Norton and Herek 2013), religiosity (Bonthuys and Erlank 2012, Fisher et al. 2016), social dominance, right-wing authoritarianism, biological and cultural beliefs about the origins of gender differences, (Konopka et al. 2019), and authoritarianism (Nagoshi et al. 2008).

The primary objective of this study is providing a Turkish scale to examine the effects of various factors mentioned above on attitudes toward transgendered individuals. Determining the factors affecting negative attitudes toward transgendered individuals in Turkish sample is essential to take precautions for possible violence and discrimination against transgendered individuals.

This study has some limitations. The sample is limited to university students. However, as the original form of the ATTI scale was developed with American university students, university students in Turkey are our primary interest in the adaptation of the ATTI scale. The Turkish form of the ATTI scale showed similar psychometric properties with the original scale, supporting our hypothesis. To increase areas of usage, future studies should examine the psychometric properties of the Turkish form in population and healthcare professionals with whom transgendered individuals have negative experiences. Other limitation of the study is lack of test-retest results of the ATTI scale. Future studies will be beneficial to examine the test-retest reliability of the ATTI scale.

As a conclusion the construct and criterion related validity and reliability of the Turkish form of the ATTI scale is adequate in the sample of university students in Turkey. The ATTI scale will contribute to prospective studies focusing on the attitudes and prejudices toward transgendered individuals.

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## Addendum. The Attitudes Toward Transgendered Individuals Scale Turkish version

Transsexuality is defined as the gender identity (feeling as a woman or man) or the expression of gender (expressing yourself as a man or woman in behavior, attitude and / or clothing) reflecting the individual's own physical gender differently from traditional expectations. A transgender person includes those who have undergone or have never undergone a gender reassignment surgery. Transgender individuals feel that they are born of the wrong sex, and they also wear the clothes of the gender they feel belong to, to express their gender identity.

This scale is designed to assess how you feel when working or interacting with trans people. There is no right or wrong answer to the statements. Please read each statement carefully and select the option that best describes your opinion among the choices below (all items are in Turkish).

1. Transseksüelliğin normal olarak kabul edilmesi toplumun yararındır. ( ) kesinlikle katılıyorum ( ) katılıyorum ( ) kararsızım ( ) katılmıyorum ( ) kesinlikle katılmıyorum
2. Trans bireylerin çocuklarla çalışmasına izin verilmemelidir. ( ) kesinlikle katılıyorum ( ) katılıyorum ( ) kararsızım ( ) katılmıyorum ( ) kesinlikle katılmıyorum
3. Transseksüellik ahlaksızlıktır. ( ) kesinlikle katılıyorum ( ) katılıyorum ( ) kararsızım ( ) katılmıyorum ( ) kesinlikle katılmıyorum
4. Trans bireylere hitap eden tüm barlar kapatılmalıdır. ( ) kesinlikle katılıyorum ( ) katılıyorum ( ) kararsızım ( ) katılmıyorum ( ) kesinlikle katılmıyorum
5. Trans bireyler topluma katkı sağlayan bireylerdir. ( ) kesinlikle katılıyorum ( ) katılıyorum ( ) kararsızım ( ) katılmıyorum ( ) kesinlikle katılmıyorum
6. Transseksüellik günahıdır. ( ) kesinlikle katılıyorum ( ) katılıyorum ( ) kararsızım ( ) katılmıyorum ( ) kesinlikle katılmıyorum
7. Transseksüellik aile kurumunu tehlikeye sokar. ( ) kesinlikle katılıyorum ( ) katılıyorum ( ) kararsızım ( ) katılmıyorum ( ) kesinlikle katılmıyorum
8. Trans bireyler toplum içerisine tamamen kabul edilmelidir. ( ) kesinlikle katılıyorum ( ) katılıyorum ( ) kararsızım ( ) katılmıyorum ( ) kesinlikle katılmıyorum
9. Trans bireylerin öğretmenlik yapmaları yasaklanmalıdır. ( ) kesinlikle katılıyorum ( ) katılıyorum ( ) kararsızım ( ) katılmıyorum ( ) kesinlikle katılmıyorum
10. Transseksüellikte kısıtlamalar olmamalıdır. ( ) kesinlikle katılıyorum ( ) katılıyorum ( ) kararsızım ( ) katılmıyorum ( ) kesinlikle katılmıyorum
11. Trans bireylerden mümkün olduğunca kaçınıyorum. ( ) kesinlikle katılıyorum ( ) katılıyorum ( ) kararsızım ( ) katılmıyorum ( ) kesinlikle katılmıyorum
12. Trans bir bireyle yakın şekilde çalışırken kendimi rahat hissedirim. ( ) kesinlikle katılıyorum ( ) katılıyorum ( ) kararsızım ( ) katılmıyorum ( ) kesinlikle katılmıyorum
13. Trans bireylerin bulunduğu sosyal etkinliklere katılmaktan keyif alırım. ( ) kesinlikle katılıyorum ( ) katılıyorum ( ) kararsızım ( ) katılmıyorum ( ) kesinlikle katılmıyorum
14. Komşumun cinsiyet trans bir birey olduğunu öğrenmek beni rahatsız etmez. ( ) kesinlikle katılıyorum ( ) katılıyorum ( ) kararsızım ( ) katılmıyorum ( ) kesinlikle katılmıyorum
15. Trans bireylerin, toplum içinde karşı cinsin giydiği kıyafetleri giymesine izin verilmemelidir. ( ) kesinlikle katılıyorum ( ) katılıyorum ( ) kararsızım ( ) katılmıyorum ( ) kesinlikle katılmıyorum
16. Trans bireylerle arkadaşlık etmek isterim. ( ) kesinlikle katılıyorum ( ) katılıyorum ( ) kararsızım ( ) katılmıyorum ( ) kesinlikle katılmıyorum
17. En yakın arkadaşımın trans bir birey olduğunu öğrensem kendimi rahat hissederdim. ( ) kesinlikle katılıyorum ( ) katılıyorum ( ) kararsızım ( ) katılmıyorum ( ) kesinlikle katılmıyorum
18. Yakın aile üyelerinden biri trans bir birey ile duygusal ilişkiye girse bundan rahatsızlık duyardım. ( ) kesinlikle katılıyorum ( ) katılıyorum ( ) kararsızım ( ) katılmıyorum ( ) kesinlikle katılmıyorum
19. Trans bireyler gerçekte gizli eşcinsellerdir. ( ) kesinlikle katılıyorum ( ) katılıyorum ( ) kararsızım ( ) katılmıyorum ( ) kesinlikle katılmıyorum
20. Trans bireylerle duygusal ilişki yaşayan kişilerin psikolojik tedaviye ihtiyacı vardır. ( ) kesinlikle katılıyorum ( ) katılıyorum ( ) kararsızım ( ) katılmıyorum ( ) kesinlikle katılmıyorum

## Scoring

1. The score for each item is; strongly agree 1, agree 2, undecided 3, disagree 4, strongly disagree 5 points.
2. Items 1, 5, 8, 10, 12, 13, 14, 16, 17 are scored in reverse order.
3. The total score of the scale is calculated and the minimum score is 20 and the maximum score is 100. The higher the score, the higher the positive attitudes towards transgender individuals.