

## PSYCHOMETRIC PARAMETERS OF THE TURKISH VERSION OF THE AFFECTIVE AND COGNITIVE MEASURE OF EMPATHY (ACME)

Assoc. Prof. Dr. Müge Yukay Yüksel  
Marmara University, Atatürk Education Faculty  
Department of Counseling and Guidance in Educational Sciences Department  
Istanbul- Turkey

PhDc. Sinan Okur  
National Defence University  
Air Force Academy  
Educational Sciences Department  
İstanbul- Turkey

PhDc. Zehranur Akbulut  
Sabahattin Zaim University  
Educational Sciences Department  
Istanbul- Turkey

PhDc. Hasan Kütük  
Marmara University  
Psychological Counselor in Various Educational Institutions  
Istanbul- Turkey

### Abstract

The concept of empathy, which consists of both affective and cognitive elements, is defined as replacing the other side and understanding their feelings and thoughts. In this study, it was aimed to adapt the Affective and Cognitive Empathy Scale, which was developed in order to measure empathy concept more comprehensively, in Turkish. In line with this goal, the validity and reliability study of the scale was conducted on 289 university students. Affective and Cognitive Empathy Scale, Basic Empathy Scale and Altruism Scale were applied to students and the scores obtained from these scales were used. Confirmatory factor analysis conducted in the study showed that the fit indexes were among the acceptable values and the three-factor structure of the scale was also valid in this study group. Within the scope of the scale's reliability study, Cronbach alpha internal consistency coefficient was calculated as .91. The internal consistency coefficients of the sub-dimensions of the scale ranged between .86 in cognitive empathy, affective resonance .85, and affective dissonance .84. According to the results of the analysis conducted for similar scale validity, there was no significant relationship between the Affective and Cognitive Empathy Scale with the Basic Empathy Scale, while there was a positive and low negative relationship between the sub-dimensions of the Basic Empathy Scale and the emotional empathy. It was also observed that there was a significant relationship between the Altruism Scale and sub-dimensions of the Affective and Cognitive Empathy Scale and helping and philanthropy. In addition, there are both significant and non-significant relationships between the sub-dimensions of the Affective and Cognitive Empathy Scale and the sub-dimensions of the Basic Empathy Scale. Finally, it was observed that there was no significant relationship between the Baseline Empathy Scale, which is two similar scales, and the Altruism Scale and its sub-dimensions. It was determined that cognitive empathy, which is the sub-dimension of the Basic Empathy Scale, has a significant relationship with the Altruism Scale and its sub-dimensions. In summary, the results of the study showed that the Turkish version of the Affective and Cognitive Empathy Scale is a valid and reliable measurement tool for university students.

**Keywords:** Empathy, Cognitive empathy, Affective resonance, Affective dissonance, Validity, Reliability.

## INTRODUCTION

The word empathy is derived from the Greek work *ἐμπάθεια* (empathia), meaning affection, suffering, passion, and ambition (Plutchik, 1990). This concept was expressed in German as *Einfühlung* near the end of the 19<sup>th</sup> century and was translated into English as empathy in the field of experimental psychology (Wispé, 1986). Various definitions have been proposed for empathy over the years. Dökmen (2004), for example, defines empathy as when a person places himself in the position of another, looks at events from his perspective, correctly understands the other person's feelings and thoughts, and then communicates this to the other person. Eisenberg and Strayer (1987) describe empathy as a reaction that is given in response to another person's emotional and cognitive state or condition and that is similar to what the other person actually feels. In light of these definitions, empathy is to place oneself temporarily in the life of another and, while living this life, to understand the other person's current condition without making any judgments about the person.

Empathy is composed of mutually interacting cognitive and affective elements (Chlopan, McCain, Carbonell, & Hagen, 1985). Whereas empathy's cognitive dimension refers to one's ability to understand another person emotionally, the affective dimension concerns one's ability to feel the other's emotions and to offer the most appropriate response for the other person's specific emotional state (de Kemp, Overbeek, de Wied, Engels, & Scholte, 2007; de Wied, Goudena, & Matthys, 2005). The common point in both dimensions is to understand the other person, regardless as to whether this understanding be an emotional or mental understanding.

Empathy prevents antisocial behaviors while simultaneously facilitating socialization (Jolliffe & Farrington, 2004). Individuals with high levels of empathy are able to ease the pains of others through their use of cognitive and affective empathy while also preventing behaviors that are detrimental to oneself and others. Individuals with low levels of empathy, however, have the potential to harm others around them. For this reason, individuals with a predisposition to crime, individuals exhibiting characteristics of antisocial behavior, and individuals who have committed acts of violence or rape are considered to have low levels of empathy (Miller & Eisenberg, 1988). In addition to this, empathy plays a key role in the identification of certain syndromes found in the Diagnostic and Statistical Manual of Mental Disorders, like behavioral disorders, antisocial personality disorder, and narcissistic personality disorder have (DSM-V; American Psychiatric Association, 2013). In fact, low empathy constitutes the essence of all of the personality disorders found in Section III of the DSM-V.

The current knowledge base on the concept of empathy demonstrates that an individual's ability to make use of empathic skills throughout daily life is essential in developing positive feelings, attitudes, and cognitive structures toward other living beings (Dökmen, 2003). The effective use of empathic skills helps one solve potential interpersonal conflicts by prevent different communication problems from emerging while also causing the least amount of harm to oneself and others (Ersoy & Köşger, 2016). It is believed that at the very core of the problems faced by individuals is their inability to make effective use of empathic skills. Accordingly, empathic skills are considered fundamental in people's ability to comprehend each other, as it is through these very skills that people are able even to make social compromises (Genç & Kalafat, 2010). Furthermore, Elikesik (2013) states that individuals with high levels of empathy give greater importance to protecting the environment, meaning that individuals with high empathic skills use them not only in their social relationships but also in the interactions with nature.

Studies seeking to regulate personal and social life by boosting the empathy levels of individuals with low empathy are conducted with diverse groups, and even more particularly with individuals who have committed crimes in the past (Hare & Neumann, 2008). Educational programs designed to boost empathy levels may therefore be used as treatment tools with individuals who have been sent to rehabilitation centers for acts of theft or sexual assault (Marshall, 1999). In fact, roughly 500 million dollars are spent each year in the USA on programs seeking to rehabilitate convicted sexual offenders (McGrath, Cumming, Burchard, Zeoli, & Ellerby, 2010). In addition to this, empathy is a central

concept in violence-prevention curricula and programs designed for primary school students (Grossman et al., 1997; Şahin & Akbaba, 2010), in anger management programs developed for adolescents (Pecukonis, 1990), and in programs aiming to prevent domestic violence (Fruzzetti & Levensky, 2000).

It is important to develop and adapt scales measuring individuals' empathy levels in order to determine individuals' empathy levels and then to facilitate subsequent educational programs for individuals with low empathy levels. With this end in mind, our study aims to adapt the Affective and Cognitive Measure of Empathy (ACME) developed by Vachon and Lynam (2015) to measure young adults' empathy levels. A review of the literature reveals that several scales measuring different dimensions of empathy have already been adapted to Turkish. Among these are the Cognitive, Affective, and Somatic Empathy Scales (CASES) for Children adapted by Güzel, Tok, and Güney (2019), the Basic Empathy Scale adapted by Topçu, Erdur-Baker, and Çapa-Aydın (2010), and the Empathy Quotient Scale adapted by Kaya and Çolakoğlu (2015). The difference between these scales and ACME is that ACME addresses empathy through a wider range of sub-dimensions, namely through cognitive empathy, affective resonance (e.g., empathy, sympathy, compassion), and affective dissonance (e.g., sadism, scorn, *schadenfreude*). Cognitive empathy means to understand how another person feels in the face of an event or past experience (Staub, 1987). Affective resonance refers to sharing one's feelings with others and exhibiting the appropriate response to their emotional state (Seara-Cardoso, Sebastian, Viding, & Roiser, 2016). Affective dissonance, however, means to exhibit or experience a conflicting, instead of an appropriate affective response. Taking pleasure in others' pains or feeling discomfort at others' happiness are examples of affective dissonance (Vachon & Lynam, 2015). In short, the constructs measured by ACME expound on these three concepts.

As it aims to measure three different dimensions of young adults' empathy levels, we expect the Turkish adaptation of this scale to help researchers evaluate young adults' cognitive empathy, affective resonance, and affective dissonance levels. Since our research deals with the scale's psychological parameters for samples in a Turkish context, we expect this scale may to be used in future studies.

## METHOD

### Sample

The sample consisted of students enrolled in Marmara University and Istanbul Sabahattin Zaim University, both of which are located in Istanbul, Turkey. Of the total 289 students included in the sample, 187 (64.7%) were females and 102 (35.3%) were males. Two 30-person groups, each composed of 16 females (53.3%) and 14 males (46.7%), were formed to ascertain test-retest reliability and linguistic equivalence. Participants were explained the scope of the research and gave their verbal consent; only then was data collected on a voluntary basis.

### Data Collection Tools

#### Personal Information Form

We distributed the Personal Information Form to solicit more detailed information of the study's sample. Using this form, we collected demographic information of the participants, which included students' sex, year of study, and perceived socioeconomic level.

#### Affective and Cognitive Measure of Empathy

The Affective and Cognitive Measure of Empathy (ACME) was developed by Vachon and Lynam (2015) to measure participants' affective and cognitive levels. This scale allows the researcher to determine individuals' empathy levels in a more comprehensive manner by exploring three separate dimensions of empathy. While developing the scale, we first created a 126-item pool and calculated factor loadings affecting total variance. Following an analysis of the findings, a great many items were removed, which ultimately resulted in a 36-item scale composed of three sub-dimensions (i.e., cognitive empathy, affective resonance, and affective dissonance). Each sub-dimension contained a

total of twelve 5-point Likert items (1-Strongly disagree, 2-Disagree, 3-Neither agree nor disagree, 4-Agree, 5-Strongly agree). A high score in any of the sub-dimensions indicated a strong level of empathy in that particular area. The minimum and maximum scores obtainable on the scale are 12 and 60, respectively. The scale contains 22 reverse-scored items. Cronbach's alpha was calculated to determine the scale's reliability. With regard to Cronbach's alpha coefficients for the sub-dimensions of the original scale created by Vachon and Lynam (2015), cognitive empathy coefficient scored .90, affective resonance .87, and affective dissonance .87. These findings indicate that the reliability coefficients calculated for the original scale are close to those found in this study.

### **Basic Empathy Scale**

Composed of twenty 5-point (1-Strongly Disagree, 5-Strongly Agree) items and two sub-dimensions (i.e., affective empathy and cognitive empathy), this scale was developed by Jolliffe and Farrington (2006) to measure individuals' empathy levels, and was adapted to Turkish by Topçu et al. (2010) in a study conducted with 717 participants. Possible scores on this scale ranged from 20 to 100. Whereas cognitive empathy included nine items, affective empathy included eleven. The confirmatory factor analysis (CFA) conducted during said adaptation revealed there to be a satisfactory fit between the model and data. In their own study, Jolliffe and Farrington (2006) found Cronbach's alpha coefficients for the two sub-dimensions of affective empathy and cognitive empathy to be .76 and .80, respectively. Yet, we found the coefficients for the same two sub-dimensions to be .68 and .72, respectively.

### **Altruism Scale**

This 20-item, 5-point Likert (1-Never, 5-Always) scale was developed by Rushton, Chrisjohn, and Fekken (1981). Possible scores on the Altruism Scale ranged from 20 to 100, with a high score indicating a high level of altruism. The original version of the scale included a single factor with no reverse-scored items. This scale was adapted to Turkish by Tekeş and Hasta (2015), who, as a result of their adaptation study conducted with 282 participants, found the adapted scale to contain two distinct factors that explained 35.58% of the total variance. The two sub-dimensions of this scale were helping and philanthropy. The CFA conducted during said adaptation revealed model fit to be satisfactory. With regard to reliability, whereas Rushton et al. (1981) found Cronbach's alpha coefficient to be .84 for the entire scale, .81 for helping, and .70 for philanthropy, we found Cronbach's alpha to be .81 for helping and .64 for philanthropy.

### **Data Collection and Analysis**

Following translation and back translation, five field experts with PhDs in psychological counseling and guidance reviewed the resulting product and shared their opinions in order to help bring the adapted text to its final form. First, the researchers translated the scale from its original English into the target language (i.e., Turkish). The resulting text was then retranslated back into English, after which other specialists compared the two English versions. After establishing that the two forms resembled each other, the Turkish version was examined by a Turkish specialist, who then determined the scale to be suitable for use.

Despite the scale's theoretic base, various statistical analyses needed to be performed to prove its validity and reliability (DeVellis, 2014). As a result, data were collected during the 2019-2020 academic year from university students to identify the scale's psychometric parameters. During this period, participants were provided information about the nature of the research in question, verbal consent was sought, and those who declined to give their consent were excluded from the study.

The normality assumption was examined using the total points earned on ACME's sub-dimensions. The analyses conducted revealed the data to be normally distributed (Kolmogorov Smirnov,  $p \geq .05$ ). Since outliers were found among the data, we calculated Mahalanobis distance value and, using a significance level of 0.001 (Büyüköztürk, 2016), were able to remove three outliers. Before subjecting data to a CFA however, we first examined the factor loadings of each item included in the scale and removed any unsuitable measurements from the data set. After completing all pre-analysis

procedures, we conducted a CFA and a t-test analysis for independent samples and calculated Pearson's correlation coefficient. We used SPSS and Mplus to conduct our analyses.

## FINDINGS

The findings obtained in this study are mentioned in the following section. Specifically, findings pertaining to linguistic equivalency, structure validity, convergent validity, and reliability are subsequently discussed.

### Linguistic Equivalence

Both the original English and Turkish versions of ACME were implemented with thirty participants proficient in both Turkish and English at an interval of two weeks. We calculated Pearson's correlation coefficient separately for each of the scale's sub-dimensions to determine the relationship between the two versions of the scale and performed a t-test to test whether a significant difference existed in terms of linguistic equivalency. Table 1 depicts the findings for Pearson's correlation coefficients and Table 2 illustrates the findings for the t-test analyses conducted during the course of our study.

Table 1: Pearson's Correlation Coefficient Analysis Results for the Relationship between the Original and Turkish Versions

	<i>N</i>	$\bar{X}$	<i>S.S.</i>	<i>r</i>
Cognitive Empathy–Turkish version	30	43.40	4.85	.50
Cognitive Empathy–English version	30	43.63	5.90	
Affective Resonance–Turkish version	30	52.10	5.00	.49
Affective Resonance–English version	30	51.40	4.52	
Affective Dissonance–Turkish version	30	53.17	4.96	.65
Affective Dissonance–English version	30	53.40	4.11	

$p \leq .05$

Table 1 reveals there to be a meaningful relationship between the scores obtained on the sub-dimensions of the English and Turkish versions of ACME ( $r^2 = .25$ ,  $r^2 = .24$ ,  $r^2 = .42$ ;  $p \leq .05$ ), indicating that the two scales are equivalent.

Table 2: Findings Obtained From the *t*-Test Analysis for Linguistic Equivalence

	$\bar{X}$	<i>S.S.</i>	<i>t</i>	<i>p</i>
Cognitive Empathy Turkish version	-.23	5.51	-.23	.82
Cognitive Empathy English version				
Affective Resonance Turkish version	.70	4.79	.80	.43
Affective Resonance English version				
Affective Dissonance Turkish version	-.23	3.88	-.32	.74
Affective Dissonance English version				

$p \geq .05$

Table 2 illustrates that the Turkish and English versions of the scale are equivalent. No significant difference was found ( $p \geq .05$ ) between the Turkish and English versions of ACME.

### Structure Validity

Using a structural equivalence model, we examined how well items represented factors included in the scale's three sub-dimensions (i.e., cognitive empathy, affective resonance, and affective dissonance). Table 3 illustrates the goodness-of-fit (GFI) indices obtained through the CFA conducted on the sub-dimensions of ACME.

Table 3: GFI Indices Obtained Through the CFA for ACME

Structural models	$\chi^2$	Sd	$\chi^2/sd$	TLI	CFI	RMSEA	SRMR
<b>Model 1</b>							
<b>Level-1</b>	1441.969	591	2.43	0.79	0.80	0.07	0.07
<b>Model 2</b>							
<b>Level-1</b>							
<b>Items and Errors were correlated</b>	1278.821	588	2.17	0.83	0.84	0.06	0.06

As illustrated in Table 3, the CFA results indicated unsatisfactory fit between the model and data ( $\chi^2 = 1441.97$ ,  $p = .000$ ,  $sd = 591$ ,  $\chi^2/sd = 2.43$ ,  $TLI = .79$ ,  $CFI = .80$ ,  $RMSEA = .07$ ,  $SRMR = .07$ ). However, the literature suggests correlating items' error covariances to obtain a smaller chi-square value and that such correlation can be performed to strengthen and enhance the model (Çapık, 2014). As such, we conducted a second CFA after correlating the error covariances for items 10 and 11, items 29 and 30, and items 33, the results of which showed that the chi-square coefficient decreased by 163.15 points compared to the original model. In addition to this reduced chi-square value, correlating said items' error covariances also resulted in an increase in GFI indices ( $\chi^2 = 1278.82$ ,  $p = .000$ ,  $sd = 588$ ,  $\chi^2/sd = 2.17$ ,  $TLI = .83$ ,  $CFI = .84$ ,  $RMSEA = .06$ ,  $SRMR = .06$ ). Taking these findings into account, Figure 1 depicts the standardized item estimates belonging to the structural model of ACME.

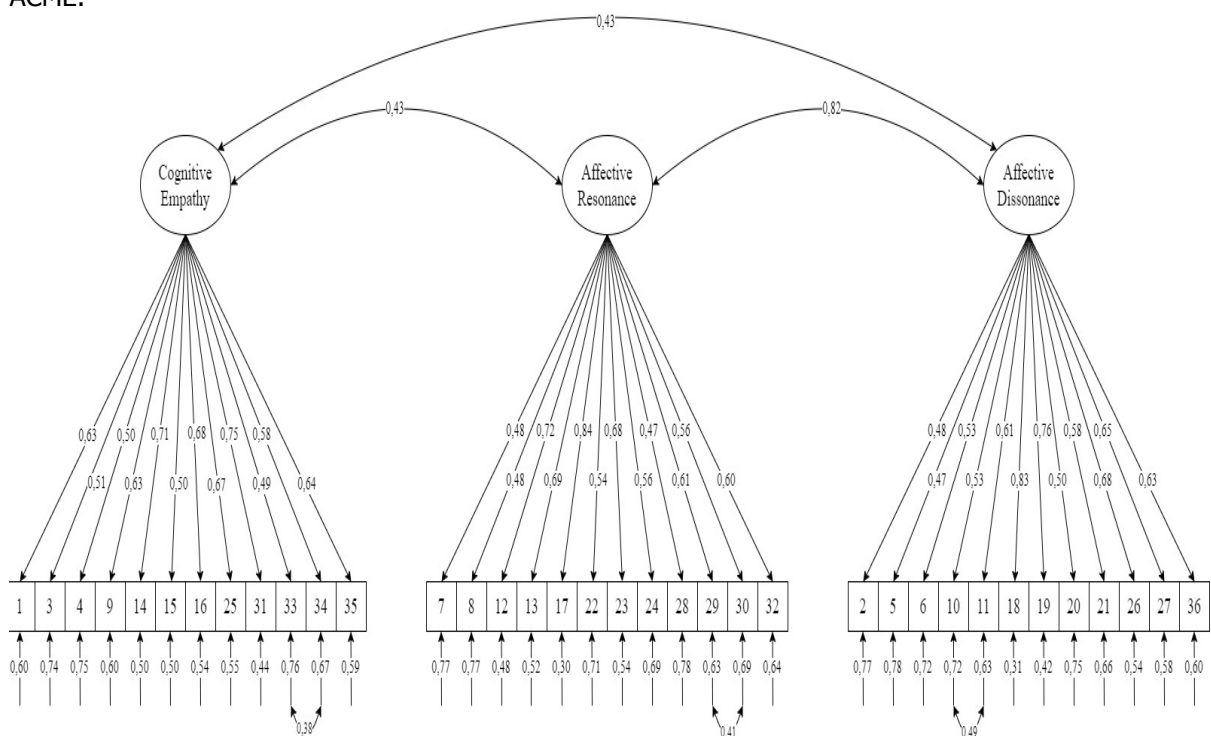


Figure 1: CFA Diagram for ACME

The CFA results reveal that each of the items included in ACME's three factors (i.e., cognitive empathy, affective resonance, affective dissonance) are statistically meaningful parameter predictors ( $p \leq .05$ ). These findings show that the predictive value of cognitive empathy varied between .49 and .75 that of affective resonance varied between .47 and .84, and that that of affective dissonance varied between .47 and .83. Items with a predictive value of .30 or greater indicated adequate representation power (Büyüköztürk, 2018). Moreover, after correlating the error covariances for items 33 and 34, items 29 and 30, and items 10 and 11 included in cognitive empathy, we attained correlation coefficients of .38, .41, and .49, respectively. In short, the CFA results indicated satisfactory model fit.

### Convergent Validity

While calculating scale validity for ACME, we benefited from similar scales whose validity and reliability had already been established in previous studies, namely the Basic Empathy Scale and the Altruism Scale. The relationships between the total scores for these two scales and their sub-dimensions and those for ACME and its three sub-dimensions (i.e., cognitive empathy, affective resonance, and affective dissonance) were analyzed to determine convergent scale validity, the results of which are given in Table 4.

Table 4: ACME and Its Sub-Dimensions Compared with Similar Scales

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<b>ACME (1)</b>									
<b>Cognitive empathy (2)</b>	.70*								
<b>Affective resonance (3)</b>	.84*	.35*							
<b>Affective dissonance (4)</b>	.81*	.29*	.62*						
<b>Basic Empathy (5)</b>	-.03	-.05	.14*	-.18*					
<b>Basic Cognitive empathy (6)</b>	.17*	.10	.22*	.09	.63*				
<b>Basic Affective empathy (7)</b>	-.14*	-.06	.02	-.30*	.87*	.17*			
<b>Altruism (8)</b>	.34*	.29*	.30*	.22*	.12	.23*	.00		
<b>Helping (9)</b>	.33*	.27*	.28*	.22*	.11	.22*	-.00	.96*	
<b>Philanthropy (10)</b>	.28*	.24*	.26*	.17*	.11	.18*	.01	.82*	.61*

\* $p \leq .05$

Prior to calculating Pearson's correlation coefficients, we performed several tests to assure that certain assumptions were valid. First, we examined the distribution's skewness and kurtosis to test whether data were indeed normally distributed. The normality test conducted found the skewness and kurtosis values of the ACME's sub-dimensions and of the two similar scales used as comparisons to be within normal range (between -1.96 and +1.96). Moreover, the results of the Kolmogorov-Smirnov test indicated that the null hypothesis was rejected ( $p \geq .05$ ). After verifying the assumptions were valid, we conducted our correlation analyses. Whereas we found no meaningful relationship between ACME and the Basic Empathy Scale, ACME did have a low, positive relationship ( $r^2 = .03$ ) with the cognitive empathy sub-dimension of the Basic Empathy Scale and a low, negative relationship ( $r^2 = .02$ ) with the affective empathy sub-dimension of the same scale. Moreover, ACME had a positive relationship both with the Altruism Scale itself and with its two sub-dimensions of helping and philanthropy ( $r^2 = .12$ ,  $r^2 = .11$ ,  $r^2 = .08$ ). Moreover, ACME had both meaningful and meaningless relationships with the sub-dimensions of the Basic Empathy Scale. All of these findings are given in Table 4. With regard to the two other scales analyzed in this study, only the cognitive empathy sub-dimension of the Basic

Empathy Scale was found to have a meaningful relationship with the Altruism Scale and its sub-dimensions ( $r^2 = .05$ ,  $r^2 = .05$ ,  $r^2 = .03$ ).

### Reliability

To determine the reliability of ACME, we conducted a separate test-retest for each of the three sub-dimensions in addition to calculating Cronbach's alpha for the scale and its sub-dimensions. Cronbach's alpha for the entire scale was .91 whereas it was .86 for cognitive empathy, .85 for affective resonance, and .84 for affective dissonance. The test-retest findings may be seen in Table 5.

As seen in Table 5, after conducting a test-retest study to measure the scale's ability to provide consistent scores over time, the findings reveal there to be no statistically meaningful difference between the pre- and post-test. In light of all of the above findings, we can safely say that ACME is a reliable measurement tool.

Table 5: Findings of the *t*-Test Evaluating Test-Retest Reliability

	$\bar{X}$	<i>s.s.</i>	<i>t</i>	<i>p</i>
Cognitive Empathy Pre-test	46.00	4.59	1.93	.06
Cognitive Empathy Post-test	44.87	5.65		
Affective Resonance Pre-test	49.77	6.91	1.92	.07
Affective Resonance Post-test	48.90	7.67		
Affective Dissonance Pre-test	49.97	9.80	1.00	.32
Affective Dissonance Post-test	49.00	9.89		

$p \geq .05$

### DISCUSSION, CONCLUSION, AND RECOMMENDATIONS

According to Eisenberg and Strayer (1987), empathy, being the means through which one is able to respond to another's emotional situation and cognitive state, is one of the most heavily studied concepts in the fields of psychology and psychological counseling. Previous studies have found that empathy predicts marital adjustment (Kıslak & Çabukça, 2002), that empathy and philanthropy are related in a meaningful manner (Ulus, 2015), that aggression decreases as empathic tendency increases (Özgökman, 2019), that empathic tendency and anger management are related in a positive, meaningful manner (Öztürk, 2019), and that empathy is negatively related with both aggressive behavior and bullying (Gini, Albiero, Benelli, & Altoe, 2007; Loudin, Loukas, & Robinson, 2003). In addition to these concepts, the relationships between empathy and an array of other variables were also examined. A wide variety of scales have been developed and adapted for use in studies seeking to measure individuals' empathy levels and to analyze empathy's relationship with diverse variables (Vachon & Lynam, 2015; Güzel et al., 2019; Topçu et al., 2010; Kaya & Çolakoğlu, 2015). Despite there being different instruments measuring empathy in the literature, Vachon and Lynam (2015) developed ACME, a scale able to offer a more comprehensive explanation of empathy by addressing its different dimensions. In the current study, we have aimed to adapt ACME to Turkish and then to test the resulting Turkish version of the scale in a Turkish cultural context. As a result of our rigorous translation efforts, we are able to present a useable Turkish version of this scale.

Prior to conducting a CFA to verify the three-factor structure of the original version, we needed to ensure that the sample size was adequate. For this, Kline (2015) states that the sample size should be at least ten times greater than the total number of items included in the scale or that a minimum of 200 participants be included in the sample. Since the sample was determined to be adequate, we



subjected the data to a CFA, as it is an effective statistical technique allowing researchers to measure model fit (Jackson, Gillaspay, & Purc-Stephenson, 2009). For model fit to be considered adequate, fit index values must be either good or satisfactory, with a GFI and CFI score of .90 or greater indicating good model fit (Çokluk, Şekercioğlu, & Büyüköztürk, 2014; Şimşek, 2007; Tabachnick & Fidell, 2012). In other words, the fit indices obtained ranged from 0 to 1, with acceptability increasing as values approach 1 (Çapık, 2014; Wang & Wang, 2012). Moreover, RMSEA and SRMR values of .05 and smaller indicate good fit whereas values of .08 and smaller indicate acceptable fit (Keith, 2019). We used the above-mentioned fit indices to determine model fitness in this study in addition to conducting a CFA to test the fitness of the three-factor model. The findings showed the fit indices to be within acceptable values and that the scale's three-factor structure was valid for the study group with whom this research was conducted.

While evaluating scale validity, we examined the relationships between ACME, the Basic Empathy Scale, and the Altruism Scale and the scores for these scales in their entirety and for their sub-dimensions. Altruism included several positive social behaviors, such as helping, taking responsibility, and philanthropy. Example altruistic behaviors include donating blood, displaying bravery during war or other conflicts, citizens' willingness to pay taxes that serve to benefit others, sharing, generosity, volunteer work in non-profit organizations, donating money to charities, and organ donation (Onatır, 2008; Ümmet, Ekşi, & Otrar, 2013). Accordingly, the concepts of helping and philanthropy were used to measure altruism in this scale. We calculated Pearson's correlation coefficient to ascertain scale validity and compared our findings with those of other studies in the literature. The findings of Avcı, Aydın, and Özbaşaran (2013), whose study was conducted with 218 nursing students, supported our finding showing there to be a statistically meaningful, positive relationship between empathic tendency and altruism. In his study conducted with 402 pre-service teachers, Duru (2002) similarly found there to be a meaningful, positive relationship between empathy and helping. In their study with 112 psychology students, Burks, Youll, and Durtschi (2012) found there to be a meaningful, positive relationship between empathy and altruism. We can therefore safely say that our findings are generally consistent with those found in the literature.

While testing the scale's reliability, we calculated Cronbach's alpha and the test-retest reliability coefficient. To measure test-retest reliability, we implemented the scale again with the same group of participants two weeks after its initial implementation. The results revealed there to be no statistically meaningful difference between the pre- and post-test, indicating that the scale was reliable. The threshold point of Cronbach's alpha in the literature is generally considered to be .60 (Karasar, 2009; Şimşek, 2007). Since Cronbach's alpha was found to be above .60 in our study, the scale's reliability was established. Moreover, the fact that Cronbach's alpha for both the original version of the scale is similar with that of our adaptation further demonstrates scale reliability.

This study does have its limitations, however. One such limitation is the possibility that participants gave answers that they thought were desired of them and that did not represent reality. Another limitation is that the students participating in this study stemmed mostly from middle and upper socioeconomic classes. It is therefore important that future studies include students from lower socioeconomic levels in order to increase generalizability of the study's findings. Moreover, since we collected data from university students to evaluate the validity and reliability of both the original version developed by Vachon and Lynam (2015) and the Turkish adaptation, we recommend that future studies test this scale on different samples. We believe that this study will make a valuable contribution to the literature since it evaluates how well this scale was adapted to Turkish in addition to the Turkish version's psychometric parameters. This scale will allow future studies conducted with university students in a Turkish cultural context to measure empathy empirically and can likewise be used in a great many future studies that measure empathy. In conclusion, all of these findings have proven ACME to be a valid and reliable measurement tool for university students in Turkey.

## BIODATA AND CONTACT ADDRESSES OF AUTHORS



Müge Yukay Yüksel is an associate professor in the department of psychological counselling and guidance at Atatürk Education Faculty, Marmara University. Her research interests include learning disabilities, pre-school and elementary school guidance and psychological counselling, adaptation and behavior problems in schools, diagnosis and program preparation in intervention to learning problems, counseling with adolescents, adult and old age psychological counseling, projective techniques, intelligence tests, attention tests training and supervision, family life skills, marriage compliance.

Assoc. Prof. Dr. Müge Yukay Yüksel  
Marmara University, Atatürk Education Faculty  
Department of Counseling and Guidance in Educational Sciences Department  
Istanbul- Turkey  
E. Mail: [muge.yuksel@marmara.edu.tr](mailto:muge.yuksel@marmara.edu.tr)



Sinan Okur works as an Instructor at the National Defense University Air Force Academy. He is also a PhD student at Marmara University Guidance and Psychological Counseling Department. Previously, he worked as a research assistant in Istanbul Kültür University Guidance and Psychological Counseling Department. He received his expertise in Ege University Guidance and Psychological Counseling Department. His areas of interest are scale development, problematic internet use, basic psychological needs, empathic skills, psychological resilience. Apart from this, he is also interested in positive psychology concepts and plans studies.

PhDc. Sinan Okur  
National Defence University  
Air Force Academy  
Educational Sciences Department  
Istanbul- Turkey  
E. Mail: [okursinan8@gmail.com](mailto:okursinan8@gmail.com)



Zehranur Akbulut graduated from Yıldız Technical University, Faculty of Education, Department of Psychological Counseling and Guidance in 2016. She completed her master's degree from Istanbul Sabahattin Zaim University, Institute of Social Sciences, Department of Psychological Counseling and Guidance in 2018. She is now a PhD student at Marmara University Guidance and Psychological Counseling Department. She has been working as a research assistant at Istanbul Sabahattin Zaim University in Educational Sciences Department since 2017.

PhDc. Zehranur Akbulut  
Sabahattin Zaim University  
Educational Sciences Department  
Istanbul- Turkey  
E. Mail: [akbulutzehra25@gmail.com](mailto:akbulutzehra25@gmail.com)



Hasan Kütük works as a specialist psychological counselor at a private educational institution affiliated to the Ministry of National Education. He is also a PhD student at Marmara University Guidance and Psychological Counseling Department. He previously worked as a psychological counselor in various educational institutions. His interests include concepts such as personality, empathic skills, psychological soundness, and happiness. Apart from these, he is interested in various positive psychology concepts and conducts researches.

PhDc. Hasan Kütük  
Marmara University  
Psychological Counselor in Various Educational Institutions  
Istanbul- Turkey  
E. Mail: [hasankutuk28@gmail.com](mailto:hasankutuk28@gmail.com)

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## Appendix

(1) Kesinlikle katılmıyorum, (2) Katılmıyorum, (3) Kararsızım, (4) Katılıyorum, (5) Tamamen katılıyorum.

Maddeler	1	2	3	4	5
1. İnsanların duygularını anlamakta zorlanırım.					
2. İnsanların üzerine gitmenin eğlenceli olduğunu düşünürüm.					
3. Birisi korktuğu zaman anlayabilirim.					
4. İnsanlar mutlu gibi görünmeye çalıştıklarında bu bellidir.					
5. İnsanların sinirlenmesini izlemeyi severim.					
6. Yabancı insanların korktuğunu görmekten hoşlanırım.					
7. Muhtaç/yoksul birisine yardım etmek bana iyi hissettirir.					
8. Birisine hoşlanacağını düşündüğüm bir hediye verdiğimde heyecanlanırım.					
9. İnsanların hislerinin altında yatan nedenleri genellikle anlarım.					
10. Arkadaşlarım güzel vakit geçirdiklerinde sıklıkla sinirlenirim.					
11. Neşeli insanlar beni tiksindirir.					
12. İnsanların duygularını incitmeyi dert edinmem.					
13. Diğer insanların mutlu olup olmasını gerçekten önemsemiyorum.					
14. Birisinin neler hissettiğini anlamakta zorlanırım.					
15. İnsanların çileden çıkmak üzere olduğunu anlayabilirim.					
16. Genelde birinin nasıl hissedeceğini tahmin edebilirim.					
17. İnsanların üzgün olup olmadığını gerçekten de umursamam.					
18. Diğer insanları huzursuz etmeyi severim.					
19. Diğer insanları aptal gibi hissettirmekten zevk alırım.					
20. Arkadaşlarım sinirlendiğinde genellikle gülesim gelir.					
21. Bazen insanları ağlarken görmekten zevk alırım.					
22. Diğer insanların duyguları beni hiç rahatsız etmez.					
23. Birisinin duygularını incittiğimde çok kötü hissederim.					
24. Diğer insanların yaşadığı talihsizlikler beni çok rahatsız etmez.					
25. Genellikle insanların nasıl hissettiklerini söyleyebilirim.					

<b>26.</b> Bazen insanların aşığılandığını görmek eğlencelidir.					
<b>27.</b> Eğer cezalandırılmayacağımı bilsem, canını acıtmaktan zevk alacağım bazı insanlar var.					
<b>28.</b> Eğer birisini üzen/inciten bir şey yapıyor olduğumu görürsem, hemen onu yapmayı bırakırım.					
<b>29.</b> İnsanlar üzgün olduklarında sıklıkla kendilerini daha iyi hissetmeleri için çaba harcarım.					
<b>30.</b> Diğerlerini mutlu etmekten keyif alırım.					
<b>31.</b> Diğer insanların duygularını anlamada iyi değilimdir.					
<b>32.</b> İnsanlar duygusuz olduğumu söylemektedir.					
<b>33.</b> Birisini neyin kızdırıyor olduğunu genellikle tahmin edebilirim.					
<b>34.</b> İnsanlar üzgün olduğunda bunu bana söylemek zorunda değil, üzgün olduklarını yüzlerinde görebilirim.					
<b>35.</b> Bir insan üzgün olduğunda bunu anlamak benim için zor.					
<b>36.</b> Diğer insanları sinirlendirmekten hoşlandığımı kabul ediyorum.					