

Adaptation of the Adolescent Measure of Empathy and Sympathy (AMES) to Turkish: a validity and reliability study

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ABSTRACT

Objective: Empathy plays an important role in the development of social behaviors of adolescents. For children and adolescents to continue their normal development, it is important to determine their empathic and sympathetic tendency levels and to perform appropriate interventions. In order to measure the level of empathy and sympathy, current Turkish measurement tools were not found in the literature. The aim of this study was to examine the validity and reliability of the Turkish version of the Adolescent Measure of Empathy and Sympathy Scale (AMES). **Methods:** The study was conducted with 212 students studying in high school within the boundaries of Sakarya Metropolitan Municipality. In the first phase, language equivalence, exploratory factor analysis, the internal consistency, and test-retest reliability were employed. The next phase, confirmatory factor analysis and concurrent validity were employed. **Results:** Along with the explanatory factor analysis, it was observed that 12 items were divided into 3 factors as a result of the content validity and that the loads of all factors were above 0.50. According to the confirmatory factor analysis, fit index values of the model were $\chi^2/df=2.012$, CFI=0.902, GFI=0.927, RMSEA=0.070 and SRMR=0.059. The Cronbach's alpha reliability coefficients ranged between 0.63 and 0.75 for three subscales. **Discussion:** This study shows that the AMES is a reliable and valid measurement tool of empathy and sympathy for Turkish adolescents. It provides a significant advantage compared to existing measurement tools by distinguishing affective empathy, cognitive empathy and sympathy. It can also make an important contribution to future studies on the role of empathy and sympathy in adolescent behavior. (Anatolian Journal of Psychiatry 2018; 19(2):184-191)

Keywords: adolescent, empathy, sympathy, scale adaptation, validity, reliability

Adolesanlarda Empati ve Sempatik Kurma Ölçeğinin Türkçe uyarlaması: Geçerlilik ve güvenilirlik çalışması

ÖZ

Amaç: Empati, adolesanların sosyal davranışlarının gelişmesinde önemli rol oynar. Çocuk ve adolesanların normal gelişimlerini sürdürebilmeleri için empatik ve sempatik eğilim düzeylerinin belirlenmesi ve uygun girişimlerde bulunulması önemlidir. Empati ve sempati düzeyini ölçmek için güncel bir Türkçe ölçüm aracına literatürde rastlanmamıştır. Bu araştırmanın amacı Adolesanlarda Empati ve Sempatik Kurma Ölçeğinin Türkçe formunun geçerlilik ve güvenilirliğini incelemektir. **Yöntem:** Araştırma, Sakarya Büyükşehir Belediyesi sınırları içinde 212 lise öğrencisiyle yapılmıştır. İlk adımda dilsel eşdeğerlik, açıklayıcı faktör analizi, iç tutarlılık katsayısı, test-tekrar test analizleri yapılmıştır. İkinci adımda doğrulayıcı faktör analizi ve uyum geçerliliği çalışılmıştır. **Sonuçlar:** Araştırma, faktör analizi ile birlikte kapsam geçerliliği sonucunda ölçekte bulunan 12 maddenin 3 faktöre bölünmüş olduğu ve tüm faktör yüklerinin 0.50'ın üstünde olduğu gözlenmiştir. Doğrulayıcı faktör analizine göre modelin uyum indeksi değer-

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leri $\chi^2/df=2.012$, CFI=0.902, GFI=0.927, RMSEA=0.070 ve SRMR=0.059'dur. Cronbach alfa iç tutarlılık güvenilirlik katsayıları üç alt ölçek için 0.63-0.75 arasında değişmektedir. **Tartışma:** Bu çalışma, Adölesanlarda Empati ve Sempat Kurma Ölçeğinin Türk adölesanlar için empati ve sempatinin güvenilir ve geçerli bir ölçüm aracı olduğunu göstermektedir. Ölçek, duygusal empati, bilişsel empati ve sempatiyi ayırarak mevcut ölçüm araçlarına göre belirgin bir avantaj sağlamaktadır. Ayrıca, adölesan davranışında empati ve sempatinin rolü hakkında gelecek araştırmalar için önemli bir katkı sağlayabilir. (*Anadolu Psikiyatri Derg 2018; 19(2):184-191*)

Anahtar sözcükler: Adölesan, empati, sempati, ölçek uyarlama, geçerlilik, güvenilirlik

INTRODUCTION

Empathy plays an important role in the development of social behaviors of adolescents. However, there is still no consensus on the definition of empathy.¹ Many researchers regard empathy as a multidimensional structure that includes cognitive and affective components.²⁻¹⁰ Affective empathy involves being sensitive to the feelings of others, recognizing their emotional experiences with an emotional response appropriate to their situation, and experiencing their feelings.^{3-5,11-17}

Cognitive empathy involves the process of understanding the perspective of another person by adopting his/her perspective.^{5,18-22} Cognitive empathy also includes the ability to understand others' intentions to see your own intentions.^{20,21,23}

The term sympathy means being aware of the trouble of another person and suffering it with him/her.²⁴ By being emphasized that sympathy is a derivative of empathy, sympathy is defined as sensitivity to the feelings of another person and then emerges as an emotional response. However, with sympathy, the individual does not share or respond to the feelings and emotions of the other person, instead, he/she shows an emotional response including sadness, compassion, easiness or feelings of affective concern for the other person.²⁵

For children and adolescents to continue their normal development, it is important to determine their empathic and sympathetic tendency levels and to perform appropriate interventions. Firstly, the fact that the levels of empathy and sympathy of adolescents are measurable will be a guiding spirit for the selection of appropriate approach.²⁶ In order to measure the level of empathy and sympathy, current Turkish measurement tools were not found in the literature. One of the most important points is that the AMES is the first scale that separately examined the concepts of affective empathy and sympathy. There are a limited number of empathy scales in the studies carried out in our country.²⁷⁻³²

In this study, it was aimed to determine the validity and reliability of the Turkish form of the Adolescent Measure of Empathy and Sympathy-AMES.

METHODS

Preliminary Study

Language adaptation: The scale was independently translated from English to Turkish by two translators who speak English very well. After individual translations were firstly made, the translators gave the scale translated by them to each other, and the review process was completed. Then, the scale items were independently translated from Turkish into English again by two people who know both languages as their mother tongue. The Turkish version of the scale was created by ensuring the equality of forms in both languages.³³

Content validity

The Turkish version of the scale was sent to experts who have studies on this subject to evaluate the understandability of its instructions and items in terms of language and expression and whether it covered the subject intended to be measured. The scale was sent to a total of eight faculty members including two from Psychiatry Department, two from Family Medicine Department and four from Pediatrics Nursing Department of Nursing Department, by email. The experts were asked to rate 1 to 4 points by using the measurement grade of each item in the scale (1=not appropriate, 2=needs many corrections, 3=needs few corrections, 4=very appropriate). The expert opinions were examined by Kendall's W concordance analysis (Number of experts: 8, Kendall's W=0.190, p=0.115). It was determined that the experts reached a consensus on the content of the items and that the items in the scale were appropriate for our culture and represented the area to be measured (p>0.05).

Main Study

Population and sample

This study was carried out with adolescents

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studying at secondary and high schools located in the center of Sakarya province and determined for the research during the 2015-2016 spring term. Ninth and tenth grade students studying at secondary and high schools within the boundaries of Sakarya Metropolitan Municipality during the spring term of the 2015-2016 academic year constituted the population of the study. Students without communication problems, who were selected using the simple random number table, were in the 10-15 age group studying in different school types of two secondary schools, two high schools and volunteered to participate in the study, constituted the sample of the study. The stratified sampling method was used in the selection of students from the classes. Data collection forms were distributed to students in company with the Psychological Counseling and Guidance (PCD) teacher of the school, and they were filled out by students in approximately 10 minutes. It was taken into account that the sample size was at least 10 times of the number of items in the 12-item scale during sampling ($n=212$). The test-retest method was performed with 79 students.

Data collection tools

In the study, data were collected using the Student Information Form and the Adolescent Measure of Empathy and Sympathy-AMES.

Student Information Form: It is a form consisting of a total of 10 questions prepared by the researchers to obtain the sociodemographic information of the students (age, gender, grade, parental educational status, family type, etc.).

Adolescent Measure of Empathy and Sympathy (AMES): It is a five-point Likert-type scale consisting of 12 items. The participants were asked to read each statement in the scale and to respond to whether or not they agreed with each item by marking one of the options listed as (1) strongly disagree, (2) disagree, (3) undecided, (4) agree, (5) strongly agree. The increase in the point that the student gets from each sub-dimension indicates that his/her ability to establish affective empathy, cognitive empathy and sympathy has also increased (Appendix 1).

Ethical aspect of the study

After permission was received from the first author who developed the scale via electronic e-mail to carry out the Turkish validity and reliability study of the research, permissions were received from Sakarya University Faculty of Medicine Non-Interventional Ethics Committee (No. 71522473/050.01.04/90) and Sakarya Provincial

Directorate of National Education, from school administrators and parents for the ethical approval. The purpose, duration and the things to do in the study were explained to the students and their parents who agreed to participate in the study before the interview.

Statistical analysis

Analyses were completed by transferring the data to IBM SPSS Statistics 23 and IBM SPSS AMOS 22 packaged software. Number and percentage were used for the evaluation of socio-demographic data, the Content Validity (Expert Opinion-Kendall Coefficient of Concordance), factor analysis was performed for the validity study of the scale, and the test re-test correlation, Cronbach's alpha and item analysis were performed for the reliability study. The principal component method was preferred as the factor extraction method while applying the explanatory factor analysis. The most preferred varimax rotation method was used in cases when the formation of a limited number of factors than and as strong as possible factors was desired. The factor analysis was applied to the 12-item structure. 3 factors were formed in the structure that included all items. Then, this structure was confirmed by the confirmatory factor analysis. The Cronbach's alpha coefficient was used to examine the reliability of the structure formed. The in-class correlation coefficient was calculated over 79 participants while controlling the time-dependent change of the scale.

RESULTS

The average age of 210 students who participated in the study was 13.86 ± 1.41 years. 55.7% of the participants ($n=119$) were male and 44.3% of them ($n=93$) were female.

Construct validity

The explanatory and confirmatory factor analyses were performed to evaluate the construct validity of the AMES. The Kaiser-Meyer-Olkin (KMO) coefficient evaluating the adequacy of the sample of the AMES for the factor analysis was found to be 0.751 (Table 1). It was determined that the result of the Barlett's Sphericity Test, which was performed to evaluate whether the correlation matrix of the items in the scale was suitable for the factor analysis, was significantly higher ($\chi^2=555.29$; $sd=66$; $p<0.001$) and that the scale was appropriate for the factor analysis.

Explanatory factor analysis

Along with the explanatory factor analysis, it was

Table 1. Kaiser Meyer Olkin (KMO) and Bartlett results regarding the suitability of the AMES application results to the factor analysis

Kaiser Meyer Olkin (KMO)		0.751
Bartlett Sphericity Test	χ^2	555.294
	sd	66
	p	<0.001

observed that 12 items were divided into 3 factors as a result of the content validity and that the loads of all factors were above 0.500. It was determined that Factor 1 (sympathy) accounted for 20.13% of the total variance, Factor 2 (cognitive empathy) accounted for 17.58% of it, and

Factor 3 (affective empathy) accounted for 14.84% of it. These three factors together accounted for 52.54% of the total variance (Table 2). In the scale, items 2, 4, 6, 7 and 11, items 1, 3, 8 and 10, and items 5, 9 and 12 measured the subdimension of sympathy, the subdimension of cognitive empathy and the subdimension of affective empathy, respectively. While item 7, in the original form of the scale was in the subdimension of affective empathy, it was observed to be in the subdimension of sympathy in our study. The items in the other subdimensions did not differ from the original scale.

Table 2. Factor analysis results of the items of the AMES

Variables	Factor loads	Variance percentage*	Eigen values	Cronbach's alpha
Factor 1: sympathy		20.128	2.415	0.753
Item 4	0.744			
Item 7	0.725			
Item 2	0.681			
Item 6	0.609			
Item 11	0.523			
Factor 2: cognitive empathy		17.579	2.110	0.630
Item 1	0.688			
Item 3	0.675			
Item 10	0.623			
Item 8	0.617			
Factor 3: affective empathy		14.837	1.780	0.633
Item 12	0.819			
Item 5	0.775			
Item 9	0.559			

* Total variance percentage: 52.545

Confirmatory factor analysis (CFA)

When the modification index values and the goodness of fit values were examined as a result of the CFA, the model was verified and the validity of the scale was provided (Table 3).

Figure 1 shows the dimensional structure of the 3-factor hypothesis model for the total factor. At the first stage, the 1st degree CFA model, in which the 3 factor-dimension were the latent variables and the expressions forming these factors were the indicator variables, was formed in Figure 1. Since latent variables are not metric, a value of 1 (equalization of factor load to 1) should be assigned to one of the paths drawn to the observed (indicator) variables of the latent variables, or a value should be assigned to the

variance of the latent variable (usually 1) to be able to estimate the parameter values. At the second stage, the maximum likelihood method, was used while estimating the model, and it was

Table 3. Goodness of fit values for the confirmatory factor analysis (CFA)

Compliance index	Model measurement	Acceptable compliance
χ^2/df	2.012	<4-5
GFI	0.927	>0.90
CFI	0.902	>0.90
RMSEA	0.070	<0.08
SRMR	0.059	<0.10

aimed to be able to estimate the parameters including the errors of the observed variables, the variances of latent variables, and the regression coefficients of the paths drawn from latent variables to the observed variables.

Furthermore, relational construct between the dimensions was performed to determine the expected covariance between the dimensions, and the relationships between the dimensions are also presented in Figure 1.

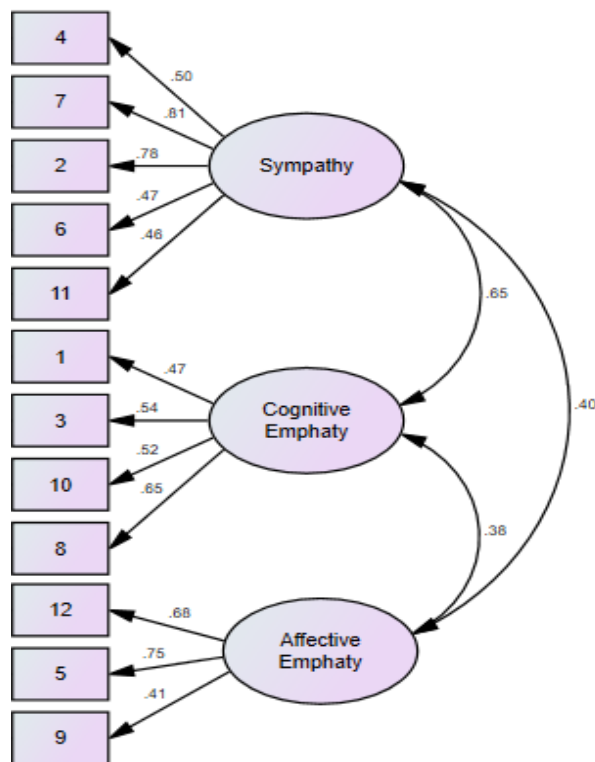


Figure 1. CFA Model with three different subdimensions

Reliability results

Internal consistency and item analyses: the Cronbach's alpha reliability analysis was used by performing the item-total scale analysis in evaluating internal consistency in the scale. The Cronbach's alpha reliability coefficients of the scale were determined to be 0.75 for the subdimension of sympathy, 0.63 for the subdimension of cognitive empathy and 0.63 for the subdimension of affective empathy (Table 2).

Reliability results between test-retest: The test-retest method was used to determine the likelihood of scale form was applied to 79 students every two weeks, and it was found out that there was very high achieving similar measurement values measured in the repetitive measurements of the AMES. The concordance between the retest and the first test ($r=0.851$). Accordingly, no time-dependent change was found in the AMES (Table 4).

Table 4. Concordance results between test-retest for the AMES

	Intraclass correlation coefficient	95% confidence interval
5-D Scale	0.851	0.767-0.905
Sympathy	0.856	0.774-0.908
Cognitive empathy	0.826	0.728-0.889
Affective empathy	0.736	0.588-0.831

DISCUSSION

Reliability and validity come first among the technical specifications that a measurement tool should have. The degree of measuring what is intended to be measured on a scale or the fact

that the measurement tool is appropriate to the desired feature is explained as validity.³⁴

KMO test is performed to determine the adequacy of the data obtained from the sample. It is stated that the value found in Kaiser is excellent as it approaches 1 and unacceptable below 0.50. Furthermore, the Bartlett Sphericity test should be found to be significant.³⁵ In the study, the KMO value was found to be 0.768. Thus, it was observed that the results of the factor analysis to be applied to the data would be useful and applicable. As a result of the Bartlett Sphericity test, significantly higher relationships were found between the variables and it was concluded that the data were suitable to apply the factor analysis.

In the study, the explanatory factor analysis was performed and the principal component method was preferred as the factor extraction method. No restriction was imposed on the number of factors. As a result of the factor analysis applied, the number of 12 items remained constant. As a result of the content validity of these 12 items, it was observed that they were collected in 3 factors and all factor loads were over 0.50. It was observed that while item 7 in the original form of the scale was in the subdimension of affective empathy, it was in the subdimension of sympathy in our study. The items in the other subdimensions did not differ from the original scale.

As a result of the factor analysis, it was observed that the AMES included 3 subgroups (factors) and these three factors together accounted for 52.64% of the total variance. It is stated that the higher the percentage of variance obtained as a result of the factor analysis is, the higher the factor structure of the scale will be. When the internal consistency of the scale is examined for the three subdimensions, it appears to be at a satisfactory level. Furthermore, the test-retest reliability of the scale performed in a two week period is moderate and consistent with other empathy scales.^{9,36} These results support the reliability of the AMES.

The internal consistency coefficients of the AMES Turkish form were found to be Cronbach's

$\alpha=0.78$ for the entire scale; $\alpha=0.75$ for the sympathy subdimension; $\alpha=0.63$ for the cognitive empathy subdimension; and $\alpha=0.63$ for the affective empathy subdimension. The internal consistency coefficients in the original study of Vossen et al.⁹ were reported to be $\alpha=0.76$ for the sympathy subdimension; $\alpha=0.86$ for the cognitive empathy subdimension; and $\alpha=0.75$ for the affective empathy subdimension. Bora and Baysan³⁷ found their Empathy Scale's Cronbach α to be 0.82 and Topcu et al.²⁹ found the cognitive subdimension to be $\alpha=0.80$ and the affective empathy subdimension to be $\alpha=0.76$ for the Basic Empathy Scale. In Kaya and Siyez's³⁰ study, it was reported that the scale of the adolescent form was $\alpha=0.82$ for the affective empathy subdimension; $\alpha=0.82$ for the cognitive empathy subdimension; and $\alpha=0.87$ for the entire scale and it is similar to the results of our study. Also, the fit indexes (CFI: 0.90; RMSEA: 0.07) obtained in this study are very close to the original study (CFI: 0.94; RMSEA: 0.07) of the scale Vossen et al.⁹ conducted.

In our study, the scale factor loads were found to be 0.52-0.74 for sympathy; 0.61-0.68 for cognitive empathy; and 0.55-0.81 for affective empathy. In the results of Vossen et al.,⁹ they were reported to be 0.57-0.72 for sympathy; 0.72-0.86 for cognitive empathy; and 0.55-0.84 for emotional empathy, and it shows a similar result with our study. In Kaya and Çolakoğlu's³² study, the factor loads of the scale were found to be 0.47-0.66 for the social skills sub-dimension; 0.46-0.66 for the emotional response sub-dimension; and 0.48-0.78 for the cognitive empathy sub-dimension, and it is similar to the results of our study.

This study shows that the AMES is a reliable and valid measurement tool of empathy and sympathy for Turkish adolescents. It provides a significant advantage compared to existing measurement tools by distinguishing affective empathy, cognitive empathy and sympathy. It can also make an important contribution to future studies on the role of empathy and sympathy in adolescent behavior.

Authors' contributions: N.Ç.: The determination of the research subject, planning and executing the research, writing of the article; H.Z.: The literature review, collection of research data, writing of the article; S.Y.Ç.: The literature review, analysis of data, writing of the article.

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Appendix (Ek) 1. Adölesanlarda Empati ve Sempatî Kurma Ölçeği

Aşağıda son altı ay içinde neler hissettiğinizi ve nasıl davrandığınızı içeren sorulara yer verilmiştir. Bu sorulara verdiğiniz cevabın ne sıklıkla olduğuna ilişkin düşüncenizi ilgili sütuna "X" işareti yazarak belirtiniz.

Sıra No	Sorular	Hiçbir zaman	Nadiren	Bazen	Sıklıkla	Her zaman
1	Başkalarının ne hissettiğini kolaylıkla söyleyebilirim.					
2	Arkadaşım üzgün hissettiğinde ben de üzgün hissederim (ona acırım).					
3	İnsanlar bana anlatmadan önce bile onların ne hissettiğini anlayabilirim.					
4	Haksızlığa uğramış biri için üzülürüm.					
5	Arkadaşım öfkelenildiği zaman ben de öfkelenirim.					
6	Canı yakılan hayvanlar için endişelenirim.					
7	Arkadaşım üzüldüğünde ben de üzülürüm.					
8	Arkadaşım saklamaya çalışsa bile onun kızgın olduğunu anlayabilirim.					
9	Arkadaşım korktuğunda ben de korkarım.					
10	Mutlu gibi davranan birinin aslında mutlu olmadığını anlayabilirim.					
11	Hastalar için endişelenirim.					
12	Çevremdeki insanlar sinirli olduğunda ben de sinirlenirim.					