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Araştırma Makalesi

THE UYGHURIAN VERSION OF THE KA-SI EMPATHIC TENDENCY SCALE-ADOLESCENT FORM: VALIDITY AND RELIABILITY

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Abstract

The aim of this study was to examine the factorial validity, measurement invariance across sex, and reliability of a Uyghurian version of the KA-SI Empathic Tendency Scale-Adolescent Form (KA-SI AF) among adolescents in Xinjiang, China. A total of 331 middle and high school students (198 girls, 133 boys) were included in the sample. Research data was collected via KA-SI AF and demographic questionnaire. Confirmatory factor analyses supported a two-dimensional structure (cognitive and emotional). Multi-group CFA supported measurement invariance across sex groups. The Uyghur form of KA-SI AF yielded excellent reliability values from .84 to .90. Findings suggest that Uyghur version of the KA-SI AF was valid and reliable measure of empathic tendency suitable for middle and high school students.

Keywords: Empathic tendency scale, validity, reliability, Uyghurian version.

KA-SI EMPATİK EĞİLİM ÖLÇEĞİ-ERGEN FORMU'NUN UYGURCA VERSİYONU: GEÇERLİK VE GÜVENİRLİK

Öz

Bu çalışmanın amacı, Çin'in Sincan bölgesindeki ergenler arasında KA-SI Empatik Eğilim Ölçeği-Ergen Formu'nun (KA-SI AF) Uygurca versiyonunun faktör geçerliliğini, cinsiyete göre ölçüm değişmezliğini ve güvenilirliğini incelemektir. Örnekleme gurubuna toplam 331 ortaokul ve lise öğrencisi (198 kız, 133 erkek) dâhil edilmiştir. Araştırma verileri KA-SI AF ve demografik anket formu yoluyla toplanmıştır. Doğrulayıcı faktör analizleri iki boyutlu bir yapıyı (bilişsel ve duygusal) desteklemiştir. Cinsiyet grupları arasında ölçüm değişmezliği çok gruplu CFA yoluyla desteklenmiştir. KA-SI AF'nin Uygurca formu, .84 ile .90 arasında mükemmel güvenilirlik değerleri göstermiştir. Bulgular, KA-SI AF'nin Uygurca versiyonunun ortaokul ve lise öğrencilerine uygun, geçerli ve güvenilir bir empatik eğilim ölçüsü olduğunu göstermektedir.

Anahtar Sözcükler: Empatik eğilim ölçeği, geçerlik, güvenirlik, Uygurca versiyonu.

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Introduction

Empathy often described as the ability to understand and share others' emotional experience (Cohen & Strayer, 1996, p. 988). Empathy is best defined multi-dimensionally from both a cognitive and an effective perspective. In cognitive terms, empathy involves understanding others' feelings (cognitive empathy), whereas in effective terms, empathy involves a concordant emotional response stemming from others' effective state (effective empathy), both effective and cognitive aspects are necessary for empathy to occur (Cohen, 1982, p. 3).

The KA-SI Empathic Tendency Scale for child and adolescent was developed to assess the above mentioned components of empathy. There are both two sub-scales of the 13-items KA-SI ETS child form and 17-items KA-SI ETS adolescent form. The first sub-scale is Emotional Empathy and the second sub-scale is Cognitive Empathy. Emotional Empathy consist with the following characteristics: to feel the sense of what other people live and provide the most appropriate response. Also it is very important for individuals to be motivated in order to have sacrificial behavior towards their family members, friends and other foreigners and ethic develops; Cognitive Empathy consist with the following characteristics: to have understanding of the other person's feelings but not required to share these feelings with other people. İn basic terms, state more accurately of the other person's emotions, in complex terms, evaluate the events from the other person's perspective and it is influential for individuals in social functioning (Kaya & Siyez, 2010, p. 123).

Empathy was one of the necessities of communication that can made individual correct understanding and expression (Taner-Derman, 2013, p. 1367). Therefore it was necessary to assess the students' empathy tendency and the affect factor. Şahin, Ersanlı, Kumcağız, Barut & Ak, (2014, p. 6)'s study with KA-SI AF about sociodemographic differences in empathic tendency found that the girls empathic tendency are higher than the boys. Some other studies also showed that girls empathic tendency were higher than the boys (Rehber, 2007; Küçükkaragöz, Akay & Canbulut, 2011; Satılmış, 2012; Karamuk, 2015; Liu, J., Qiao, X., Dong, F., & Raine, A, 2018). Consequently, all this studies showed that gender is a variable possibly affecting the empathic tendency.

Dereli and Aypay (2012, p. 1265) conducted a study with KA-SI ETS, and found that Empathic Tendency sub-scale significantly predicted responsibility, friendship, pacifism, respect, honesty and tolerance of human values. Duy and Yıldız (2014, p. 36)'s study with KA-SI ETS show that victim position students' have more cognitive empathic tendencies, emotional empathic tendencies and total empathic tendencies than the bully students and bully/victim students. Also Siyez and Kaya (2011, p. 36)'s study with KA-SI ETS demonstrated that cognitive empathy and emotional empathy formed a linear separation between the comparison group, the victim group, the bully group, and the bully/victim group and non bully/victim group. Another studies indicated effectiveness of the psycho education program in increasing empathy levels and communication skills of the visual impaired adolescent (Yıldız & Duy, 2013, p. 1468). There are another study with KA-SI AF about sociodemographic differences in empathic tendency (Şahin et all, 2014, p. 9). In a whole, these studies show that KA-SI ETS was significantly related to measures of peer bulling, human values (responsibility, friendship, pacifism, respect, honesty and tolerance) and communication skills. All of these studies show latitude to the past research result that Empathy plays a key role in social understanding and is

an important protective factor for anti-social behaviors (Jolliffe & Farrington, 2004; Lawrence, Shaw, Baker, Baron-Cohen & David, 2004; Kemp, Overbek, Wied, engels, Scholte, 2007).

The above review show that the KA-SI ETS developed by Kaya and Siyez in 2010 provides an acceptable framework for research in empathy (Dereli & Aypay, 2012; Duy & Yıldız, 2014; Siyez & Kaya, 2014; Yıldız & Duy, 2013). The KA-SI ETS, which was developed to assess empathy tendency, is a valid and reliable instrument that can be used in research and efficacy studies. Unfortunately, there was no standardized instruments for the assessment of empathy for Uyghur nationalities in China.

As noted, Uyghurs are a Turkic people who live in Xinjiang which is located in Northwest China and occupies one sixth of China's territory. They take Islamic foods, wear their costumes, and celebrate their own festivals. Their language, written in the Arabic script, belongs to the Turkic language. They are "one of the most nationalistic and least assimilated minorities in China" (Zang, 2012, p. 14). As a special group the Uyghur students in China are also facing competition as well as opportunities and challenges in the community. Mental health is an important condition for them to move towards a modern society in future (Mahplet & Meng, 2001). In order to improve Uyghur students' mental health level, reduce antisocial and aggressive behavior are an urgent need of measure.

Expressions of emotion and interpersonal behaviors are culture-bound, underscoring the need for translations of these assessment tools to account for cross-cultural diversity in empathy as a construct and to accurately capture its presence. Valid and reliable assessments for empathy in Uyghur children are lacking and would be valuable for research to better understand risk factors and potential interventions for child internalizing and externalizing behaviors. As such, the adaptation and validation of an Uyghurian version of KA-SI ETS could be an important contribution to the psychological evaluation of empathy in Uyghur children and adolescents. The KA-SI ETS could be one of the first empathy scale to be made available in Uyghur region.

The primary purpose of this study was to expand upon previous findings by examining the factor structure of the KA-SI AF with a sample of Uyghur 7 th and 12 th grade students Measurement invariance of the KA-SI AF across sex via multi group was evaluated. Another purpose of this study was to evaluate the reliability of the Uyghurian version of the KA-SI AF. In this study, sex differences in the KA-SI AF were also investigated.

It was hypothesized that (1) The KA-SI AF would have similar factor structure with the original scale, and satisfactory item-factor loadings. (2) The factor structure of the KA-SI AF are invariant across sex. (3) The KA-SI AF would have high item-total correlations and demonstrate satisfactory internal consistency (4) there would be gender differences for KA-SI AF subscales and total scores, and girls were expected to be more empathic tendency in comparison with boy

Method

Participants

Participants were 331 students (40% boys and 60% girls) from Urumqi state high schools, Turfan state high schools and Kumul state middle schools in Xinjiang, China. Their ages ranged from 12 to 19 years (M = 15.84, SD = 1.67). In terms of grade level, 8.8% of

participants were 7 th graders, 9.4% were 8 th graders, 5.3% were 9 th graders, 48.7% were 10 th graders, 13.8% were 11 th graders, and 14.1% 12 th graders.

Measures

KA-SI AF (Kaya & siyez, 2010). KA-SI AF was developed to measure two aspects of empathic tendency. The scale contains 17-items and scores can be calculated for two subscales, namely Emotional Empathy (10 item) and Cognitive Empathy (7 item). Items are rated on a 4-point, Likert-type scale that ranges from 1 ("Not at all like me") to 4 ("very much like me"). Higher scores indicate higher levels of empathic tendency. The Cronbach's alphas for each subscale and scale were as follows: emotional empathy .82; cognitive empathy .81; total scale .91.

Using the International Test Commission Guidelines (2010), the KA-SI AF was adapted from Turkish into Uyghurian with a four-step process (context, test development and adaptation, administration, and documentation/score interpretations). In the first step, the scale was analyzed in terms of construct equivalence between the original and target contexts by three experts in child and adolescent development. All experts agreed that the theoretical rationale that served as the basis for the original KA-SI AF, as well as the items representing them, were equally relevant and important to the Uyghur context.

In the second step, The KA-SI AF was translated into Uyghurian by two native Uyghurian speakers fluent in Turkish and blindly back-translated by a professional Uyghurian–Turkish translator. Once back-translation was complete, the professional Uyghurian–Turkish translator and another native Uyghurian speaker fluent in Turkish compared each back-translated item to the original Turkish items. Semantic equivalence or equivalence in item meaning was achieved.

The third step (methodology for administering instruments) and the fourth step (establishing validity and reliability results) of the adaptation process will be explained in the procedure subsection and the results section respectively .

Demographic questionnaire. A demographic survey was included to gather information on participants' age, sex and grade levels.

Procedure

After identifying the schools from which the sample would be drawn, legal permission was obtained from the school principals. Sampling followed a convenience and then random procedure: three schools from the different country of Xinjiang were selected for geographical convenience reasons pertaining to data collection; participating classes in each school were randomly selected. School teachers collected the data in a classroom setting. Questionnaires were completed individually, anonymously, and voluntarily. It took approximately 15-20 min to complete the measures.

Data analysis

Data analysis proceeded in five steps: first the tests of data quality (examination of the rate of missing data, outliers, summarized mean, standart deviaton, skewness, and kurtosis); second, confirmatory factor analysis; third multiple group confirmatory factor analysis to test the sex invariance of the KA-SI AF; fourth, tests of internal consistency; and fifth, sex differences in dimensions of the KA-SI AF.

Preliminary analysis was done to test data quality, which examined the rate of missing data, outliers, summarized mean, standart deviation, skewness, and kurtosis. Twelve data were deleted for univariates and multivariate outliers.

To confirm the two-factor model, a two-factor solution was tested using confirmatory factor analysis (CFA) in Lisrel 8.30 (Jöreskog & Sörbom, 1999). Covariance matrix was used as input for maximum-likelihood method of estimation procedures. The model fit of the models were evaluated using the following fit indexes: The goodness-of-fit (GFI) >.90, the comparative fit index (CFI) >.95, the adjusted goodness-of-fit index (AGFI) >.85, the root mean square error of approximation (RMSEA) <.06, and standardized root mean square residual (SRMR) <.08 (Hu & Bentler, 1999). Before conducting the CFA, we evaluated assumptions of multivariate normality and linearity with SPSS.

Multi-group invariance of CFA models were used to testing for factorial invariance across sex. The four types of measurement invariance tests used were: configural invariance, weak metric invariance, strong metric invariance, and strict invariance (Milfont & Fischer, 2010; Vandenberg & Lance, 2000). In these analysis, ΔX^2 and ΔCFI value were used to evaluate measurement invariance.

Cronbach's a coefficients and item-total correlations were computed to assess internal reliability of each subscale and the total scale. To investigate sex differences in dimensions of the KA-SI AF, independent samples t-test was used. The significance level was set at $p< .05$.

Results

Validity

CFA was conducted to confirm the factor structure of the KA-SI AF. CFA analysis suggested that a two-factor model adequate fit to data, $X^2= 223.73$, $p<.001$, RMSEA= .05, CFI = .95, GFI= .93, and SRMR= .04. All 17 items had significant path estimates, ranging from .43 to .80 and factors were significantly correlated (see Figure 1).

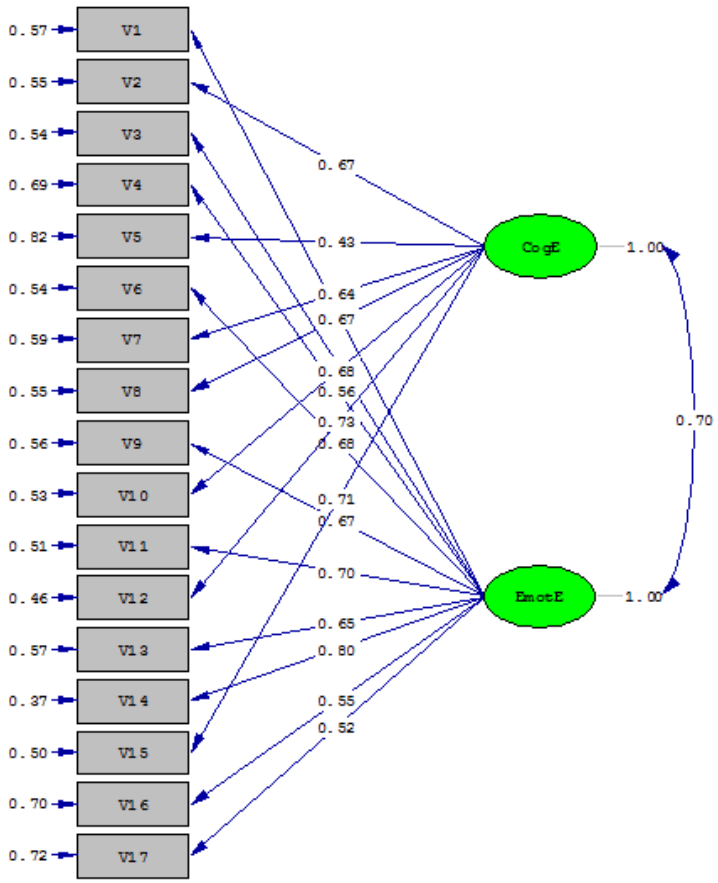

Figure 1: Not: CogE = Cognitive empathy, EmotE= Emotional Empathy

Multiple-group CFA Analysis for Invariance Across Sex

The two-factor model was analyzed separately for girls and boys a priori. Results revealed good fit to the data for both sexes, although the girls' model, $X^2(113) = 167.07$, p= .00; $X^2/df = 1.48$; RMSEA= .04; CFI= .95; GFI= .93; and SRMR= .05, yielded a slightly better fit than did the boys' model $X^2(113)= 141.68$, p= .00; $X^2/df = 1.25$; RMSEA = .04; CFI = .94; GFI = .90; and SRMR = .06.

A series of multi-group analyses were used to test four types of measurement invariance models of the KA-SI AF across sex (see Table 1). Configural invariance is the first step to establish measurement invariance. As shown, configural invariance analysis resulted in a good fit model, $X^2(237) = 383.12$, p= .00; $X^2/df = 1.48$; RMSEA = .06; CFI = .92. This indicates that the correlated two-factor structure holds across girls and boys. To test for weak metric invariance, the factor loadings were constrained. Comparisons of the X^2 and CFI for the configural versus weak metric invariance models yielded $\Delta X^2= 4.72$ and $\Delta CFI = .000$, and there is no significant deterioration in the model. Findings of weak metric invariance implies that both groups are interpreting the items in the same way. To test for strong metric invariance, factor loadings and intercepts were constrained. Comparisons of the X^2 and CFI for the weak versus strong metric invariance models yielded, $\Delta X^2= 15.04$ and $\Delta CFI= .000$, and there is no significant deterioration in the model. This indicates that the latent means are the same across

sex. To test for strict metric invariance, all parameters (factor loadings, intercepts, and error or residual variances) were constrained. Comparisons of the X^2 and CFI for the strong versus strict metric invariance models yielded $\Delta X^2 = 25.58$ and $\Delta CFI = .000$, and there is no significant deterioration in the model. This indicates that observed variables are invariant across groups, having no measurement bias.

Table 1: Multi-Group Confirmatory Factor Analysis by Sex

	X^2	sd	RMSEA	CFI	ΔX^2	Δsd	ΔCFI
Configural invariance model	383.12	237	.061	.92	-	-	-
Weak metric invariance model	387.84	252	.057	.92	4.72	15 (30.5)	.000
Strong metric invariance	403.24	267	.056	.92	15.4	15 (30.5)	.000
Strict metric invariance	428.82	283	.061	.92	25.58	16 (32.0)	.000

Reliability Analysis

Psychometric properties for the KA-SI AF items and correlations between each item and its own subscale are evaluated (see table 2).

Table 2: Psychometric Properties of Items

Scale	Items	M	SD	Corrected Item total Correlation	α
Cognitive empathy	KA-SI2	2.88	.81	.64	.84
	KA-SI5	2.93	.94	.40	
	KA-SI7	3.01	.87	.58	
	KA-SI8	3.16	.81	.60	
	KA-SI10	3.02	.83	.60	
	KA-SI12	2.95	.83	.60	
	KA-SI15	3.16	.81	.70	
Emotional Empathy	KA-SI1	2.55	.80	.60	.88
	KA-SI3	2.87	.94	.62	
	KA-SI4	2.98	.91	.53	
	KA-SI6	2.76	.94	.61	
	KA-SI9	2.48	1.01	.62	
	KA-SI11	2.92	.90	.67	
	KA-SI13	3.10	.90	.61	
	KA-SI14	2.84	.86	.72	
	KA-SI16	2.83	1.03	.53	
	KA-SI7	3.24	.87	.53	

The internal consistency reliability of the overall KA-SI AF was .90. Further, the cognitive empathy subscale had an internal consistency of $\alpha = .84$ and the emotional empathy subscale had an internal consistency reliability of $\alpha = .88$. These high and significant a coefficients can be considered as excellent reliability indices (Salvucci, Walter, Conley, Fink, & Saba, 1997, p. 111) and suggest a high degree of internal consistency.

The item-total correlations ranged from .40 to .70 for cognitive empathy subscale, from .53 to .72 for emotional empathy subscale. Based on the criterion of .30 as an acceptable corrected item–total correlation, these values are all within acceptable (Nunnally & Bernstein, 1994).

Furthermore, significant inter correlation ($p < .001$) was obtained between emotional empathy subscale and cognitive empathy subscale ($r = .56$). This moderate correlation provides evidence that students can distinguish between the separate domains of the KA-SI AF.

Comparative analyses

Sex differences in the KA-SI AF subscales (cognitive empathy and emotional empathy) and total scores were assessed by using independent samples t-test (see Table 3).

Table 3: Independent Samples t-test Summary, Means and Standard Deviations of The KA-SI AF Subscales by Sex

	Girls (n= 198)		Boys (n = 133)		Cohen's d	t value
	Mean	SD	Mean	SD		
Cognitive empathy	21.88	4.08	20.03	4.17	0.45	4.01*
Emotional empathy	30.45	5.80	25.89	6.21	0.76	6.81*
Total score	52.34	8.67	45.92	9.28	0.71	6.41*

*p<.001

Results showed that there were significant differences in the two subscales and total scores of the KA-SI AF between girls and boys. Girls had higher scores than boys on the cognitive empathy subscale, $t(329) = 4.013$, $p < .001$, emotional empathy subscale, $t(329) = 6.81$, $p<.001$, and total scores $t(329) = 6.41$, $p<.001$. Effect sizes (Cohen's d) were observed in the medium-to-large range for these subscales and scale (Cohen, 1988, p. 52).

Discussion

This study examined the factor structure, concurrent validity, reliability and sex difference of the Uyghurian version of the KA-SI AF. Results of the present study totally supported the hypotheses that the Uyghurian version of the KA-SI AF appears to be a culturally appropriate instrument to assess empathy level in 7th and 12th grade Uyghurian speaking adolescents from Xinjiang, China.

Structure of the KA-SI AF was examined with CFA. The CFA results supported an appropriate and useful structure version of the KA-SI AF (figure 1), as expected, by two correlated factors (cognitive empathy and emotional empathy). Also, the internal consistencies of subscales are showed to be satisfactory. This results offers strong support for the overall original factor structure of the KA-SI AF (Kaya & siyez, 2010, p. 119). Results for factorial invariance provide this measurement model to be invariant across sex. MGCFA results showed that configural, metric, scalar invariance, and error variance invariance were also supported for both gender groups.

Another purpose of this study was to examine gender differences in the dimensions of the KA-SI AF. Findings revealed that girls get higher scores than boys on cognitive subscale, emotional subscale and the total scales. These findings are supported by other studies. For example, Şahin et all, (2014, p. 6) found that empathic tendency levels of girls were significantly higher than boys in the KA-SI AF. Karamuk, (2015, p. 41) found in her thesis about empathy levels of 10-13 age group children that girls empathy levels are higher than boys. There are a lot of any other study showed the same result that girls empathy tendency are higher than boys (Küçükkaragöz, Akay & Canbulut. 2007; Satılmış, 2012; Rehber, 2007). In another study, Onay, Egüz & Ünal. (2015, p. 4) investigated of empathic tendency of teacher candidates according to some variables, and they found no significant gender differences on their study.

To the reliability of the KA-SI AF, internal consistency and item-subscale total correlation values were computed. The results obtained from this sample showed that the KA-SI AF demonstrated excellent reliability. The cronbach's a values of subscales, emotional empathy .88; cognitive empathy .84; total scale .90. were very similar to those obtained in the original study, which emotional empathy .82; cognitive empathy .81; total scale .91 (Kaya & siyez, 2010, p. 121).

Despite the theoretical and practical implications discussed previously, the current study has some limitations. The first limitation of this study was the sample size and samples consisted of Uyghurian middle school and high school students, limited to be generalized to other general adult population. Therefore, future studies should aim to replicate these findings with larger, more representative samples among other diverse populations in Xinjiang. Second, the findings were not use equivalent scale and distinguished scale. Indeed, equivalent scale and distinguished scale is as important as CFA models in scale adaptation. The reason was there are

not have an Uygurian version empathy scales or similar scales to use. Nevertheless, the KA-SI AF becomes only valid and reliable instrument for evaluating Uyghurian students empathy level in Xinjiang, China.

In conclusion, the present study showed that the translation and adaptation of the KA-SI AF into Uyghurian was successful and Uyghurian version of the KA-SI AF developed in this study and acceptable factor structure, internal consistency, reliability and gender difference. It is also now possible that international experiment can compare empathy tendency in Turkish and Uyghurian with KA-SI AF. Furthermore, our findings have important implications for design and evaluation of intervention program to measure and develop high school and middle school students emotional level. Empathy is one of the most important social ability for children and adolescent. It also provides a significant addition to research literature that evidences of the KA-SI AF to diverse cultural groups.

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