



Psychometric Properties of the KIDCOPE in Turkish Adolescents

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Abstract

The purpose of this study was to examine the validity and reliability of a Turkish version of the Kidcope (Kidcope-T), developed by Spirito, Stark, and Williams (1988), which is one of the most widely used brief instruments for the assessment of children's and adolescents' coping strategies. Participants were 453 grade 7, 8, 9, 10, and 11 students. Alternative models suggested from previous research were tested using Confirmatory Factor Analyses and Spirito's three-factor model was found to provide the best fit to the data. The convergent validity of the Kidcope was supported by a moderate correlation between the subscales and trait anxiety. The internal consistency score of the Kidcope subscales were $\alpha = .72$ for Active Coping, $\alpha = .70$ for Avoidant Coping, and $\alpha = .65$ for Negative Coping. Test-retest reliability in an interval of three weeks were $r = .66$ for Active Coping, $r = .61$ for Avoidant Coping, and $r = .76$ for Negative Coping. These results revealed that this scale is a valid and reliable instrument to use with Turkish 7-11 grade students as a measure of coping approaches students.

Keywords

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Introduction

Due to its effects on managing and adapting to stressful life events, psychological, social, emotional, cognitive, and educational problems (Wadsworth, Raviv, Compas, & Connor-Smith, 2005), coping strategies has received much attention over the past three decades. In their model, Lazarus and Folkman (1984) defined coping as "constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing and that exceed the resources of the person" (p. 141). Coping strategies are associated with many aspects of personal and emotional situations as well as personality traits. For instance, Khamis (2013) have found that more reliance on positive coping and less reliance on negative coping is associated with better academic achievement. Also, students using more active and emotional strategies exhibit fewer mental health problems, whereas students using withdrawal and oppositional coping strategies demonstrated greater mental health problems (Holen, Lervåg, Waaktaar, Ystgaard, 2012). Problem and emotion-focused coping

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style is more related to extraversion while avoidant coping style is more related to neuroticism and psychoticism (Kardum & Krapic, 2001).

There have been different categorizations of coping strategies from broader to narrower extents such as approach/problem-focused or avoidant/emotion-focused, emotional or behavioral (Lazarus & Folkman, 1984), primary or secondary control, and disengagement (Connor-Smith, Compas, Wadsworth, Thomsen, & Saltzman, 2000), escape or control-oriented (Cheng & Chan, 2003; Pereda, Forns, Kirchner, & Muñoz, 2009) active, avoidant, or negative (Spirito, Stark, & Tyc, 1994), active, withdrawal, or oppositional (Holen et al., 2012). However, more specific categories with three or more factors are recommended since overly broad categorizations may include adaptive and maladaptive strategies into the same dimension (Edgar & Skinner, 2003; Skinner, Edge, Altman, & Sherwood, 2003).

As a multidimensional construct, there have been many attempts to develop sound measures to assess various aspects of coping strategies (Amirkhan, 1990, 1994; Ayers, Sandler, West, & Roosa, 1996; Carver, Scheier, & Weintraub, 1989; Folkman & Lazarus, 1988; Özbay & Şahin, 1997; Patterson, & McCubbin, 1987; Tobin, Holroyd, & Reynolds, 1984; Türküm, 2002). Within these constructs, the Kidcope developed by Spirito et al. (1988) emerged as one of the most widely used measures of coping among children and adolescents (Vigna, Hernandez, Kelley, & Gresham, 2010). One reason for its popularity and its greatest appeal may be its brevity (Spirito, 1996) as Carver (1997) also mentioned that researches designed to test multiple hypotheses with the same sample involving different measures with many items would benefit from a brief measure of coping to test all their hypotheses or conduct repeated-measures research. According to Spirito (1996), a brief measure of coping strategies is advantageous compared with interviewing protocols especially with children because interviews may be time-consuming and this is a significant drawback when studying with younger populations. The other reason may be the few number of scales targeted small age groups since the previous constructs are mostly developed to use with university students and older populations. Besides its advantages, the brevity of the Kidcope has certainly some shortcomings, such as lower levels of internal consistency reliability due to the small number of items.

The Kidcope has two different versions, one for adolescents (aged 13 to 18 years) and one for children (aged 5 to 13 years). The adolescent version contains 11 items which are all about ten coping strategies (social withdrawal, distraction, wishful thinking, cognitive restructuring, social support, problem-solving, self-criticism, emotional regulation, resignation, and blaming others). The children version also assess the same ten coping strategies with 15 items which are divided in separate sentences from the longer sentences of adolescent version to make sentences more comprehensible for younger children. Spirito, Stark, and Tyc (1994) then grouped the ten strategies into three main categories as active (cognitive restructuring, problem solving, emotional regulation, and social support), avoidant (distraction, social withdrawal, resignation, and wishful thinking), and negative (self-criticism and blaming others) coping strategies.

Since the development of the Kidcope, it was translated to many languages including German (Rathner & Zangerle, 1996), Chinese (Cheng & Chan, 2003), Spanish (Pereda et al., 2009), Norwegian (Holen et al., 2012) and its psychometric properties were examined in many studies for the English and other language versions. The results of these studies yielded different factor structures. With the original version, Spirito et al. (1994) recommended three factors which categorized ten coping strategies into Active, Avoidant and Negative Coping. Using a Chinese version of the Kidcope, Cheng and Chan (2003) found two factors which loaded ten coping strategies on Escape-Oriented Coping (distraction, social withdrawal, self-criticism, blaming others, wishful thinking, resignation, and emotional outburst) and Control-Oriented Coping (cognitive restructuring, problem solving, social support, and relaxation). The same two-factor structure was found in the studies using Spanish version (Pereda et al., 2009; Reinoso & Forns, 2010). With a population which is predominantly Caucasian and Hispanic Americans, Vernberg, La Greca, Silverman, and Prinstein (1996) found a four-factor model which were labeled as Positive Coping (cognitive restructuring, problem solving,

positive emotional regulation, social support-seeking, and distraction), Blame and Anger (self-criticism, blaming others, and negative emotional regulation), Wishful Thinking, and Social Withdrawal. One study with African Americans concluded that the Kidcope is a unidimensional measure of coping when used with adolescents (Vigna et al., 2010).

Although the Kidcope is one of the most widely used measures of coping strategies among children and adolescent populations, very few studies (e.g., Cheng & Chan, 2003; Vigna et al., 2010) tested aforementioned factorial structures using confirmatory factor analysis. Besides, further studies are needed on the equivalence of the Kidcope across other U.S. racial/ethnic groups and non-English speaking countries. Therefore, the purpose of the current study was threefold: (a) to test Spirito et al.'s (1994) three-factor model in an adolescent sample using confirmatory factor analysis, (b) to compare the fit of this model to a number of theoretically and empirically derived models (Cheng & Chan, 2003; Vernberg et al., 1996; Vigna et al., 2010) in an attempt to examine which of the competing models is the most appropriate, and (c) to examine the validity and reliability of the Kidcope among Turkish adolescents on the most appropriate model.

Method

Participants

The participants consisted of 453 students from 7th to 11th grade students between the ages of 13 and 18, with a mean age of 15.1 years ($SD = 1.51$). The participants were recruited from classes in urban public schools. There were 227 (50.1%) female students and 226 (49.9%) male students. Mothers generally graduated from primary (50.1%), secondary (20.1%), and high school (17.7%) and fathers generally graduated from high school (28.3%), primary school (27.6%), and university (24.7%). Of the participants 19.4% were from lower, 62.3% middle, and 15.9% high socioeconomic backgrounds and 83% lived with their biological father and mother whereas 8.8% lived with single father or mother and 6.4% lived at dormitories.

Procedure

Participants were randomly recruited from 4 different public schools in Konya in 2013-2014 education years. With this purpose, all seven and eight graders were identified from two different secondary schools and students randomly selected from four classes which represent seven and eight graders completed the research instruments. Similarly, all nine, ten and eleven graders were identified from two different high schools and students randomly selected from eight classes which represent nine to eleven graders completed the research instruments. Overall, participants were drawn from the lists of classes from four schools randomly as to represent 90 students for each grade levels. Packets of instruments were distributed to participants during class time in the classrooms of teachers who had agreed to participate in the study. After listening to a description of the study, interested students were provided written/verbal consent instructions and informed that their responses would be kept anonymous and only group data would be reported. Volunteers who agreed to participate were given and completed the research instruments. The return rate for distributed instruments was 91% and 47 respondents were eliminated for missing responses or inconsistencies. Students required 25 min on average to respond to the instruments.

Instruments

Kidcope (Spirito et al., 1988). The Kidcope has two very similar versions for children (5 to 13 years) and adolescents (13 to 18 years). The children form consists of 15 items which are simplified from adolescent form. The adolescent form is composed of 11 items which are all about ten coping strategies (social withdrawal, distraction, wishful thinking, cognitive restructuring, social support, problem-solving, self-criticism, emotional regulation, resignation, and blaming others). Spirito et al. (1994) grouped these ten strategies into three main factors as Active (cognitive restructuring, problem solving, emotional regulation, and social support), Avoidant (distraction, social withdrawal, resignation, and wishful thinking), and Negative (self-criticism and blaming others) coping strategies. The current study used the adolescent form. Ratings are made on a four-point scale from Not at all (0) to Almost all the time (3). Sample items include "Thought about or did something else; tried to forget it" and "Tried to see good side of things; focused on good outcomes." The range of possible score

varies from a minimum score of 0 to a maximum score of 12 for Active and Avoidant Coping and 0 to 9 for Negative Coping, higher scores reflecting the greater use of this coping behavior. The Cronbach alpha reliability coefficient ranged from $\alpha = .43$ to $\alpha = .77$ for subscales and total score in various studies (Cheng & Chan, 2003; Spirito et al., 1988; Vigna et al., 2010) because of the small number of items but the coefficients were generally satisfactory. Test-retest reliability coefficients were high for 3 to 7 day intervals with values of $r = .41$ to $r = .83$ and small to moderate through ten week intervals with values of $r = .15$ to $r = .43$ (Vigna et al., 2010). The concurrent validity of the scale was supported by the positive correlations with other coping scales (Spirito et al., 1988) and significant correlations with social stress, anxiety, and depression (Vigna et al., 2010).

The Kidcope was translated by the second author and one other faculty member who is also native Turkish speaker and also fluent in English. The translated versions were then back-translated independently by two professional translators. The back-translated versions were compared with the original version for meaning accuracy by an English native speaker faculty staff and finally by the second author, and the meanings of several words were clarified and reworded.

The Trait Anxiety Inventory (TAI; Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983). The TAI consists of 20 items. Ratings are made on a four-point scale from Almost never (1) to Almost always (4). Sample items include "I have trouble making up my mind" and "I worry too much." The range of possible score varies from a minimum score of 20 to a maximum score of 80, higher scores reflecting greater trait anxiety. The median alpha reliability coefficient was $\alpha = .90$ and test-retest reliability coefficients over intervals of 20 to 104 days were high ranging from $r = .73$ to $r = .86$. The concurrent validity of the scale was supported by the positive correlation with Taylor Manifest Anxiety Scale ($r = -.65$). This study administered a Turkish version of the TAI (Öner & Le Compte, 1985). The adapted TAI had an alpha coefficient between $\alpha = .83$ and $\alpha = .92$ and test-retest coefficient was $r = .86$. The concurrent validity was supported by the positive correlations with other anxiety scales ranging from $r = .58$ to $r = .84$.

Results

Preliminary Analyses

Prior to analyses, all subscales of the Kidcope were examined for accuracy of data entry, assumptions of normal distribution and multivariate analysis. Twenty seven scales were eliminated from the data set since they were incomplete on one or more measures. Skewness and kurtosis values ranged from $-.06$ to $.74$ and $-.19$ to $.57$ respectively, suggesting that the items conform to the assumptions of multivariate analyses.

Since previous studies suggested examining gender and age differences in coping and conducting factor analyses separately by different age and gender groups (Cheng & Chan, 2003; Donaldson et al., 2000; Spirito et al., 1988; Spirito et al., 1994; Spirito et al., 1995; Vigna et al., 2010), scale means, standard deviations, and t values for each of the three subscales of Kidcope are presented for both girls and boys separately in Table 1. As shown in Table 1, girls had a mean score of 1.69, 0.96, 1.63 and boys had a mean score of 1.73, 0.91, 1.57 on Active, Negative, and Avoidant subscales respectively. For both samples, Negative Coping had the lowest and Active Coping had the highest mean score. As a result of the t -test for the comparison of girls and boys, no significant gender differences were found for any of the subscales ($p > .05$). Similar comparisons were done for 7 graders and 11 graders and only significant difference were found at Negative Coping subscale, suggesting that 11 graders used negative coping strategies more ($p < .01$). Thus, all other analyses were computed using the total sample.

Table 1. Means, Standard Deviations, Ranges, t values of the Kidcope Subscales for Girls and Boys

Kidcope	Girls (n = 227)			Boys (n = 226)			t	p
	Mean	SD	Range	Mean	SD	Range		
Active Coping	1.69	0.52	0.2-2.8	1.73	0.55	0.2-3.0	-0.74	.462
Negative Coping	0.96	0.62	0.0-3.0	0.91	0.58	0.0-2.3	1.03	.317
Avoidant Coping	1.63	0.57	0.3-3.0	1.57	0.63	0.0-2.7	1.11	.269

Note. Potential range for the Kidcope subscales: 0-3

Structural Validity

To test the stability of the original factor structure of the Kidcope Turkish form (Kidcope-T), a series of Confirmatory Factor Analyses (CFA) were conducted using AMOS 16.00 software. First, Spirito et al.'s (1994) three-factor model was tested and three alternative models identified in the previous literature were tested. As a combined rule for the acceptance of the model, five measures of fit indices were used with the following cut-off values: the chi-square/degrees of freedom (df) ratio < 3, the goodness-of-fit-index (GFI), adjusted goodness-of-fit-index (AGFI), and the comparative-fit-index (CFI) > .90, and the root mean square error of approximation (RMSEA) < .08 (Browne & Cudeck, 1993; Hu & Bentler, 1999). The fit indices for the measurement models tested are displayed in Table 2.

Table 2. Summary of Fit Indices of the Different Models

Model	χ^2	df	p	χ^2/df	GFI	AGFI	CFI	RMSEA
Spirito et al.'s (1994) three-factor	77.798	37	.001	2.1	.97	.95	.92	.047
Vigna et al.'s (2010) one-factor	580.26	91	.001	6.4	.84	.78	.62	.108
Cheng & Chan's (2003) two-factor	468.155	.89	.001	5.3	.88	.83	.71	.097
Vernberg et al.'s (1996) four-factor	126.45	.48	.001	2.6	.95	.93	.87	.059

As seen in Table 2, Spirito et al.'s (1994) three-factor that fixed each items of the Kidcope to load on active, negative, and avoidant coping provided the best fit to the data ($\chi^2/df = 2.1$, GFI = .97, AGFI = .95, CFI = .92, RMSEA = .047). Vigna et al.'s (2010) one-factor model which fixed each 11 items to load on one latent factor, Cheng and Chan's (2003) two-factor model named as escape-oriented and control-oriented coping exhibited a poor fit to the data. Lastly, Vernberg et al.'s (1996) four-factor model which fixed each Kidcope items on positive, blame and anger, wishful thinking, and social withdrawal seemed to have acceptable fit to the data except for the CFI value. Intercorrelations among the three subscales of the Kidcope-T were moderate ranging from .32 to .37 (see Figure 1).

Convergent Validity

To provide additional evidence for the validity of the Kidcope-T, correlational analyses were conducted to test for the associations between each of the subscales and trait anxiety as measured by Trait Anxiety Inventory. As expected, Active coping was associated negatively with trait anxiety ($r = -.33$, $p < .001$) whereas Negative and Avoidant coping exhibited significant positive correlations ($r = .44$, $r = .27$, $p < .001$, respectively).

Reliability

Internal consistency reliabilities calculated using Cronbach's alpha were $\alpha = .72$ for Active Coping, $\alpha = .70$ for Avoidant Coping, and $\alpha = .65$ for Negative Coping.

To estimate the temporal stability of the Kidcope-T subscales, test-retest reliability was assessed using Pearson's product-moment correlation. Correlation was calculated between the mean scores of Kidcope-T subscales taken from the data of the 61 participants drawn randomly from the total sample who completed the scale twice in an interval of three weeks during class time. The coefficient values were $r = .66$ for Active Coping, $r = .61$ for Avoidant Coping, and $r = .76$ for Negative Coping ($p < .001$), suggesting that the temporal stability was satisfactory.

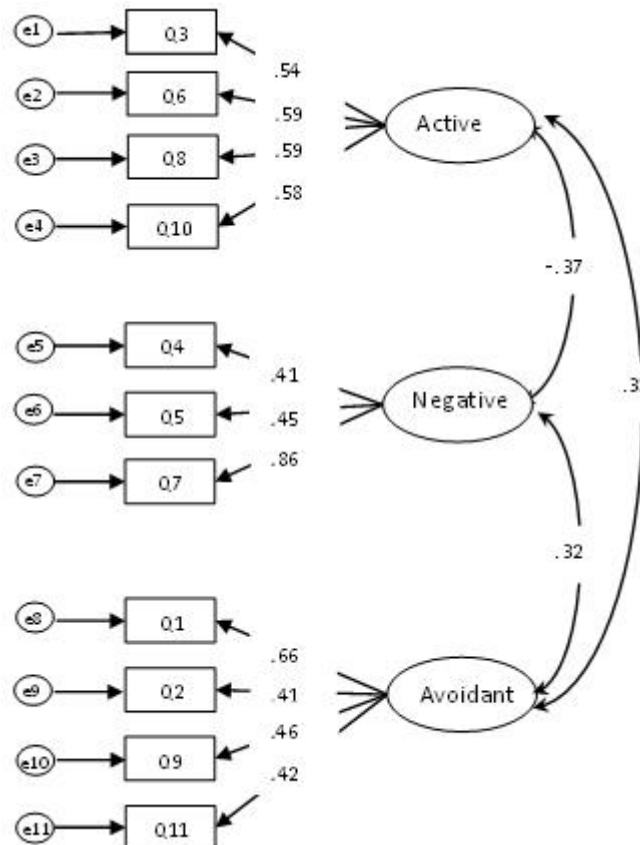


Figure 1. Factor structure and parameter estimates of the Kidcope-T

Discussion, Conclusion and Suggestions

The current study examined the psychometric properties of the Kidcope which is one of the most widely used brief instruments for the assessment of children's and adolescents' coping strategies (Vigna et al., 2010) in a sample of Turkish adolescents. The results of a series of CFA for testing Spirito's (1994) three-factor model and three alternative models revealed that Spirito et al.'s (1994) three-factor that fixed each items of the Kidcope to load on active, negative, and avoidant coping provided the best fit to the data. Although Vernberg et al.'s (1996) four-factor model had satisfactory fit indices except for CFI, the results of CFA failed to support other two alternative models (Vigna et al.'s one-factor and Chen & Chang's two-factor). Although several studies has examined the factor analytical structure of the Kidcope, to our knowledge, only one study (Vigna et al., 2010) has compared these alternative models using CFA. In this study, Vigna et al. (2010) have found that Spirito et al.'s three-factor model approximated a better fit but none of the previously proposed models provided good fit to their data drawn from African American adolescents. Even though their results provided satisfactory fit using Spirito et al.'s model with $NFI = .76$, $CFI = .88$, $TLI = .81$, $RMSEA = .07$ fit indices, they concluded that the best use of the Kidcope in their sample of African American adolescents would entail a unitary coping factor. One possible explanation for the contradiction across

these results and current findings may have been due to the specific characteristics of the two samples. The current study used a normal group of adolescents from all socio-economic levels while Vigna et al. (2010) used hurricane-exposed, African American, predominantly low income adolescents. Thus, further comparative studies are needed to test these factor structures across other U.S. racial/ethnic groups and non-English speaking countries for the better generalization of the current results.

On the basis of Vigna et al.'s (2010) correlational evidence between Kidcope and anxiety and previous literature between these constructs, the convergent validity of the Kidcope subscales was provided by significant negative correlations with trait anxiety and active coping and positive correlations with negative and avoidant coping. Similar expected results were found within the current study that anxiety negatively correlated with active coping ($r = -.33$) and negatively correlated with negative ($r = .44$) and avoidant coping ($r = .27$). In parallel with these findings, Thorne, Andrews, and Nordstokke (2013) have found that active coping was a negative predictor of anxiety ($\beta = -.37$) while avoidant coping positively predicted ($\beta = .40$) anxiety. Similarly, avoidant coping was found moderately and positively correlated with anxiety in Gomez's (1998; $r = .32$) study and McLaren's (2006; $r = .31$) study.

Reliability analyses indicated that both results related to the reliability were satisfactory. The Cronbach alpha coefficient was not high but satisfactory for all the Kidcope subscales. Taking the small number of items for the subscales of the Kidcope into consideration, it is not surprising that previous studies generally reported low to moderate levels of internal consistency due to its sensitiveness to the number of items (Cortina, 1993). These values were higher as the number of items comprising scales was increased. For instance, when 11 items loaded on one latent factor, the Cronbach alpha was .75 (Vigna et al., 2010) but in four-factor model at which each factor was represented by two or three items, the Cronbach alpha ranged from .43 to .77 (Vernberg et al., 1996). Similarly, with two-factor model, Cronbach alpha coefficient was .65 for Control-Oriented Coping and .76 for Escape-Oriented Coping (Cheng & Chan, 2003).

Test-retest reliability in a three-week interval was also satisfactory with strong correlations between Time 1 and Time 2 assessments, suggesting that the temporal stability of the Kidcope subscales were good. As Spirito et al. (1988) reported that correlation coefficients get lower as the period is extended (.41 to .83 over 3- to 7-day periods; .15 to .43 over 10-week periods), the current findings ranging from .61 to .76 in three week intervals can be thought as reasonable.

Overall, the Kidcope appears to be a valid and reliable instrument that could be used for understanding Turkish adolescents' coping strategies. However, these findings must be evaluated with its limitations. One potential limitation of the current study was using a convenient sample of Turkish students from grade 7 to grade 11 drawn from four different schools from one city, which makes the results limited and may not be generalized to all grade 7 to grade 11 students in Turkey. Thus, continuing evaluation of the applicability of the Kidcope to Turkish and other non-English speaking countries and U.S. racial/ethnic groups is necessary in order to extend its generalizability and provide more empirical evidence for its structural validity. Besides, future studies should continue examining correlates and consequences of coping strategies among adolescents and how to increase more positive strategies of coping.

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