

Turkish Validation of the Dispositional Form of Stress Appraisal Measure

Stres Deęerlendirme leęi Sreklilik Formu'nun (SD-S) Trke Geerlilięi

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Abstract

The Stress Appraisal Measure (SAM) is the most frequently used scale for the assessment of cognitive appraisals and surpasses other types of measures by including primary and secondary appraisal processes. This study aims to examine the psychometric properties of the dispositional SAM (SAM-D) by utilizing the samples of Turkish university students ($n= 470$) and community members ($n= 170$). In order to evaluate factor structure of the scale obtained by previous literature, confirmatory factor analysis is used by Amos 7.0 (Arbuckle, 2006) software program. The results demonstrate that the five-factor model reveals significant results in both samples in terms of goodness of fit indexes in confirmatory factor analysis. Moreover, multi-group comparisons on the basis of gender groups demonstrate no significant differences between the constrained and unconstrained models. In addition to significant internal consistency, the concurrent validity of the scale is supported in both samples by revealing the association of the SAM-D with conceptually related measures. The theoretical and practical implications of this study are discussed.

Keywords: Dispositional Stress Appraisal Measure, general stress, confirmatory factor analysis, reliability, validity, multi-group comparisons

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Stres Deęerlendirme leęi, stresin bilişsel deęerlendirmesini lmek amacıyla en sık kullanılan psikometrik lme aracıdır. Bu leęin bu alandaki dięer leklere gre stnlę, stresin hem birincil hem de ikincil bilişsel deęerlendirmesini iermesidir. Bu alıřma, Stres Deęerlendirme leęi Sreklilik Formu'nun (SD-S) psikometrik zelliklerini 470 niversite ęrencisinde ve 170 yetiřkinde test etmeyi amalamıřtır. leęin literatrdeki arařtırmalar tarafından desteklenen faktr yapısını deęerlendirmek zere Amos 7.0 (Arbuckle, 2006) yazılımı ile doęrulatory faktr analizi yntemi kullanılmıřtır. Analiz sonuları, beř faktrl yapının her iki rneklemde de geerli olduęunu ortaya koymuřtur. Ayrıca, cinsiyete baęlı oklu grup karřılařtırmaları, sınırlandırılmıř ve sınırlandırılmamıř modeller arasında fark olmadıęını gstermiřtir. Yksek i tutarlılıęın yanı sıra, leęin eřtutarlılık geerlilięi, kavramsal aıdan benzer lmlerle her iki rneklemde de yksek korelasyon gstermesi ile kanıtlanmıřtır. leęin gelecekteki kuramsal ve uygulamalı etkileri tartıřma blmnde ele alınmıřtır.

Anahtar Szckler: Stres Deęerlendirme leęi Sreklilik Formu, genel stres, doęrulatory faktr analizi, gvenirlik, geerlik, oklu grup karřılařtırmaları.

Introduction

In Lazarus and Folkman's transactional model, stress is conceptualized as a complex and dynamic transaction between personal resources and environmental demands (Lazarus, 2006). The effects of cognitive appraisal and coping are highlighted in this model (Folkman, 2008) and are examined with numerous samples such as students (Devonport, & Lane, 2006; King, 2005; Largo-Wight, Peterson, & Chen, 2005), adolescents (Rowley, Roesch, Jurica, and Vaughn, 2005), athletes

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(Gan, & Anshel, 2006), employees (Rafferty, & Griffin, 2006), women suffering from prenatal depression (Honey, Bennett, & Morgan, 2003), mothers struggling with teenaged children (Dopke, & Milner, 2000), medical patients, and their families (Cordova, Ruzek, Benoit, & Brunet, 2003). Factors which determine cognitive appraisal in the transactional process are personality (i.e. challenge and self-efficacy relationship, Jerusalem & Schwarzer, 1992), emotions (i.e., challenge and positive emotions relationship Jerusalem & Schwarzer, 1992; threat and negative emotions relationship, Roesch & Rowley, 2005), anxiety (threat, centrality and trait anxiety relationship, Roesch & Rowley, 2005), coping (challenge and controllability relationship with problem focused coping, and threat, centrality and uncontrollable-by-anyone relationship with emotion focused coping, Peacock, Wong, & Reker, 1993) and gender (being female, Benyamini, 2009).

In the transactional model, cognitive appraisal is defined as an individual's subjective evaluation of the amount of experienced distress (Folkman, 2008). The two types of appraisal, primary and secondary appraisal are cited in the literature (Roesch & Rowley, 2005). The primary appraisal is the appraisal of the stressful event on the basis of its potential harm, threat, and challenge regarding the individuals' own values, goals and beliefs (Folkman, 2008). Primary appraisal is categorized in different ways by researchers. Folkman (2008) employed three categories: harm/loss, threat, and challenge. Peacock and Wong (1990) disregarded the harm/loss dimension while developing the Stress Appraisal Measure (SAM). In its place, they inserted the dimension of centrality, which is described as the events' importance to the self. They mentioned that centrality is conceptually "an orthogonal to both threat and challenge appraisals" (p. 228).

The secondary appraisal is the appraisal of a stressful event on the basis of the individual's own resources or talents to cope with the situation or to overcome harm (Largo-Wight et al., 2005). In other words, the individual decides which kind of coping resources are available to apply to the specific event (Kennedy, Evans & Sandhu, 2009). The three dimensions of the secondary appraisal process are controllable-by-self (the ability to overcome distress by oneself), controllable-by-others (the ability to overcome stress with the help of other individuals) and uncontrollable-by-anyone (the sense of reduced control or no control over the situation) (Peacock & Wong, 1990).

The above mentioned studies have made cognitive appraisal a popular academic subject in this field and several new scales have been devised to evaluate it. Scholars have developed situational or dispositional instruments to measure primary and secondary appraisal. The Appraisal of Life Events Scale (Ferguson, Matthews, & Cox, 1999) and the Cognitive Appraisal Rating Scale (Suzuki & Sakano, 1998) are examples of situation specific appraisal scales. On the other hand, the Attributional Style Questionnaire was developed to assess dispositional appraisal (Peterson et al., 1982).

In addition to these measures, the SAM (Peacock & Wong, 1990) is used to measure cognitive appraisal of stress on the basis of the theoretical dimensions of primary (threat, challenge, and centrality) and secondary appraisals (perceptions of controllable-by-self, controllable-by-others, uncontrollable-by-anyone) of a stressful situation. Other scales evaluating cognitive appraisal have been criticized for having low reliability and unidimensional structure (Rowley et al., 2005). In addition to the advantage of the SAM is in having high reliability and multidimensional structure, the SAM has been used to evaluate situational (Anshel, Robertson, & Caputi, 1997; Peacock & Wong, 1990) or dispositional appraisal (Roesch & Rowley, 2005; Rowley et al., 2005). The dispositional SAM (SAM-D) reveals whether the individual has a tendency to appraise the event in habitual ways (Roesch & Rowley, 2005) and whether the individual has 'cross-situational' appraisal style (Rowley et al., 2005, p. 548).

Regarding the psychometric properties of the SAM, factorial structure of the SAM varies from one study to another depending on the sample characteristics. The developer of the scale found a six-factor- solution (threat, challenge, centrality, controllable-by-self, controllable-by-others and uncontrollable-by-anyone) to be the most relevant to university students (Peacock, & Wong, 1990) despite the fact that they also obtained a five-factor-solution (threat, challenge, centrality, controllability and uncontrollability) when they changed the samples (Peacock et al.,

1993). In Western culture, in the five-factor-solution, threat and centrality items were categorized under the same factor. Developers explain this result by saying that centrality is conceptually an orthogonal to both threat and challenge appraisals. Similar to the findings obtained by the developers, a five-factor-solution was also found when the situational version of the scale was applied to Turkish university students and adults (Durak & Senol-Durak, in press). However, in addition to the five and six-factor-solution of the SAM, the four-factor-solution (challenge, threat, centrality and resources) with the samples of undergraduate university students (Roesch & Rowley, 2005) and the three-factor-solution (threat, challenge and resource) with the samples of adolescents (Rowley et al., 2005) were found relevant when the dispositional version of the scale were administered. The developers of the scale was criticized that the six-factor-solution included highly redundant factors (i.e., threat and centrality) with low internal consistencies (Roesch & Rowley, 2005). The explanation of the small number of factors in the SAM with adolescent sample is that adolescents considered stress appraisal to be less complex than adults (Rowley et al., 2005). Moreover, Rowley and colleagues (2005) suggested that centrality dimension did not work with adolescents since centrality dimension requires a more complex thinking pattern that has not developed among adolescents yet.

In addition to the factorial structure, the concurrent validity of the SAM has been examined in several studies. For instance, while the threat, centrality, and uncontrollable-by-anyone subscales were found to be positively correlated with psychological symptomatology, the challenge subscale was found negatively correlated (Peacock & Wong, 1990). While the threat subscale was positively correlated with maladaptive coping (denial, etc.) and depression, the challenge subscale was positively correlated with self-efficacious coping (active coping) and hope (Rowley et al., 2005). In another research, threat and centrality were positively correlated with trait anxiety, while challenge and resources were negatively correlated to trait anxiety (Roesch & Rowley, 2005).

Despite the studies mentioned above, the psychometric properties of the dispositional SAM have not been tested in non-Western cultures. Adaptation of the SAM-D for Turkish subjects can provide a tool for studies leading to a deep understanding as to whether individuals have habitual patterns of cognitive appraisal regardless of the situation. Rowley and colleagues (2005) proposes that examining the psychometric properties of instruments like SAM-D is necessary to measure habitual patterns or dispositional tendencies of the individuals in the stress appraisal processes. As considering the increased interest to measure stress appraisal in the current literature, examining the psychometric properties of the Turkish version of the scale could help to see culture specific habitual stress appraisal patterns in future studies. For this purpose, two different samples are used: university students and community members. The samples having different age range are selected since age and stress appraisals are correlated. Moreover, the scale's utility to collate respondents in different ages is mentioned as well (Rowley et al., 2005). Likewise in Peacock and Wong's (1990) and Roesch & Rowley's (2005) study, undergraduate students are selected as facing with stressful life events during their education (Ceyhan & Ceyhan, 2011; Senol-Durak, Durak, & Elagoz, 2011). Likewise in Miles, Keitel, Jackson, Harris, and Licciardi, (2009), community members are selected as another sample since problems in social life during adulthood are extensively related with stress appraisal.

Study I

Method

Participants

The sample of the Study is was composed of 470 university students, 305 females (64.9%) and 165 males (35.1%). Ages of the samples ranged between 18 and 26 years ($M = 20.21$, $SD = 1.68$). Approximately twenty five percent of the subjects were freshmen ($n = 238$, 50.6%), forty five percent were sophomores ($n = 124$, 26.4 %), twenty two percent were juniors ($n = 76$, 16.2%), and

eight percent were seniors ($n=32$, 6.8%). The mean of monthly family income was 1327.01 Turkish Liras (SD = 868.92 TL), ranging from 300 TL to 8000 TL.

Instruments

In addition to the Demographic Information Form, five instruments were employed in the samples of university students as well as in the samples of adults.

The SAM-D is a dispositional version of the SAM (Peacock & Wong, 1990) and it measures cognitive appraisal of general stress with the 24-item Likert-type scale on which items are rated from 0 (not at all) to 4 (extremely/ a great amount). Initially, in the present study, the wording of the SAM-D items was formed considering general stress instead of situation specific stress. Considering the reliability of the SAM, the internal consistencies (alphas) for its' various subscales ranged from .51 to .90. In one study using the SAM (Anshel et al., 1997), reliability coefficients for the six appraisal dimensions ranged from .65 to .90. The SAM was adapted into Turkish by Durak and Senol-Durak (in press). They found that a five-factor solution model presented adequate fit both in the samples of university students and adults. These factors were threat, challenge, uncontrollable-by-anyone, controllable-by-self, controllable by-others. The internal consistencies ranged from .70 to .90 for university students and from .68 to .87 for adults. The concurrent and discriminant validity of the scale was supported on the basis of the association of the SAM with conceptually related (state anxiety) or unrelated measures (social desirability). For concurrent validity, the factors of SAM mentioned above was correlated with state anxiety in the sample of university students ($r = .40$, $p < .001$; $r = -.09$, $p < .05$; $r = .24$, $p < .001$; $r = -.22$, $p < .001$; $r = -.19$, $p < .001$, respectively) and adults ($r = .46$, $p < .001$; $r = -.14$, $p < .001$; $r = .27$, $p < .001$; $r = -.30$, $p < .001$; $r = -.18$, $p < .001$, respectively). For discriminant validity, the factors of SAM mentioned above was correlated with social desirability in the sample of university students ($r = -.15$, $p < .001$; $r = .08$, $p < .05$; $r = -.14$, $p < .001$; $r = .16$, $p < .001$; $r = .04$, $p = n.s.$, respectively) and adults ($r = -.10$, $p < .05$; $r = .11$, $p < .05$; $r = -.08$, $p = n.s.$; $r = .20$, $p < .001$; $r = .09$, $p < .05$, respectively).

State-Trait Anxiety Inventory- Trait Form (STAI-T) is a 20-item self-report scale developed by Spielberger, Gorsuch, and Lushene (1983) to evaluate trait anxiety or general feelings of anxiety. It is scored on a 4-point scale (1=almost never, 4=almost always). The internal consistency of the scale ranged from .86 to .95 among younger adult samples. STAI was translated and adapted to Turkish by Öner and Le Comte in 1983 by using both a normal sample and a sample of psychiatric patients. Internal consistency of the scale ranged from .83 to .87, while test- retest correlations ranged from .71 to .86 in a period over a year in the five different samples of university students. The correlation between the Turkish STAI-T and Beck Anxiety Inventory (BAI) was reported as .53. In the present study, internal consistency results were satisfactory (.94 in the sample of university students, .88 in the sample of community members).

Rosenberg Self-Esteem Scale (RSES) was developed by Rosenberg in 1965 to evaluate the degree of self esteem with 10 items rated on a 4-point Likert-type scale (1 = "completely agree"; 4 = "completely disagree"). The internal consistency of the scale was found to be .88; the test-retest reliability of the scale over a 1-week interval was found as .82 in another research (Fleming & Courtney, 1984). The scale was adapted into Turkish by Çuhadaroğlu (1986) and was used on a 5-point Likert-type scale. She found internal consistency as .76 and found that the RSES correlation between the subscales of SCL-90 was satisfactory ("depression" subscale = .66, "psychosomatic symptoms" subscale = .70, and "interpersonal threat" subscale = .45). In the present study, internal consistency results were satisfactory (.86 in the sample of university students, .81 in the sample of community members).

Positive and Negative Affect Scale (PANAS) was developed by Watson, Clark, and Tellegen (1988) to measure positive and negative affect with 20 items rated on a five-point Likert-type scale (1 = "very slightly or not at all"; 5 = "extremely"). The respondents made their ratings considering their last two weeks. There were 10 items in each of the positive affect (PA) and negative affect (NA) subscales. The internal consistency (alpha) estimates for the PANAS measuring mood across seven different time periods (same day to a year) ranged from .84 to .87 for the NA scale. Factor analysis supports the structures of both the PA and NA scales. The Turkish version of the scale was studied by Gençöz (2000) who revealed that the internal consistency reliability was .83 and .86 and test-retest reliability was .40 and .54, for PA and NA, respectively. In Gençöz's study, the concurrent validity of the scale was studied through Beck Depression Inventory and Beck Anxiety Scale, which revealed correlations of -.48 and -.22 for positive affectivity, respectively

and .51 and .47, for negative affectivity. In the present study, internal consistency results were satisfactory (.83 for PA and .86 for NA in the sample of university students; .82 for PA and .83 for NA in the sample of community members).

Ways of Coping Questionnaire (WCQ) was developed by Folkman and Lazarus (1980) and was later revised by Folkman and Lazarus (1985) to measure coping styles. The revised scale consists of 66 items and is scored on a 4-point Likert-type scale from “not used” (0) to “used a great deal” (3). Senol-Durak et al., (2011) adapted the scale into Turkish by using the 5-point Likert-type scale from “not used at all” (1) to “used a great deal” (5). The Turkish form of the scale has 31 items including new concepts of fatalism and superstition. When testing the factor structure, they found a seven-factor model which included planful problem-solving, seeking refuge in supernatural forces, keep to self, seeking social support, seeking refuge in fate, escape-avoidance and accepting responsibility. All sub-scale scores had discrete internal consistency ranging from .67 to .84. In the present study, internal consistency results were satisfactory.

Procedure

The scales were distributed to the university students in a classroom setting. The participants were informed about the aim of the present study, and their consent was obtained. All instruments were distributed to the students at the same time. To obtain sincere responses, a silent classroom atmosphere was reinforced by researchers and explanations about the importance of the study were explained in detail. All participants took part voluntarily and were not remunerated for participation.

Data Analysis

Durak and Durak (in press) suggested that the five-factor solution is better for SAM in Turkish culture. Therefore, Confirmatory Factor Analysis (CFA) was conducted to test the adequacy of the five-factor model (threat, challenge, controllable-by-self, controllable-by-others, and uncontrollable-by-anyone) of the SAM-D. In order to examine the model fit such goodness of fit indexes (i.e., the incremental fit index (IFI), comparative fit index (CFI), Tucker-Lewis index (TLI), and relative fit index (RFI)) were used. These indexes range from .00 to 1.00, with larger values indicating better model fit. In general, values of .90 or greater are interpreted as evidence of good model fit (Bentler & Bonett, 1980). Contrary to these indexes, a smaller root-mean-square error of approximation (RMSEA) indicates better model fit. In addition to RMSEA, researchers suggest using standardized root mean square residual SRMR (Bentler, 1995), “which is a more sensitive index to simple misspecified models than the rest of other fit indices” (Hu & Bentler, 1998, p. 438). SRMR should be between 0 and .05 for a good fit and between .05 and .10 for an acceptable fit (Schermelleh-Engel & Moosbrugger, 2003). Moreover, the ratio of χ^2 to degrees of freedom (df) should be less than 3 (Kline, 2005).

The model was tested by the AMOS 7.0 (Arbuckle, 2006) software program to evaluate the relationship between the theoretical model and the data. When the sample size is suitable and the variables have five or more categories, the maximum likelihood method of parameter estimation is recommended (Bentler & Chou, 1987).

In addition to confirmatory factor analyses, multiple group analyses with CFA was also conducted. Multiple-group analysis with CFA enables to find out the extent to which groups differ (Arbuckle, 2006) and to examine whether the factor structure is consistent across different groups (Byrne, 2004). The principle queries for multiple-group analysis areas follows; 1) whether the groups all have the same path diagram with the same parameter values, 2) whether the groups have the same path diagram but with different parameter values for different groups, and 3) whether each group needs a different path diagram (Arbuckle, 2006, p. 163).

As a group criterion for multi-group analysis, gender was selected. The possible stress sources participants reported are expected to be similar. Multiple-group analysis was conducted using AMOS 7.0 (Arbuckle, 2006) to determine whether the SAM-D has the same theoretical structure for each group (females and males). A model with measurement weights constrained to be equal across groups was compared to a model where weights were not constrained.

Results

The correlations among the variables

The correlations among the variables were within the range of expected values (see Table 1. for the detailed correlations).

Confirmatory factor analysis (CFA)

The five-factor-solution model presented adequate fit, χ^2 (242, N = 470) = 529.505, p = .000. Both the suggested χ^2 / df ratio ($\chi^2 / df = 2.188$), and goodness of fit index showed that the fit could be regarded as adequate; RMSEA = .050, SRMR = .052, IFI = .943, TLI = .935, CFI = .943. Table 1 demonstrates detailed fit indices for the five-factor model of the SAM-D.

Table 1.

The confirmatory factor analysis results for the five-factor-solution of the SAM for the university students and community members, multiple-group analysis for the university student sample

	Model fit statistics ^a							Comparison of models ^b		
	χ^2	χ^2 / df	IFI	TLI	CFI	SRMR	RMSEA	Δ in χ^2	Δ in df	p value
<i>The confirmatory factor analysis for five-factor-solution</i>										
University students	529.505	2.188	.943	.935	.943	.052	.050			
Adults	362.277	1.497	.947	.939	.947	.068	.054			
<i>Multiple-group analysis for university student</i>										
Unconstrained	760.458	1.571	.946	.938	.945	.053	.035			
Measurement weights	774.373	1.540	.947	.941	.946	.053	.034	$\Delta\chi^2 = 13.915$	$\Delta df = 19$	p = .789
Measurement intercepts	810.059	1.537	.944	.941	.944	.053	.034	$\Delta\chi^2 = 35.686$	$\Delta df = 24$	p = .059
Structural covariances	822.968	1.518	.945	.943	.944	.055	.033	$\Delta\chi^2 = 12.908$	$\Delta df = 15$	p = .609
Measurement residuals	873.954	1.544	.939	.941	.939	.057	.034	$\Delta\chi^2 = 50.986$	$\Delta df = 24$	p = .001

Note 1. χ^2 = Chi-square; df = degrees of freedom; IFI = incremental fit index; TLI = Tucker-Lewis index; CFI = comparative fit index; RMSEA = root mean square error of approximation

Note 2. ^a Bold values demonstrate that the model fit the data

Note 3. ^b Bold values indicate that a significant change (Δ) in χ^2 and df, noted by $p \geq .05$. It suggests that the model does a significantly good job of describing the data than the previous model.

The standardized estimates of all items were significant. In other words, the regression weight for any latent variable in the prediction of any observed variable was significantly different from zero at the .001 level (two tailed). For example, the regression weight for controllable-by-others in the prediction of "resources available (Item 15)" was significantly different from zero at the .001 level. On the other hand, the item of "eager to tackle" was removed from the model due to its low standardized estimates. In spite of its significance level, the standard estimate of the item of "eager to tackle" was .38 and the squared multiple correlation was .14. These values were lower than the others. Excluding the item of "eager to tackle", the standard estimates of all items were ranged from .56 to .90, and the squared multiple correlations were ranged from .31 to .81.

Table 2.
The correlations among the variables

	PS	Students			Community members			T	C	U	S	O	PPS	AR	EA	SSS	KS	SRF	SF	Vd	VN	SE	VL
		X	Sd	X	Sd	X	Sd																
T	8-40	25.27	6.83	24.55	7.97			.19*	.70**	-.19*	-.01	-.08	.17*	.21**	.32**	.18*	-.12	.03	-.33**	.10	-.50**	.60**	
C	4-20	11.60	2.80	12.51	3.47		-.01		.12	.42**	.30**	.22**	.03	.05	.09	.22**	-.12	-.06	.13	.16*	.12	-.26**	
UA	4-20	9.55	3.25	9.32	4.00		.59**	.02		-.15*	-.07	-.05	.18*	.20**	.28**	.25**	-.02	-.04	-.26**	.13	-.45**	.49**	
CS	4-20	13.30	3.48	13.46	3.74		-.23**	.37**	-.27**		.50**	.31**	-.35**	-.02	.14	.03	-.23**	-.14	.26**	-.14	.23**	-.52**	
CO	4-20	11.00	4.50	11.52	4.39		.00	.17**	-.12**	.43**		.30**	-.17*	.01	.22**	.01	-.15	.05	.21**	-.04	.18*	-.30**	
PPS	6-30	22.96	4.34	22.40	4.56		.04	.17**	-.05	.26**	.17**		-.16*	.15	.37**	.02	-.15	-.16*	.21**	-.14	.09	-.46**	
AR	4-20	11.64	3.41	9.52	2.68		.18**	.02	.08	-.26**	-.13**	-.19**		.13	-.16*	.17*	.44**	.33**	-.09	.47**	-.01	.03	
EA	5-25	14.47	3.49	13.58	3.46		.26**	.07	.29**	.07	.10*	.29**	-.02		.40**	.12	.07	.05	-.08	-.17*	-.24**	.03	
SSS	4-20	11.81	3.39	10.91	3.67		.15**	.07	.11*	.15**	.21**	.35**	-.15**	.34**		-.25**	-.07	.02	-.02	-.28**	-.34**	.10	
KS	4-20	10.77	3.77	10.90	3.83		.17**	.09	.24**	.00	-.02	.03	.09	.10*	-.27**		.11	-.07	-.18*	.21**	-.02	-.04	
SRF	4-20	12.98	3.77	10.34	3.52		.25**	-.07	.16**	-.16**	.04	.08	.23**	.14**	.14**	.10*		.43**	.18*	.15	.02	.07	
SF	4-20	6.38	2.40	6.66	2.66		.08	-.02	.19**	-.09*	-.04	-.11*	.12*	.22**	.04	.10*	.33**		.03	.13	-.08	.25**	
PA	10-50	27.23	7.52	29.82	7.83		-.12*	.16**	-.16**	.17**	.08	.28**	-.02	.01	-.05	.00	.00	.01		.03	.45**	-.27**	
NA	10-50	26.21	8.32	29.27	8.04		.09	.08	.01	-.18**	-.14**	-.19**	.48**	-.11*	-.30**	.13**	.09	.16**	.07		.12	.27**	
SE	10-50	31.38	9.14	35.03	9.09		-.32**	.06	-.39**	.20**	.09	.20**	-.03	-.19**	-.22**	-.09	-.07	-.09	.50**	.10*		-.31**	
TA	20-80	44.94	8.55	44.14	8.43		.49**	-.02	.44**	-.40**	-.13**	-.15**	.17**	-.08	.11*	.13**	.26**	.09	-.02	-.02	.35**	-.21**	

Note 1. T=Threat, C=Challenge, UA=Uncontrollable-by-Anyone, CS=Controllable-by-Self, CO=Controllable-by-Others, PPS=Planful Problem-Solving, AR=Accepting Responsibility, EA=Escape-Avoidance, SSS=Seeking Social Support, KS=Keep to Self, SRF=Seeking Refuge in Fate, SF=Supernatural Forces, PA=Positive Affect, NA=Negative Affect, SE=Self Esteem, TA=Trait Anxiety, PS=possible scores, X=mean, Sd=standard deviation

Note 2. The lower diagonal (in which the numbers go from the upper left corner to lower right) demonstrates the correlations among the variables in the university student sample. On the other hand, the upper diagonal demonstrates the correlations among the variables in the adult sample.

Note 3. * $p < .05$. ** $p < .01$.

Multiple-group analysis with CFA

The unconstrained two-group model for females and males fit the data well, χ^2 (440, N = 470) = 760.458. Apart from the suggested χ^2/df ratio ($\chi^2/df = 1.571$), the goodness of fit indexes showed that the fit was adequate (IFI = .946, TLI = .938, CFI = .945, SRMR = .053, RMSEA = .035). All factor loadings were significant. No significant differences between the constrained and unconstrained models were identified, indicating that the model is valid for two different groups. The model in which the measurement weights were set equal for two different groups did not result in a significant; $\Delta \chi^2$ (df = 19) = 13.915, $p = .789$ ($\Delta IFI = .001$, $\Delta TLI = .003$, $\Delta CFI = .001$, $\Delta SRMR = .000$, $\Delta RMSEA = -.001$). The model in which the measurement intercepts were set equal for two different groups did not result in a significant; $\Delta \chi^2$ (df = 24) = 35.686, $p = .089$ ($\Delta IFI = -.003$, $\Delta TLI = .000$, $\Delta CFI = -.002$, $\Delta SRMR = .000$, $\Delta RMSEA = .000$). The model in which the structural covariances were set equal for two different groups did not result in a significant; $\Delta \chi^2$ (df = 15) = 12.908, $p = .221$ ($\Delta IFI = .001$, $\Delta TLI = .002$, $\Delta CFI = .000$, $\Delta SRMR = .002$, $\Delta RMSEA = -.001$). Although all of the above results, the model in which the measurement residuals were set equal for two different groups did result in a significant; $\Delta \chi^2$ (df = 24) = 50.986, $p = .019$ ($\Delta IFI = -.006$, $\Delta TLI = -.002$, $\Delta CFI = -.005$, $\Delta SRMR = .002$, $\Delta RMSEA = .001$). Table 1 presents detailed multi-group comparison fit indexes in the sample of university students. Results demonstrated that the items and the variances and covariances for each factor of the SAM-D were approximately equivalent across gender groups.

Internal consistency coefficient

Reliability was computed through internal consistency indexes. All sub-scale scores had discrete internal consistency and adequate item total correlations. For the university student sample, the internal consistency coefficient was .89 for threat, .58 for challenge, .73 for uncontrollable-by-anyone, .88 for controllable-by-self, and .90 for controllable-by-others and the corrected-item total correlations ranged from .56 to .72 for threat, .25 to .42 for challenge, .50 to .57 for uncontrollable-by-anyone, .70 to .78 for controllable-by-self, .67 to .82 for controllable-by-others.

Concurrent validity

In order to evaluate concurrent validity, participants' scores on the SAM-D subscales were compared with conceptually related constructs, coping styles (accepting responsibility, escape/avoidance, seeking social support, keep to self, seeking refuge in fate, seeking refuge in supernatural forces, planful problem solving), positive affect, negative affect, self esteem and trait anxiety. The correlation between threat and conceptually related constructs were significantly positively correlated; $r = .18$, $p < .01$ for accepting responsibility, $r = .26$, $p < .01$ for escape/avoidance, $r = .15$, $p < .01$ for seeking social support, $r = .17$, $p < .01$ for keep to self, $r = .25$, $p < .01$ for seeking refuge in fate, and $r = .49$, $p < .01$ for trait anxiety. The correlation between threat and conceptually related constructs were significantly negatively correlated; $r = -.12$, $p < .05$ for positive affect, and $r = -.32$, $p < .01$ for self esteem (see Table 2).

The correlation between challenge and conceptually related constructs were significantly positively correlated; $r = .17$, $p < .01$ for planful problem solving, and $r = .16$, $p < .01$ for positive

affect (see Table 2).

The correlation between uncontrollable-by-anyone and conceptually related constructs were significantly positively correlated; $r = .29$, $p < .01$ for escape/avoidance, $r = .11$, $p < .05$ for seeking social support, $r = .24$, $p < .01$ for keep to self, $r = .16$, $p < .01$ for seeking refuge in fate, $r = .19$, $p < .01$ for seeking refuge in supernatural forces, and $r = .44$, $p < .01$ for trait anxiety. The correlation between uncontrollable-by-anyone and conceptually related constructs were significantly negatively correlated; $r = -.16$, $p < .01$ for positive affect, and $r = -.39$, $p < .01$ for self esteem (see Table 2).

The correlation between controllable-by-self and conceptually related constructs were significantly positively correlated; $r = .26$, $p < .01$ for planful problem solving, $r = .15$, $p < .01$ for seeking social support, $r = .17$, $p < .01$ for positive affect, and $r = .20$, $p < .01$ for self-esteem. The correlation between controllable-by-self and conceptually related constructs were significantly negatively correlated; $r = -.26$, $p < .01$ for accepting responsibility, $r = -.16$, $p < .01$ for seeking refuge in fate, $r = -.09$, $p < .05$ for seeking refuge for supernatural forces, $r = -.18$, $p < .01$ for negative affect, and $r = -.40$, $p < .01$ for trait anxiety (see Table 2).

The correlation between controllable-by-others and conceptually related constructs were significantly positively correlated; $r = .17$, $p < .01$ for planful problem solving, $r = .10$, $p < .05$ for escape/avoidance, and $r = .21$, $p < .01$ for seeking social support. The correlation between controllable-by-others and conceptually related constructs were significantly negatively correlated; $r = -.13$, $p < .01$ for accepting responsibility, $r = -.14$, $p < .01$ for negative affect, and $r = -.13$, $p < .01$ for trait anxiety (see Table 2).

Study 2

Method

Participants

In Study 2, the sample included 170 community members, 86 females (50.6%) and 84 males (49.4%). The ages of the sample ranged between 20 and 56 years ($M = 35.12$, $SD = 9.94$). The majority ($n = 109$; 64.1%) of the participants were married, 32.9% ($n = 56$) were single, 1.2% ($n = 2$) were divorced and 1.8% ($n = 3$) were separated. The education levels of the participants were university graduation (4-year university graduation, bachelor degree) ($n = 44$; 25.9%), college graduation (2-year university graduation, not bachelor degree) ($n = 18$; 10.6%), high school graduation ($n = 62$; 36.5%), secondary school graduation ($n = 17$; 10.0%) and primary school graduation ($n = 29$; 17.1%). The mean of monthly family income was 1393.99 TL ($SD = 692.22$), ranging from 350 TL to 4000 TL. Participants had various professions such as housewife ($n = 28$; 16.5%), teacher (active or retired) ($n = 23$; 13.5%), worker (active or retired) ($n = 32$; 18.8%), retired (not specified) ($n = 15$; 8.8%), official in the public sector (low level) ($n = 11$; 6.5%), technician (turner, carpenter, electrician, photographer, etc.) ($n = 10$; 5.9%), self-employed ($n = 10$; 5.9%), professional employee in health system (pharmacist, doctor, dentist, etc) ($n = 8$; 4.7%), trades ($n = 5$; 2.9%), officials (official at bank, accountant, economist etc) ($n = 13$; 7.6%), unemployed ($n = 6$; 3.5%), employees in security system (soldier, police, security guard, etc.) ($n = 6$; 3.5%), administrative officer (manager, general director, personnel director, etc) ($n = 3$; 1.8%).

Instruments

All measures used in Study 1 were also used in Study 2.

Procedure

The scales were distributed to the community members in their office or environments near their houses. The adult participants were recruited through a snowball sampling procedure in which acquaintances and colleagues were given questionnaires to pass on to members of their

families and friends. All subjects were informed about the aim of the present study, and their consent was obtained. All participants took part voluntarily and were not remunerated for participation.

Results

The correlations among the variables

The correlations among the variables were within the range of expected values (see Table 1 for the detailed correlations).

Confirmatory factor analysis

The five-factor-solution model presented adequate fit, $\chi^2 (242, N = 170) = 596.495$, $p = .000$; RMSEA = .052, SRMR = .064, IFI = .916, TLI = .903, CFI = .915, $\chi^2 / df = 2.465$. On the other hand, the SE (standardized estimate) for the item of "eager to tackle" was very low and equal to .15 (the squared multiple correlation equals to .02, $p = .004$). Therefore, the item of "eager to tackle" was removed from the model. This five-factor-solution model presented a more adequate fit, $\chi^2 (220, N = 548) = 524.814$, $p = .000$. Apart from the suggested χ^2 / df ratio ($\chi^2 / df = 2.386$), goodness of fit index showed that the fit could be regarded as adequate; RMSEA = .050, SRMR = .064, IFI = .926, TLI = .915, CFI = .926.

The five-factor-solution model presented adequate fit, $\chi^2 (242, N = 170) = 362.277$, $p = .000$. Both the suggested χ^2 / df ratio ($\chi^2 / df = 1.497$), and goodness of fit index showed that the fit could be regarded as adequate; RMSEA = .054, SRMR = .068, IFI = .947, TLI = .939, CFI = .947. Table 2 demonstrates detailed fit indices for the five-factor model of the SAM-D.

The standardized estimates of all items were significant. Put differently, in the prediction of any observed variable, the regression weight for any latent variable was significantly different from zero at the .001 level (two tailed). Otherwise, the item of "eager to tackle" was removed from the model due to its low standardized estimates. Excluding the item of "eager to tackle", the standard estimates of all items were ranged from .52 to .93, and the squared multiple correlations were ranged from .27 to .86. In spite of its significance level, the standard estimate of the item of "eager to tackle" was .41 and the squared multiple correlation was .17. These values were lower than the others.

Internal consistency coefficient

Reliability was computed through internal consistency indexes. All sub-scale scores had discrete internal consistency and adequate item total correlations. For the sample of community members, the internal consistency coefficient was .91 for threat, .68 for challenge, .74 for uncontrollable-by-anyone, .89 for controllable-by-self, and .90 for controllable-by-others and the corrected item-total correlations ranged from .50 to .78 for threat, .31 to .59 for challenge, .55 to .73 for uncontrollable-by-anyone, .71 to .79 for controllable-by-self, and .65 to .84 for controllable-by-others.

Concurrent validity

In order to evaluate concurrent validity, participants' scores on the SAM-D subscales were compared with conceptually related constructs, coping, positive affect, negative affect, self esteem and trait anxiety. The correlation between threat and conceptually related constructs were significantly positively correlated; $r = .17$, $p < .05$ for accepting responsibility, $r = .21$, $p < .01$ for escape/avoidance, $r = .32$, $p < .01$ for seeking social support, $r = .18$, $p < .05$ for keep to self, and $r = .60$, $p < .01$ for trait anxiety. The correlation between threat and conceptually related constructs were significantly negatively correlated; $r = -.33$, $p < .01$ for positive affect, and $r = -.50$, $p < .01$ for self esteem (see Table 2).

The correlation between challenge and conceptually related constructs were significantly positively correlated; $r = .22$, $p < .01$ for planful problem solving, $r = .22$, $p < .01$ for keep to self, and $r = .16$, $p < .05$ negative affect. The correlation between challenge and conceptually related constructs were significantly negatively correlated; $r = -.26$, $p < .01$ for trait anxiety (see Table 2).

The correlation between uncontrollable-by-anyone and conceptually related constructs were significantly positively correlated; $r = .18$, $p < .05$ for accepting responsibility, $r = .20$, $p < .01$ for escape/avoidance, $r = .28$, $p < .01$ for seeking social support, $r = .25$, $p < .01$ for keep to self, and $r = .49$, $p < .01$ for trait anxiety. The correlation between uncontrollable-by-anyone and conceptually related constructs were significantly negatively correlated; $r = -.26$, $p < .01$ for positive affect, and $r = -.45$, $p < .01$ for self esteem (see Table 2).

The correlation between controllable-by-self and conceptually related constructs were significantly positively correlated; $r = .31$, $p < .01$ for planful problem solving, $r = .26$, $p < .01$ for positive affect, and $r = .23$, $p < .01$ for self-esteem. The correlation between controllable-by-self and conceptually related constructs were significantly negatively correlated; $r = -.35$, $p < .01$ for accepting responsibility, $r = -.23$, $p < .01$ for seeking refuge in fate, and $r = -.52$, $p < .01$ for trait anxiety (see Table 2).

The correlation between controllable-by-others and conceptually related constructs were significantly positively correlated; $r = .30$, $p < .01$ for planful problem solving, $r = .22$, $p < .01$ for seeking social support, $r = .21$, $p < .01$ for positive affect and $r = .18$, $p < .05$ for self esteem. The correlation between controllable-by-others and conceptually related constructs were significantly negatively correlated; $r = -.17$, $p < .05$ for accepting responsibility, $r = -.30$, $p < .01$ for trait anxiety (see Table 2).

Discussion

The SAM has multidimensional structure to evaluate cognitive appraisal in the context of the theoretical framework of Lazarus and Folkman's transactional model. Moreover, the SAM is accepted as an available measurement to evaluate situational (Peacock & Wong, 1990) or dispositional appraisal (Roesch & Rowley, 2005). The SAM can be used in diverse settings (Roesch & Rowley, 2005). To evaluate whether the SAM is a valid measurement tool to assess habitual cognitive appraisal patterns (Roesch & Rowley, 2005), psychometric properties of the SAM-D were examined with two separate and independent samples: samples of university students and community members. The current results provide a deeper understanding of universally acceptable scale, SAM-D, structural validity in Turkish sample since some studies demonstrate that culture affects the cognitive appraisal (Puente-Diaz & Anshel, 2005). Adaptation of the universally acceptable scale in Turkish culture reveals more comparable information about the process of cognitive appraisal especially as the Turkish culture is a transitional culture between individualistic and collectivistic cultures.

The studies conducted in western cultures reveal that the factorial structure of the SAM has varied from one study to another. However, the five-factor-solution (threat, challenge, controllable-by-self, controllable-by-others, and uncontrollable-by-anyone) was especially obtained in the adaptation of the situational version of the SAM in Turkish culture (Durak & Senol-Durak, in press). They found that threat and centrality items could be collected under the same factor due to the fact that in Turkish culture the members perceive the threatening and important events as the same. Additionally, the items of threat and centrality are accepted as redundant in American university students (Roesch & Rowley 2005). Moreover, in a study conducted with Canadian university students, the items of threat and centrality were also collected under the same factor (Peacock & Wong, 1990). By considering the results obtained from Turkish culture, the five-factor model of CFA was tested with samples of university students and community members.

When a scale is administered to different samples, the same factor structure may not be found. For example, despite obtaining a six-factor solution with the sample of college students,

Peacock and Wong (1990) did not replicate the same results when they changed the sampling. On the other hand, in Durak and Senol-Durak's (in press) study, a five-factor-solution of the SAM was found with the sample of university students and adults. Study 1 and Study 2 are conducted to test the relevancy of the five-factor-solution of the SAM-D by CFA in two different samples (university students and adults). Consistent with the findings obtained by Durak and Senol-Durak (in press), CFA confirms that the five-factor-solution model reveals an adequate fit both in university students and community members on the basis of model fit indices (RMSEA, SRMR, IFI, TLI, and CFI). Consequently, the advantage of the present study is that the five-factor-solution could be replicated for both samples. These factors are threat (e.g. items of "serious implications" and "negative impact"), challenge (e.g. items of "positive impact" and "excited about outcome"), controllable-by-self (e.g. items of "have skills necessary", and "will overcome problem"), controllable-by-others (e.g. items of "someone I can turn to" and "anyone who can help") and uncontrollability (e.g. items of "totally hopeless" and "outcome uncontrollable").

The only significant difference obtained in the present study was related to the item "eager to tackle". In both results obtained from the university students and community members, the item of "eager to tackle" has very low standard estimates but a very high significance level. However, in Durak and Senol-Durak (in press), this item had been removed from the analysis of the situational version of the SAM due to its low and insignificant levels (Durak & Senol-Durak, in press). They explained that the major problem in the "eager to tackle" item was that it was negatively influenced by the items it was associated with. While the group of other items in the challenge dimension focuses on the outcome of the stress, the item of "eager to tackle" is associated to the beginning of stress. In other words, the other items in this group focus on the benefits of the given stressful situation; however the item "eager to tackle" questions whether the individual is willing to make a determined effort to deal with the difficult problem. Society has some expectations regarding behaviors (Buyuksahin-Sunal, & Donmez, 2011; Gundogdu, 2010; Subasi, 2007;). Turkish individuals avoid taking any responsibility when the stress causing events requires immediate action which is usually challenging because they have parents that establish distance between self and their children (Tuzgol Dost, 2010), encourage their children to obey rules and be dependent during the development process (Murad, Joung, van Lenthe, Bengi-Arslan, & Crijnen, 2003). Turkish people become to be dependent upon others within such a development process and that is why they avoid taking responsibilities at the onset of the stress. Therefore, in addition to the association problem, it can be said that the effect of Turkish culture explains the low standard estimate of the "eager to tackle" item.

Moreover, the sub-scales of the SAM-D are internally consistent in terms of reliability, and the item-total correlations for the subscales of the SAM-D are within acceptable ranges. Excluding challenge dimension in university students, the Cronbach's alpha for all of the dimensions of SAM-D in the sample of university students and community members demonstrate acceptable good or excellent internal consistency (George, & Mallery, 2003). The results of the internal consistency analysis clearly demonstrate the SAM-D to be highly acceptable for five-factor-solution in the university students and the community members. Especially, the internal consistency of threat, controllable-by-self, and controllable-by-others dimensions are high.

In addition to internal consistencies, confirmatory factor analysis with multi-group comparisons was performed in the samples of university students to examine whether the SAM-D has the same theoretical structure for each gender group on the basis of the five-factor model. The results indicated that the final model is valid for both gender groups as long as the stability of all the constraints. There were no significant differences across gender in the relation to the test in the path model. In other words, data from male and female participants were combined for all subsequent analyses as well. This result supports the previous findings obtained from the factor analysis of the situational SAM (Anshel et al.1997; Durak & Senol-Durak, in press) as well as the dispositional SAM (Rowley et al., 2005). Thus, SAM-D could be used in future studies include participants from each of these gender groups.

In addition to factorial structure and internal consistency, on the basis of statistical results and consistent findings in the literature, the SAM-D has satisfactory concurrent validity that is provided by the association between the subscales of SAM-D, trait anxiety, self esteem, positive affect, negative affect and the subscales of WCQ. As seen above, the correlations between dimensions of SAM and trait anxiety or self-esteem were high although the correlations between those and other constructs were low. This difference may be due to the effect of that former variables were arousal-related, and personality variables while latter variables were not. Similarly, Roesch and Rowley's (2005) explained high correlations between dimensions of SAM and trait anxiety as being one of high arousal variable.

Consistent with the findings of other researchers (e.g., Roesch & Rowley, 2005), the findings of the present study confirmed that the concept of cognitive appraisal dimensions is related to trait anxiety which is mentioned as being high arousal state. Similarly, in Roesch and Rowley's (2005) study, trait anxiety was found to be positively correlated with threat, while it was negatively correlated to challenge dimensions in both university student and adult samples. Moreover, such as observed in the relationships between state anxiety and cognitive appraisal dimensions in Durak and Senol-Durak's (in press) study, trait anxiety was positively correlated to the uncontrollable-by-anyone dimension, and negatively correlated to the controllable-by-self and controllable-by-others dimensions in both the samples of university students and community members. In addition to trait anxiety, lower threat and uncontrollable-by-anyone scores and higher controllable-by-self, and controllable-by-others (only in the university student sample) scores were related to self esteem, as expected. Significant relationship found between the SAM-D dimension of controllable-by-others and self esteem only in the sample of university students demonstrated that university students had willingness to be dependent on others that is, encouraged by their Turkish parents (consistent with Murad et al., 2003). Furthermore, lower scores obtained from controllable-by-self and controllable-by-others were related to negative affect only in the samples of adult. In addition to negative affect, higher scores obtained from challenge (only in adult sample), controllable-by-self and controllable-by-others (only in student sample) dimensions and lower scores obtained from threat, uncontrollable-by-anyone dimensions were related to positive affect. Results confirm the relationship between challenge and positive emotions (Jerusalem & Schwarzer, 1992).

Subscales of the SAM-D and the WCQ reveal important findings in the present study as well. For instance, the present study confirms that certain parts of the SAM-D (higher challenge, higher controllable-by-self, and higher controllable-by-others) were related to planful problem solving. Therefore, challenge and controllability relationship on planful problem solving, as being one part of problem focused type of coping, was supported (Peacock et al., 1993). Additionally, similarly to Peacock et al.'s (1993) findings, for the relationship between threat and emotion focused type of coping, certain parts of SAM-D (higher threat, lower controllable-by-self, and lower controllable-by-others) were related to accepting responsibility which is one type of emotion focused coping. Moreover, consistent with the findings obtained by Peacock et al. (1993) with Western individuals, dimensions of threat and uncontrollable-by-anyone were positively correlated with some types of emotion focused coping that is escape avoidance and keep to self. Furthermore, higher threat, higher uncontrollable-by-anyone, controllable-by-self (only in the adult sample) and controllable-by-others scores were positively related to seeking social support. These relationships may demonstrate the collectivistic characteristics of the Turkish culture in which individuals dependency needs are supported by their parents (Murad et al., 2003). Besides, as specific to the Turkish culture, higher threat and uncontrollability scores were significantly related to seeking refuge in fate. Moreover, higher scores obtained from uncontrollable-by-self were correlated with seeking refuge in supernatural forces in the adult sample. These findings are related to the Islamic aspect of the Turkish culture (Senol-Durak et al., in press). In this culture, uncontrollable events are believed to occur only if God permits them. Therefore, in order to decrease the effect of uncontrollable events, some religious or superstitious rituals are applied. Consequently, these correlations mentioned above prove the concurrent validity.

The results of the present study are evaluated by taking several strengths and methodological limitations into consideration. Numerous researchers demonstrated that stress appraisal is related to age (e.g., Devonport & Lane, 2006; King, 2005; Largo-Wight et al., 2005; Rowley et al., 2005) and gender (e.g., Dopke & Milner, 2000). Therefore, the selection of university students and community members as samples for the present study was reasonable. Gathering data from different samples is necessary to improve the generalizability of the results. Researches with other age groups or with other participants exposed to different stressful circumstances are suggested for future similar studies. The replication of the results related with the reliability and validity of the SAM-D in different cultures other than the North American and Turkish (e.g. Asian or Latin America cultures) are beneficial to generalizability, since culture (Puente-Diaz & Anshel, 2005) has an effect on stress appraisal. Finally, due to the difficulties of retesting -this is an assessment of state-, the impossibility of examining the test-retest reliability was another limitation of the present study.

The results revealed that the psychometric properties of the SAM-D were satisfactory in different Turkish samples. Further research involving demographically diverse samples in different cultures supports the psychometric results of the SAM-D.

References

- Anshel, M. H., Robertson, M., & Caputi, P. (1997). Sources of acute stress and their appraisals and reappraisals among Australian police as a function of previous experience. *Journal of Occupational and Organizational Psychology*, 70, 337-356.
- Arbuckle, J.L. (2006). *Amos (Version 7.0)* [Computer Program]. Chicago: SPSS.
- Bentler, P. M. (1995). *EQS: Structural equations program manual*. Encino, CA: Multivariate Software Inc.
- Bentler, P. M., & Bonett, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin*, 88, 588-606.
- Bentler, P. M., & Chou, C. P. (1987). Practical issues in structural modeling. *Sociological Methods and Research*, 16, 78-117.
- Benyamini, Y. (2009). Stress and coping with women's health issues a review from a self-regulation perspective. *European Psychologist*, 14, 63-71. DOI: 10.1027/1016-9040.14.1.63.
- Buyuksahin-Sunal, A., & Donmez, A. (2011). Self monitoring in romantic relationships: Stress and psychological symptoms, *Education and Science*, 36(162), 149-158.
- Byrne, B. M. (2004). Testing for multigroup invariance using AMOS graphics: A road less traveled. *Structural Equation Modeling*, 11(2), 272-300.
- Ceyhan, E., Ceyhan, A.A. (2011). Loneliness and depression levels of students using a university counseling center. *Education and Science*, 36(160), 81-92.
- Cordova, M. J., Ruzek, J. I., Benoit, M., & Brunet, A. (2003). Promotion of emotional disclosure following illness and injury: A brief intervention for medical patients and their families. *Cognitive and Behavioral Practice*, 10, 358-371.
- Çuhadaroğlu, F. (1986). Self esteem among adolescents. Unpublished dissertation. Ankara: Hacettepe University.
- Devonport, T. J., & Lane, A. M. (2006). Cognitive appraisal of dissertation stress among undergraduate students. *The Psychological Record*, 56, 259-266.
- Dopke, C. A., & Milner, J. S. (2000). Impact of child noncompliance on stress appraisals, attributions, and disciplinary choices in mothers at high and low risk. *Child Abuse, & Neglect*, 24, 493-504.

- Durak, M., & Senol-Durak, E. (in press). The development and psychometric properties of the turkish version of the stress appraisal measure. *European Journal of Psychological Assessment*. DOI: 10.1027/1015-5759/a000079
- Ferguson, E., Matthews, G., & Cox, T. (1999). The appraisal of life events (ALE) scale: Reliability and validity. *British Journal of Health Psychology*, 4, 97-116.
- Fleming, J. S. & Courtney, B. E. (1984). The dimensionality of self-esteem II: Hierarchical facet model for revised measurement scales. *Journal of Personality and Social Psychology*, 46, 404-421.
- Folkman, S. & Lazarus, R. S. (1980). An analysis of coping in a middle-aged community sample. *Journal of Health and Social Behavior*, 21, 219-239.
- Folkman, S. & Lazarus, R. S. (1985). If it changes it must be a process: Study of emotion and coping during 3 stages of a college-examination. *Journal of Personality and Social Psychology*, 48, 150-170.
- Folkman, S. (2008). The case for positive emotions in the stress process. *Anxiety Stress and Coping*, 21, 3-14.
- Gan, Q., & Anshel, M.H. (2006). Differences between elite and non-elite male and female Chinese athletes on cognitive appraisal of stressful events in competitive sport. *Journal of Sport Behavior*, 29(3), 213-227.
- Gençöz, T. (2000). Positive and negative affect schedule: A study of validity and reliability. *Turkish Journal of Psychology*, 15(46), 27-28.
- George, D., & Mallery, P. (2003). *SPSS for Windows step by step: A simple guide and reference. 11.0 update* (4th ed.). Boston: Allyn & Bacon.
- Gundogdu, M. (2010). Life orientations among university students. *Education and Science*, 35(157) 192-199.
- Honey, K. L., Bennett, P., & Morgan, M. (2003). Predicting postnatal depression. *Journal of Affective Disorders*, 76, 201-210. DOI: 10.1016/S0165-0327(02)00085-X
- Hu, L., & Bentler, P. M. (1998). Fit indices in covariance structure modeling: Sensitivity to underparametrized model misspecification. *Psychological Methods*, 3, 424-453.
- Jerusalem, M. & Schwarzer, R. (1992). Self-efficacy as a resource factor in stress appraisal processes. In R. Schwarzer (Ed.), *Self-efficacy: Thought control of action* (pp. 195-213). Washington, DC: Hemisphere.
- Kennedy, P., Evans, M., & Sandhu, N. (2009). Psychological adjustment to spinal cord injury: The contribution of coping, hope and cognitive appraisals. *Psychology, Health & Medicine*, 14, 17-33.
- King, K. R. (2005). Why is discrimination stressful? The mediating role of cognitive appraisal. *Cultural Diversity and Ethnic Minority Psychology*, 11(3), 202- 212.
- Kline, R. B. (2005). *Principles and Practice of Structural Equation Modeling* (2nd ed.). New York: The Guilford Press.
- Largo-Wight, E., Peterson, M., & Chen, W. (2005). Perceived problem solving, stress, and health among collage students. *American Journal of Health Behavior*, 29(4), 360-368.
- Lazarus, R. S. (2006). Emotions and interpersonal relationships: Toward a person-centered conceptualization of emotions and coping. *Journal of Personality*, 74, 9-46.
- Miles, L. M., Keitel, M., Jackson, M., Harris, A., & Licciardi, F. (2009). Predictors of distress in women being treated for infertility. *Journal of Reproductive and Infant Psychology*, 27(3), 238-257.
- Murad, S. D., Joung, I. M. A., van Lenthe, F. J., Bengi-Arslan, L., & Crijnen, A. A. M. (2003). Predictors of self-reported problem behaviours in Turkish immigrant and Dutch adolescents in the

Netherlands. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, 44, 412-423.

- Öner, N. & LeCompte, A. (1985). Durumluk-Sürekli Kaygı Envanteri Elkitabı [Manual for the State-Trait Anxiety Inventory]. İstanbul: Boğaziçi Üniversitesi.
- Orucu, M. C. & Demir, A. (2009). Psychometric evaluation of perceived stress scale for Turkish university students. *Stress and Health*, 25, 103-109. DOI: 10.1002/smi.1218.
- Peacock, E. J., & Wong, P. T. (1990). The cognitive appraisal of stress measure (SAM): A multidimensional approach to cognitive appraisal. *Stress Medicine*, 6, 227-236.
- Peacock, E. J., Wong, P. T. P., & Reker, G. T. (1993). Relations between appraisals and coping schemas - support for the congruence model. *Canadian Journal of Behavioural Science-Revue Canadienne des Sciences du Comportement*, 25, 64-80.
- Peterson, C., Semmel, A., Vonbaeyer, C., Abramson, L. Y., Metalsky, G. I., & Seligman, M. E. P. (1982). The attributional style questionnaire. *Cognitive Therapy and Research*, 6, 287-299.
- Puente-Diaz, R. & Anshel, M. H. (2005). Sources of acute stress, cognitive appraisal, and coping strategies among highly skilled Mexican and U.S. competitive tennis players. *The Journal of Social Psychology*, 145, 429-446.
- Rafferty, A. E. & Griffin, M. A. (2006). Perceptions of organizational change: A stress and coping perspective. *Journal of Applied Psychology*, 91, 1154-1162. DOI: 10.1037/0021-9010.91.5.1154
- Roesch, S. C., & Rowley, A. A. (2005). Evaluating and developing a multidimensional, dispositional measure of appraisal. *Journal of Personality Assessment*, 85 (2), 188-196.
- Rosenberg, M. (1965). *Society and adolescent self-image*. Princeton, NJ: Princeton University Press.
- Rowley, A. A., Roesch, S. C., Jurica, B., & Vaughn, A. A. (2005). Developing and validating a stress appraisal measure for minority adolescents. *Journal of Adolescence*, 28, 547-557.
- Schermelleh-Engel, K., & Moosbrugger, H. (2003). Evaluating the fit of structural equation models: Tests of significance and descriptive goodness-of-fit measures. *Methods of Psychological Research Online*, 8(2), 23-74
- Senol-Durak, E., Durak, M., & Elagöz, F.Ö. (2011). Testing the Psychometric Properties of the Ways of Coping Questionnaire (WCQ) in Turkish University Students and Community Samples. *Clinical Psychology and Psychotherapy*. DOI: 10.1002/cpp.677.
- Spielberger, C. D., Gorsuch, R. L., & Lushene, R. (1983). *State-Trait Anxiety Inventory Test Manual for Form Y*. Palo Alto, CA: Consulting Psychological Press.
- Subasi, G. (2007). Some variables for social anxiety prediction in college students. *Education and Science*, 32(144), 3-15.
- Suzuki, S., & Sakano, Y. (1998). Development of a Cognitive Appraisal for Rating Scale (CARS) and its validation. *Human Science Research*, 7, 113-124.
- Tuzgöl-Dost, M. (2010). An examination of subjective well-being and life satisfaction of students attending to university in South Africa and Turkey. *Education and Science* 35(158), 75-89.
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect - the PANAS Scales. *Journal of Personality and Social Psychology*, 54, 1063-1070.