

# Factor Structure and Psychometric Properties of the Emotional Approach Coping Scale in Turkish University Students and Community Members

Emre Senol-Durak · Mithat Durak

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**Abstract** To evaluate emotional approach coping, including the dimensions of emotional processing and emotional expression, the Emotional Approach Coping Scale (EACS) is frequently used. This study aimed to examine the psychometric properties of situational EACS among Turkish participants ( $n=557$ ), including university students ( $n=283$ ) and community members ( $n=274$ ). The results revealed that a two-factor model showed significant goodness of fit for confirmatory factor analysis. Furthermore, multi-group comparisons based on sample groups (university students and community members) and gender groups demonstrated no significant differences between the constrained and unconstrained models. In addition to sufficient reliability of the EACS, the concurrent and discriminant validity of the scale were supported by association of the EACS with state anxiety and social desirability. The theoretical and practical implications of this study are discussed.

**Keywords** Emotional approach coping · Emotional expression · Emotional processing · Confirmatory factor analysis · Reliability · Validity · Multi-group comparisons

Emotional approach coping (EAC) is described as “active attempts to acknowledge and understand emotions” and the expression of emotions (Stanton et al. 2000b, p.1150). The basic function of EAC is to resolve psychological conflicts and life problems caused by stress (Stanton et al. 2000b). For instance, EAC has been found to promote psychological adjustment and physical improvement in breast cancer patients (Stanton et al. 2000a) and asthma patients (Zangi et al. 2009).

EAC is divided into two components: emotional expression and emotional processing (Smyth 1998). Emotional expression is defined as allowing oneself to express feelings, taking time to express feelings, and feeling free to reveal feelings (Stanton et al. 2000b). Both verbal and nonverbal attempts to express emotions are accepted as emotional expression (Austenfeld et al. 2006). Increasing psychological adjustment, coping with stress (Stroebe et al. 2005), decreasing distress, increasing well-being (Cordova et al. 2003), and clarifying or pursuing goals (Stanton et al. 2000b; Stanton et al. 2002) are accepted as functions of emotional expression. Cordova et al. (2003) emphasized that the inhibition of emotions may prolong distress and lead to psychological impairments.

Emotional processing is defined as taking time to determine real feelings, understanding the meanings of feelings (Austenfeld et al. 2006; Master et al. 2009), realizing that the feeling is real and valid, and acknowledging feelings intentionally (Master et al. 2009; Stanton et al. 2000b). The benefits of emotional processing include increases in the successful pursuit of goals (i.e. women, Berghuis and Stanton 2002; Stanton et al. 2000b; Stanton et al. 2000a) and psychological adjustment (Stanton et al. 2000b) as well as decreases in hostility (Austenfeld and Stanton 2008) and the risk of depressive symptoms (Tull et al. 2006). Additionally, the inability to engage in emotional

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E. Senol-Durak (✉) · M. Durak  
Arts and Science Faculty, Department of Psychology, Abant Izzet Baysal University,  
Gölköy 14280 Bolu, Turkey  
e-mail: emresenoldurak@yahoo.com

E. Senol-Durak  
e-mail: durak\_e@ibu.edu.tr

M. Durak  
e-mail: mithatdurak@yahoo.com

M. Durak  
e-mail: durak\_m@ibu.edu.tr

processing is related to panic symptoms (Baker et al. 2004). Likewise, Iwamitsu et al. (2005) found that suppression of emotion increased anxiety as well as negative mood in a sample of breast cancer patients. Moreover, Stanton et al. (2000b) found that women who used EAC through emotional processing exhibited lower levels of anxiety.

### The Emotional Approach Coping Scale

EAC has been investigated in current literature through the above mentioned studies, and several new scales have been devised to evaluate this construct. For example, the Ambivalence over Emotional Expressiveness Questionnaire (King and Emmons 1990) and the Family Expressiveness Questionnaire (Halberstadt 1986) are two of the measures used to assess general emotional expression. Among the emotional expression scales, the Emotional Approach Coping Scale (EACS) is used most frequently. The items of the scale were generated by Stanton et al. (2000b) based on the operational definition of emotional approach coping. In examining the factor structure of the scale, they found two constructs (emotional processing [EP] and emotional expression [EE]) to be relevant. Moreover, when psychometric properties of a situation-specific version of the scale were tested, confirmatory factor analysis results revealed the same factor structure (EP and EE) (Stanton et al. 2000b). The scale does not include items that evaluate distress due to the criticisms of emotion-focused coping as including items related to both emotional outcomes and distress (Stanton et al. 1994).

Scholars have examined the EACS using both situational (Stanton et al. 2000a, b) and dispositional statements (Stanton et al. 2000b). In addition to high internal consistency and test-retest reliability, the situational and dispositional versions of the scale were not found to correlate with the social desirability scale, which is evidence of discriminant validity (Stanton et al. 2000b). Moreover, the positive correlation between EP and some subscales of the COPE inventory (problem-focused coping, seeking social support) as well as the positive correlation between EE and some subscales of the COPE inventory (seeking social support, problem-focused coping and distress contaminated coping) demonstrated the convergent validity of the EACS (Stanton et al. 2000b).

The psychometric properties of the Norwegian version of the EACS were evaluated by Zangi et al. (2009) in a sample of rheumatic disease patients. Similar to the developers' results, EE and EP were identified as the two subscales of the EACS based on the principal component analysis results. This version of the scale, consisting of sixteen items, had high internal consistency despite the fact that two items, which reflect the value of one's emotions,

had low item-total correlation ("I realize that my feelings are valid and important" and "I acknowledge my emotions"). Moreover, the positive correlation between the EACS and approach-oriented items of the Brief Approach/Avoidance Coping Questionnaire as well as the negative correlation between EE and the General Health Questionnaire demonstrated the construct validity of the scale.

### Aim of the Study

Despite the studies mentioned above, the psychometric properties of the situational EACS have not been tested in a non-Western culture, such as the Turkish culture. Adaptation of the situational EACS to Turkish culture may provide a deeper understanding of emotional approach coping in different situations for the Turkish society. To evaluate emotional approach coping responses to various contextual factors, the situational EACS was used to validate changes in individuals' coping patterns from one situation to another (Stanton et al. 2000b). The purpose of the present study was to investigate the psychometric properties of the situational EACS in Turkish culture. For this purpose, we anticipated that the two-factor model (EP and EE) of the situational EACS would be appropriate based on confirmatory factor analysis results. Moreover, a model including multi-group comparisons based on gender groups and sample type (university students and community members) would demonstrate the stability of the factor structure. We also assumed that the scale would have good internal consistency, concurrent validity and discriminant validity.

### Method

#### Participants

Data were collected from both university students and community members because sources of stress may differ for different samples. The data obtained from two samples were then merged into one larger sample. The university student sample was composed of 283 members, 170 females (60.1%) and 113 males (39.9%). The age of the students ranged from 17 to 26 years ( $M=20.70$ ,  $SD=1.50$ ). Approximately, 24% of the subjects were freshmen ( $n=68$ ), 23.7% were sophomores ( $n=67$ ), 36.7% were juniors ( $n=104$ ), and 15.5% were seniors ( $n=44$ ). The mean of monthly family income was 1252.76 Turkish Liras (TL) (835.17 USD) ( $SD=995.34$  TL or 663.56 USD), ranging from 350 to 10000 (233.33 USD to 666.66 USD).

The community member sample included 274 participants, 136 females (49.6%) and 138 males (50.4%). The age of these individuals ranged from 18 to 74 years ( $M=$

33.93,  $SD=10.80$ ). The majority ( $n=156$ ; 56.9%) of the participants were married, 39.1% ( $n=107$ ) were single, 2.9% ( $n=8$ ) were separated and 1.1% ( $n=3$ ) were divorced. The education levels of the participants were masters graduates ( $n=4$ ; 1.5%), university graduates (four-year university graduates, bachelor degree) ( $n=77$ ; 28.1%), college graduates (two-year university graduates, no bachelor degree) ( $n=27$ ; 9.9%), high school graduates ( $n=94$ ; 34.3%), secondary school graduates ( $n=22$ ; 8%) and primary school graduates ( $n=50$ ; 18.2%). The mean monthly family income was 1502.96 TL (1001.97 USD) ( $SD=1199.88$  TL or 799.92 USD), ranging from 400 TL to 12000 TL (266.66 USD to 8000 USD). Participants had various professions such as housewife ( $n=51$ ; 18.2%), teacher ( $n=35$ ; 12.8%), worker ( $n=28$ ; 10.2%), retired ( $n=17$ ; 6.2%), official in the public sector (low level) ( $n=15$ ; 5.5%), accountant or economist ( $n=15$ ; 5.5%), professional employee in health system ( $n=14$ ; 5.1%), administrative officer ( $n=10$ ; 3.6%), technician ( $n=9$ ; 3.3%), unemployed ( $n=8$ ; 2.9%), engineer or architect ( $n=6$ ; 2.2%), trader ( $n=6$ ; 2.2%), mental or physical health professionals ( $n=6$ ; 2.2%), employees in security system ( $n=5$ ; 1.8%), driver ( $n=5$ ; 1.8%), farmer ( $n=4$ ; 1.5%), and attorney ( $n=1$ ; 0.4%).

### Measures

In addition to information obtained from the Demographic Information Form, four measures were employed in both samples. *The State Trait Anxiety Inventory-State Form* is accepted as a measure of adjustment by the developers of the EACS (Stanton et al. 2000b) and was selected to examine the concurrent validity of the EACS. *The Social Desirability Scale-17 (SDS-17)* was selected to examine the discriminant validity of the scale.

*The Emotional Approach Coping Scale (EACS)*, which was developed by Stanton et al. (2000b) to evaluate emotional expression and emotional processing, was used. The EACS consists of sixteen items (an eight-item version is also available) that measure the constructs of emotional processing (eight items) and emotional expression (eight items). The EACS includes 4-point response options (1 = “I scarcely do this” through 4 = “I usually do this a lot”). Internal consistencies were reported as .72 for emotional processing and .82 for emotional expression. Test-retest reliabilities were .73 for emotional processing and .72 for emotional expression.

*The State Trait Anxiety Inventory-State Form (STAI-S)*, which was developed by Spielberger et al. (1970) to assess self-reported anxiety or feelings of anxiety at the time of completing the questionnaire (current feelings of tension and apprehension), was used. The STAI-S is a twenty-item self-report questionnaire and is scored on a 4-point Likert scale (1 = “not at all” through 4 = “very much so”). The

test-retest reliability of the STAI-S anxiety score among male and female university students over a 104-day period was found to be .33 and .31, respectively, and the scale had high internal consistency (ranging from .83 to .92) (Spielberger et al. 1983). The STAI-S was translated into and adapted to Turkish by Oner and Le Comte in 1985. The internal consistency of the scale ranged from .94 to .96, and test-retest correlations ranged from .26 to .68 over one year in five different samples of university students. In the present study, the internal consistency of the scale was .93.

*The Social Desirability Scale-17 (SDS-17)* was developed by Stöber (2001) to assess socially desirable responses to seventeen items (e.g., “I never hesitate to help someone in case of emergency” or “In traffic I am always polite and considerate of others”). The scale was used in the present study because social desirability is conceptually distinct from the constructs of the EACS. Higher scores obtained by the scale demonstrate a desire to portray oneself in a positive manner. The scale was translated into Turkish by Durak and Coskun (2010). Unlike the original scale of Stöber (2001), which uses a yes-no format, the Turkish version utilizes a 5-point Likert-type scale. Furthermore, the translators excluded two items that had lower item-total correlations; therefore, the scale includes fifteen items. The internal consistency of the scale was .77, and the corrected item-total correlations ranged from .24 to .54. In the present study, the internal consistency of the scale was .80.

*The Possible Stress Sources Checklist* was developed to assess possible sources of stress (Durak and Senol-Durak 2010). Fourteen items demonstrating stressful states (e.g., problems with girl/boyfriend, taking a midterm exam, rejection, and health problems of a loved one) were administered to the university students, whereas twenty-four items (e.g., health problems, loss of a loved one, being unemployed, legal problems) were administered to the community members (see Table 1). Subjects were asked to go over each item and check off one stress source on the list that they were likely to experience in the forthcoming four weeks. Then, they were prompted to react to the EACS items by considering what did they checked.

### Procedure

Before collecting data, the EACS items were translated into Turkish by three independent native English-speaking translators who were fluent in Turkish. The EACS items were then reviewed by three native Turkish-speaking psychologists who were fluent in English to check for accuracy. Any discrepancies were discussed by the three translators and three psychologists, and joint agreements were reached for resolution of discrepancies.

The questionnaires were distributed to the university students in a classroom setting and to the community

**Table 1** Possible stress sources

	Frequency in students	Frequency in community members	Frequency total	Per thousand (N=557)
– Mental or physical fatigue	41	38	79	0.142
– Taking a midterm/final exam for any course (e.g., ECON 205)	63	0	63	0.113
– Economical difficulties	23	35	58	0.104
– Problems with family members	20	29	49	0.088
– Problem with girl/boyfriend	30	15	45	0.081
– Difficulties in preparing homework or course project	39	0	39	0.070
– Loss of loved one (mother, father, grandmother, grandfather, partner, friend, father-in-law, elder brother, etc.)	17	15	32	0.057
– Health problems of a loved one (mother, father, grandfather, grandmother, or girl/boy friend, spouse, aunts, etc.)	7	22	29	0.052
– Problems with friends	18	9	27	0.048
– Problem with spouse	0	27	27	0.048
– Health problems (back pain, lumbago, neck hernia, rheumatism, brain tumor, heart problems, kidney insufficiency, meniscus/knee pain, OCD, epilepsy, teeth pain, depression, etc.)	8	15	23	0.041
– Other (anxiety about future, preparing to retake the university entrance exam, living far away from family, living in an undesirable city, feeling tension, indecision, problems with friends at work, exam for a promotion/transfer, changing rules in the workplace (curriculum), work overload, problems related to inheritance, self-doubt, unfairness at work, too much housework, etc.)	13	8	21	0.038
– Being unemployed	0	12	12	0.022
– Engagement/marriage	0	10	10	0.018
– Change of work/workplace	0	8	8	0.014
– Anxiety about physical appearance	1	5	6	0.011
– Sexual problems	1	5	6	0.011
– Having major surgery (bypass, heart surgery, lumbago hernia surgery, brain tumor surgery, breast surgery, etc.)	0	6	6	0.011
– Being retired	0	5	5	0.009
– Legal problems	0	3	3	0.005
– Being rejected	2	0	2	0.004
– Changing house /movement	0	2	2	0.004
– Have a child/birth of child	0	2	2	0.004
– Exposed to a crime	0	1	1	0.002
– Being homeless	0	1	1	0.002
– Divorce	0	1	1	0.002

members in the offices where they worked or environments near their houses. The community member 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.

In order to evaluate situational version of the EACS, possible stress source checklist was used. The instruction of this checklist was “A variety of stress sources are mentioned below. Please check off only one of them that you feel the most stressful source in the forthcoming four

weeks. Please do not check off more than one item.” After selecting one stressful source, subjects were asked to react to the EACS items by considering what did they checked.

### Analysis

To test the adequacy of the two-factor model (EP and EE) of the situational EACS, confirmatory factor analysis was conducted. Several indices were utilized to evaluate the model fit. The goodness of fit indices, including the incremental fit index (IFI), comparative fit index (CFI), Tucker-Lewis index (TLI), and relative fit index (RFI), ranged from .00 to 1.00, with larger values indicating better

model fit. In general, values of .90 or greater were interpreted as evidence of a good model fit (Bentler and Bonett 1980). By contrast, a smaller root-mean-square error of approximation (RMSEA) indicated 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 and 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 and Moosbrugger 2003).

## Results

### The Frequency of Stressful States

Initially, participants were prompted to think about possible sources of stress that would be experienced in the forthcoming four weeks. The most frequently reported source of stress among the fourteen choices for university students was taking a mid-term exam for any course (22.3%). The most frequently reported source of stress among the twenty-four choices for the community sample was mental or physical fatigue (13.9%). All stress sources reported by participants in both samples are displayed in Table 1.

### Confirmatory Factor Analysis (CFA)

The AMOS 7.0 (Arbuckle 2006) software program was used to examine the relationship between the theoretical model and the experimental data. Initially, two-factor solutions of the model were examined. The two-factor solution did adequately fit,  $\chi^2$  (103,  $N=557$ )=450.751, and the model yielded acceptable goodness of fit indices (IFI=.920, TLI=.906, CFI=.919, SRMR=.070, RMSEA=.078) (see Table 2). The standardized estimates (SEs) ranged from .53 to .85 for items of emotional expression and .48 to .80 for items of emotional processing (see Table 3).

### Confirmatory Factor Analysis with Multiple Group Analysis

CFA with multiple group analysis enabled us to ascertain whether the factor structure was consistent across different groups (Byrne 2004). The primary focus of a multiple-group analysis was to determine the extent to which groups differ (Arbuckle 2006). The principle queries for the multiple group analysis areas were the following: 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 requires a different path diagram (p. 163).

**Table 2** The Confirmatory Factor Analysis Results for the two-factor-solution of the situational EACS, Multiple-Group Analysis for the sample type and gender

	Model fit statistics <sup>a</sup>					Comparison of models <sup>b</sup>			
	$\chi^2$	IFI	TLI	CFI	SRMR	RMSEA	Change ( $\Delta$ ) in $\chi^2$	Change ( $\Delta$ ) in df	p-value
The Confirmatory Factor Analysis ( $n=557$ )									
Two-factor solution	<b>450.721</b>	<b>.920</b>	<b>.906</b>	<b>.919</b>	<b>.071</b>	<b>.078</b>			
Multiple-group analysis for the sample type ( $n_{\text{student}}=283$ , $n_{\text{community}}=274$ )									
Unconstrained	<b>561.790</b>	<b>.919</b>	<b>.905</b>	<b>.918</b>	<b>.083</b>	<b>.056</b>			
Measurement weights	<b>575.730</b>	<b>.919</b>	<b>.911</b>	<b>.918</b>	<b>.081</b>	<b>.054</b>	$\Delta\chi^2=13.941$	$\Delta\text{df}=14$	$p=.454$
Measurement intercepts	618.642	.912	.911	.912	.080	.054	$\Delta\chi^2=42.911$	$\Delta\text{df}=16$	$p=.000$
Structural covariances	<b>621.674</b>	<b>.912</b>	<b>.912</b>	<b>.912</b>	<b>.080</b>	<b>.054</b>	$\Delta\chi^2=3.033$	$\Delta\text{df}=3$	$p=.387$
Measurement residuals	731.384	.890	.897	.891	.080	.058	$\Delta\chi^2=109.710$	$\Delta\text{df}=16$	$p=.000$
Multiple-group analysis for gender ( $n_{\text{female}}=306$ , $n_{\text{male}}=251$ )									
Unconstrained	<b>597.261</b>	<b>.911</b>	<b>.896</b>	<b>.910</b>	<b>.070</b>	<b>.058</b>			
Measurement weights	<b>610.032</b>	<b>.911</b>	<b>.903</b>	<b>.911</b>	<b>.074</b>	<b>.057</b>	$\Delta\chi^2=12.771$	$\Delta\text{df}=14$	$p=.545$
Measurement intercepts	<b>632.649</b>	<b>.909</b>	<b>.908</b>	<b>.909</b>	<b>.073</b>	<b>.055</b>	$\Delta\chi^2=22.618$	$\Delta\text{df}=16$	$p=.124$
Structural covariances	<b>636.582</b>	<b>.909</b>	<b>.909</b>	<b>.909</b>	<b>.080</b>	<b>.055</b>	$\Delta\chi^2=3.933$	$\Delta\text{df}=3$	$p=.269$
Measurement residuals	749.451	.886	.893	.887	.080	.059	$\Delta\chi^2=112.869$	$\Delta\text{df}=16$	$p=.000$

$\chi^2$  = 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

<sup>a</sup> Bold values demonstrate that the model fit the data

<sup>b</sup> Bold values indicate that a significant change ( $\Delta$ ) in  $\chi^2$  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

**Table 3** The descriptive statistics of the situational EACS items, item-total correlations and standardized regression weights

	Mean	St. D.	Skew.	Kurt.	Min.	Max.	ITC-TS	ITC-EE	ITC-EP	SRW
Emotional Expression										
Item 2	3.53	1.03	-0.39	-0.53	1	5	0.63	0.64	-	0.65
Item 3	3.52	1.15	-0.52	-0.60	1	5	0.62	0.71	-	0.74
Item 6	3.39	1.08	-0.27	-0.75	1	5	0.60	0.50	-	0.53
Item 7	3.25	1.19	-0.11	-0.94	1	5	0.66	0.79	-	0.85
Item 9	3.29	1.19	-0.20	-0.89	1	5	0.64	0.77	-	0.83
Item 13	3.43	1.07	-0.25	-0.74	1	5	0.69	0.78	-	0.83
Item 14	3.11	1.12	-0.11	-0.75	1	5	0.59	0.70	-	0.74
Item 16	3.37	1.17	-0.30	-0.85	1	5	0.63	0.68	-	0.72
Emotional Processing										
Item 1	3.38	1.06	-0.32	-0.64	1	5	0.52	-	0.59	0.66
Item 4	3.96	0.90	-0.80	0.42	1	5	0.46	-	0.49	0.51
Item 5	3.87	0.97	-0.73	0.07	1	5	0.56	-	0.66	0.74
Item 8	3.72	1.00	-0.59	-0.23	1	5	0.61	-	0.72	0.80
Item 10	3.54	1.01	-0.35	-0.43	1	5	0.51	-	0.61	0.67
Item 11	3.60	0.99	-0.42	-0.25	1	5	0.40	-	0.47	0.48
Item 12	3.59	1.05	-0.47	-0.42	1	5	0.56	-	0.65	0.70
Item 15	3.41	1.04	-0.29	-0.43	1	5	0.55	-	0.57	0.64

St D. = Standard Deviation, Skew.= Skewness, Kurt.= Kurtosis, Min.= Minimum Scores, Max.= Maximum Scores, ITC-TS = Item-Total Correlations for Total Scale, ITC-EE = Item-Total Correlations for Emotional Expression, ITC-TS = Item-Total Correlations for Emotional Processing, SRW = Standardized Regression Weights of Two-Factor Solution Model

Multi-group analysis was performed based on sample type (university students and community members) and gender to observe the effect of different possible stress sources. Multiple group analysis was conducted using AMOS 7.0 (Arbuckle 2006) to determine whether the situational EACS had the same theoretical structure for each group (students and community samples or females and males). A model with measurement weights constrained to be equal across groups was compared with a model in which weights were not constrained.

When examining the effect of sample type, the unconstrained two-group model for university students and community members fit the data well,  $\chi^2$  (206,  $N=557$ )=561.790. The goodness of fit indexes showed that the fit was adequate (IFI=.919, TLI=.905, CFI=.918, SRMR=.083, RMSEA=.056). In addition, all factor loadings were significant. No significant differences between the constrained and unconstrained models were identified, indicating that the model was valid for the two different groups. In contrast, the model in which the measurement weights were set as equal for the two different groups was not significant  $\Delta \chi^2$  (df=14)=13.941,  $p=.454$  ( $\Delta$ IFI=.000,  $\Delta$ TLI=.006,  $\Delta$ CFI=.000,  $\Delta$ SRMR=-.002,  $\Delta$ RMSEA=-.002). In addition, the model in which the measurement intercepts were set as equal for the two different groups was significant  $\Delta \chi^2$  (df=16)=42.911,  $p=.000$  ( $\Delta$ IFI=-.007,  $\Delta$ TLI=.000,  $\Delta$ CFI=-.006,  $\Delta$ SRMR=-.001,  $\Delta$ RMSEA=.000). However, the model in which the structural covariances were set as equal for the two different groups was not significant  $\Delta \chi^2$  (df=3)=3.033,  $p=.387$  ( $\Delta$ IFI=.000,  $\Delta$ TLI=.001,  $\Delta$ CFI=.000,  $\Delta$ SRMR=.000,  $\Delta$ RMSEA=.000). Despite the above results,

the model in which the measurement residuals were set as equal for the two different groups was significant;  $\Delta \chi^2$  (df=16)=109.710,  $p=.000$  ( $\Delta$ IFI=-.022,  $\Delta$ TLI=-.015,  $\Delta$ CFI=-.021,  $\Delta$ SRMR=.000,  $\Delta$ RMSEA=.004). Table 2 presents detailed multi-group comparison fit indices.

In examining the gender effect, the unconstrained two-group model for females and males fit the data well,  $\chi^2$  (206,  $N=557$ )=597.261. The goodness of fit indexes showed that the fit was adequate (IFI=.911, TLI=.986, CFI=.910, SRMR=.070, RMSEA=.058). In addition, all factor loadings were significant. No significant differences between the constrained and unconstrained models were identified, indicating that the model is valid for the two different groups. The model in which the measurement weights were set as equal for the two different groups was not significant;  $\Delta \chi^2$  (df=14)=12.771,  $p=.545$  ( $\Delta$ IFI=.000,  $\Delta$ TLI=.007,  $\Delta$ CFI=.001,  $\Delta$ SRMR=.004,  $\Delta$ RMSEA=-.001). Similarly, the model in which the measurement intercepts were set as equal for the two different groups was not significant;  $\Delta \chi^2$  (df=16)=22.618,  $p=.124$  ( $\Delta$ IFI=-.002,  $\Delta$ TLI=.005,  $\Delta$ CFI=-.002,  $\Delta$ SRMR=-.001,  $\Delta$ RMSEA=-.002). The model in which the structural covariances were set as equal for the two different groups was also not significant;  $\Delta \chi^2$  (df=3)=3.933,  $p=.269$  ( $\Delta$ IFI=.000,  $\Delta$ TLI=.001,  $\Delta$ CFI=.000,  $\Delta$ SRMR=.007,  $\Delta$ RMSEA=.000). Despite the above results, the model in which the measurement residuals were set as equal for the two different groups was significant;  $\Delta \chi^2$  (df=16)=112.869,  $p=.000$  ( $\Delta$ IFI=-.023,  $\Delta$ TLI=-.016,  $\Delta$ CFI=-.022,  $\Delta$ SRMR=.000,  $\Delta$ RMSEA=.004). Table 2 presents detailed multi-group comparison fit indices.

### Internal Consistency Coefficient

Descriptive statistics of the situational EACS items are shown in Table 3. Reliability was computed through internal consistency indexes. All subscale scores had discrete internal consistency and adequate item total correlations. The internal consistency coefficient of the EACS was .90 for EE, .85 for EP, and .90 for the total scale, and the corrected-item total correlations ranged from .50 to .79 for EE, .47 to .72 for EP and .40 to .69 for the total scale.

### Concurrent and Discriminant Validity

To evaluate concurrent validity, participants' scores on the situational EACS subscales were compared with a conceptually related construct, state anxiety. The correlation between state anxiety and the situational EACS subscales was  $r = -.27$ ,  $p = .000$  for EE and  $r = -.24$ ,  $p = .000$  for EP. Furthermore, monthly family income was positively correlated with EE,  $r = .22$ ,  $p = .000$  and positively correlated with EP,  $r = .14$ ,  $p = .001$  (see Table 4).

To evaluate discriminant validity, participants' scores on the situational EACS subscales were compared with lowly related construct, social desirability. As expected, the situational EACS subscales and the *SDS-17* were lowly positively correlated. The correlation between social desirability and the situational EACS subscales was  $r = .13$ ,  $p = .003$  for EE and  $r = .16$ ,  $p = .001$  for EP (see Table 4).

### Discussion

Emotions are accepted as being adaptive in nature and having survival value (Sharpley and Bitsika 2010); thus, they increase individuals' functioning (Stanton et al. 2000b) and adaptation (Zangi et al. 2009). Based on this perspective, the EACS was developed to assess emotional expression and emotional processing, which are beneficial in solving psychological conflicts and life problems caused by stress (Stanton et al. 2000b). The EACS can be used in diverse populations, such as patients suffering from rheumatoid arthritis (Zangi et al. 2009) or breast cancer (Stanton et al. 2000a).

The EACS is accepted as a measurement of emotional approach coping and includes either situational (Stanton et al. 2000b; Stanton et al. 2000a) or dispositional statements (Stanton et al. 2000b). In addition to examining the dispositional structure of the EACS, investigating the situational structure of the EACS is necessary because people use specific types of coping resources for specific events. In other words, one of the advantages of the situational EACS is that it can assess the effect of one specific event on individuals.

In determining the structural validity of the EACS in a transitional culture, the current results increase the understanding of emotional processing or emotional expression in a given stressful situation. The results demonstrate that the psychometric properties of the situational EACS are satisfactory. In this study, we examined two-factor solutions of the EACS. Likewise Stanton, Kirk et al.'s (2000b) study, the two-factor solution displayed acceptable goodness of fit indices.

Furthermore, samples of university students and community members were used to determine whether the factor structure was stable for different samples in the present study. Although the possible stress sources differ by sample type, the two-factor structure in the university student sample could be replicated in the community member sample. Therefore, factorial invariance across the university student sample and the community sample was confirmed by the finding of consistent CFAs of the EACS administered to the two different samples. The results were consistent with studies conducted in Western cultures, such as American (Stanton et al. 2000b) and Norwegian (Zangi et al. 2009) culture.

Moreover, CFA with multi-group comparisons was performed to determine whether the EACS has the same theoretical structure for each gender group based on the two-factor model because it is known that gender has an effect on EAC in Western countries (Stanton et al. 2000b). We found no significant differences between the constrained and the unconstrained models. Even though males and females have the same factorial structure, they could nonetheless differ in the use of these strategies.

The subscales of the EACS were internally consistent as well as the total scale, thus demonstrating the reliability of the EACS. Additionally, the item-total correlations for the

**Table 4** The descriptive statistics of the variables and the correlations among the variables

	Poss. Range	Mean	Sd. Dev.	2	3	4	5
1. Emotional Expression	8–40	26.89	6.97	.49***	-.27***	.13**	.22***
2. Emotional Processing	8–40	29.07	5.65		-.24***	.16***	.14***
3. State Anxiety	20–80	47.46	12.66			-.06	-.05
4. Social Desirability	15–75	53.92	9.67				.03
5. Monthly Income	350–12000	1375.83	1106.83				

Note 1. Sd. Dev. = Standard Deviation, Poss. Range = Possible Range

Note 2. \*\* $p < .01$ . \*\*\* $p < .001$

subscales of the EACS were within acceptable ranges. Apart from these results, the EACS showed satisfactory concurrent validity, which is evident from the association between the EACS and state anxiety subscales. For instance, the present study confirms that the EACS subscales (lower EE and lower EP) are related to state anxiety. Allen et al. (2009) mentioned that threat perception in the case of anxiety automatically increases emotional reactions. With regard to health-related outcomes in an anxious state, either physical or psychological, people who express their emotions through oral or written report exhibit fewer negative physical or psychological symptoms than those who do not express their emotions (Stroebe et al. 2005). In addition to influencing health outcomes, emotional expression serves as a facilitator for reaching suitable outcomes in the area of cognitive emotional processing (Cordova et al. 2003). Furthermore, monthly income was positively correlated with both subscales of the EACS, which may be related to self-efficacy because Turkish community members identify themselves by their income level.

In addition to concurrent validity, the EACS showed satisfactory discriminant validity, which was demonstrated by the association between the subscales of the EACS and social desirability. The results revealed that social desirability was lowly positively correlated with EE and EP, and this finding was consistent with Stanton et al. (2000b). Therefore, our findings reveal the discriminant validity of the EACS subscales and social desirability correlations.

Regarding the clinical implications of these findings, the EACS can be used to assess the emotional approach coping styles of patients in the therapeutic process. It can be used as an individual tool to recognize the patients' emotional approach coping attempts during the assessment. Specifically, when considering cognitive emotional processing is composed of contemplating, confronting, and integrating experiences into one's life (Cordova et al. 2003), clinicians can work with clients to elaborate emotions by using the EACS. Moreover, clinicians can use the results to identify difficulties in expressing emotions. Expressing emotions are particularly important for Turkish clients because Turkish individuals tend to not exert emotional effort when encountering stress (Durak and Senol-Durak 2010). Therefore, the scale can be used to evaluate emotional approach coping.

The methodological limitations of this study should be considered when evaluating the results of the present study. First, at the time of the current study, manuscripts utilizing Turkish translations of the EACS have not yet been published. In addition, a back-translation was not performed in the current study, which is an important limitation. Second, data should be gathered from various samples to improve the generalizability of the results.

Therefore, we suggest that future studies similar to ours include other age groups or participants exposed to different stressful circumstances. Third, generalizability would be enhanced by replication of our EACS reliability and validity results in cultures other than the North American and Turkish (e.g., Asian or Latin America cultures) because culture affects emotions (Lee et al. 2000; Mesquita and Walker 2003). Fourth, we recommend more rigorous tests of convergent and discriminant validity to identify differences between EE and EP. For instance, a coping scale (e.g., Ways of Coping Scale) could be used as a measure of convergent validity. Finally, test-retest reliability was not examined in the present study because retesting would have been difficult given that this study is an assessment of state, not traits.

To sum up, our findings revealed that the psychometric properties of the EACS were satisfactory for various Turkish samples. Further research involving demographically diverse samples in various cultures should be conducted to support the psychometric results of the EACS.

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