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Is self esteem mediating the relationship between cognitive emotion regulation strategies and depression?

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Abstract
This reserach investigates the potential roles of different types of cognitive emotion regulation strategies (CERS) and self-esteem with the one of the most common presentations of mental health pathologies, depression. Two hundred seventy four first year university students participated in the study. Results indicated that in responding to threatening or stressful life situations, self-blame, rumination, refocusing on planning, and self-esteem were identified as predictors of depressive scores. The more frequent use of rumination and self-blame were related to the reporting of higher levels of depression and the more frequent use of refocusing on planning and higher levels of self-esteem were related to the reporting of lower levels of depression. Additionally, results showed that the effects of self-blame, rumination, catastrophizing, acceptance, and refocusing on planning were mediated by self-esteem on depressive symptoms. These findings suggest that different CERS and self-esteem may have an influential role in the severity of depressive symptomatology. Effective clinical focus on self-esteem and the development and active use of adaptive CERS may mitigate depressive symptoms.

Keywords Cognitive emotion regulation · Self-esteem · Depression · Mediation

Introduction

While emotions carry great importance in our eveyday lives, the regulation of these emotions is just as crucial. For example, emotion regulation is an important factor in mental health (Aldao and Nolen-Hoeksema 2010). In particular, research has demonstrated the relevance of Cognitive Emotion Regulation Strategies (CERS) for how different psychopathologies manifest (e.g., depression). While the effects of self-esteem on depression are well established (Crocker and Wolfe 2001; Sowislo and Orth 2013), there are few studies that include CERS as a relevant construct for understanding those effects. Given that depression is one of the most prevalent mood disorders, it is important to learn more about the variables that influence this particular aspect of the human condition. Accordingly, there is great significance and value in efforts to identify both the risks and the protective factors associated with the development of depression. Further, it is important to specify which types of CERS are related with depressive symptomatology so as to understand the joint role of self-esteem as a potential mediator in that relationship. The next section will begin with definitions for emotion regulation and different CERS followed by research findings on the relations among depression, CERS, and self-esteem.

Emotion Regulation Strategies and Relationship with Depression

There are various definitions of emotion regulation. Emotion regulation was defined by Thompson as "all the extrinsic and intrinsic processes responsible for monitoring, evaluating and modifying emotional reactions, especially their intensive and temporal features, to accomplish one's goals" (1991, p. 27–28). Emotion regulation also refers to the processes by which individuals are influenced by the emotions they have, when they have them, and how they experience and express them (Gross 1998; Hofmann and Kashdan 2010). Gross (2001) has described two widely known emotion regulation strategies in his process model, reappraisal and suppression. A review of these two strategies provided evidence that reappraisal led to healthier affective, cognitive, and social consequences than suppression (John and Gross 2004). Rumination is another important emotion regulation strategy. Ruminative thinking involves self-

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focused attention during a negative mood (Lyubomirsky and Nolen-Hoeksema 1993) and is related to depression such that it helps to predict the likelihood, severity, and duration of depression (Nolen-Hoeksema 2000). Until the publication of the Cognitive Emotion Regulation Questionnaire (CERQ; Garnefski et al. 2001), the cognitive components of emotion regulation were not studied separately from the general emotional regulation concept. Garnefski et al. (2001) defined CERS as the conscious, cognitive method of handling emotionally arousing information. For Garnefski et al., CERS are considered to be a part of the broader concept of emotion regulation and they identified nine types that people use when they experience negative life events or situations. These strategies are: rumination, positive refocusing, positive reappraisal, refocusing on planning, putting into perspective, self-blame, acceptance, blaming others, and catastrophizing. In the current study, the term CERS is being used, as defined by Garnefski et al. (2001), instead of the term emotion regulation.

In general, it is assumed that emotion regulation plays an important role in the successful functioning and well-being of individuals (Thompson 1991). In addition, impairments in emotion regulation have been considered to be very important factors in the development and maintenance of depression (Garnefski and Kraaij 2007; Gross and John 2003). The relationship between depressive symptoms and the above mentioned CERS were examined in a general population sample (Garnefski et al. 2004). This study reported that greater use of positive reappraisal was related to lower depression scores whereas greater use of self-blame, rumination, and/or catastrophizing were all strongly related to higher depression scores. In a sample of university students, Garnefski et al. (2003) found relationships between CERS and depressive symptomatology across different types of life-events that included: losses, relational stress experiences, and health threats. Across life-events there were significant relationships between depressive symptomatology and self-blame, positive reappraisal, rumination, catastrophizing, and putting into perspective. In a meta-analytic review of 114 studies, various CERS (such as, avoidance, rumination, suppression, reappraisal, and problem solving) were found to be associated with depression (Aldao and Nolen-Hoeksema 2010). CERS have also been found to be associated with depression in other studies as well. Examples include depression in major depressive disorder patients (Lei et al. 2014), depression in general adolescent samples from different countries (d'Acremont and Van der Linden 2007; Jermann et al. 2006; Ongen 2010), and with anxiety and depression symptoms in an adult sample (Garnefski et al. 2002).

The results of these studies suggest that while some CERS, such as rumination, self-blame, and catastrophizing were positively related with symptoms of psychopathology, others, such as positive reappraisal, were negatively related with psychopathological symptoms (Garnefski and Kraaij, 2006; Garnefski and Kraaij 2007; Garnefski et al. 2001, 2002; Kraaij et al. 2003). Findings from these studies also suggest that when faced with a negative life event, the use of one or more of the above mentioned CERS may constitute a vulnerability factor for an existing psychopathology, particularly depression, or it may be a preventive factor against the development of depression. Thus, in light of the above findings, it can be concluded that examining the relationships of nine different CERS with depressive symptomatology is of great importance in understanding the role that different CERS play in association with depressive symptoms.

Relationships among Self-Esteem, Emotion Regulation, and Depression

Self-esteem is another variable of interest for the present study because it has a great impact on individuals' lives and mental health. Branden considers self-esteem to be so important for psychological health and personal life satisfaction that he stated that "self-esteem has profound consequences for every aspect of our existence" (1994, p.5). Rosenberg has defined self-esteem as a "positive or negative attitude toward a particular object, namely, the self" (1965, p.30). In another definition, self-esteem was conceptualized as an element of the self-concept and described as self-acceptance or the overall affective evaluation of one's self-worth as positive (Baumeister et al. 2003). Self-esteem has also been found to be associated with general psychological health (Makikangas et al. 2004; Rosenberg 1985; Rosenberg et al. 1995; Schroevers et al. 2003), the ability to cope with stressful life events (Campbell and Lavallee 1993), and depression (Crocker and Wolfe 2001; Sowislo and Orth 2013). After reviewing the literature on self-esteem, it was noted that low self-esteem has been linked to depression and may be a risk factor in the development of depression (Baumeister et al. 2003). In the same review, it was also stated that "self-esteem may contribute to coping and adjustment after stress or trauma, although the precise nature of the relationship may be complicated and may depend on other factors." (p.36). Thus it seems reasonable to assume that self-esteem may have a relationship with both depressive symptoms and CERS. However, to our knowledge, only one study has included both CERS and self-esteem in relation with depression (Doron et al. 2013). In another study, the relationships between subjective and psychological well-being and self-esteem, suppression, and cognitive re-evaluation were examined (Freire and Tavares 2011). Nezlek and Kuppens (2008) examined how people regulate their emotions in their daily life and it was found that re-appraisal and suppression were related to self-esteem and psychological adjustment. These results offer some evidence for studying self-esteem and CERS in relation to psychological health and levels of depression. However, the role of self-esteem in relation to the nine different CERS and depressive

symptoms remains largely uninvestigated. Moreover, self-esteem has not been tested for its potential contribution as a mediator in the association between different CERS and depressive symptoms.

Aims of the Current Study

Although substantial evidence exists for a relationship between different CERS and depression, questions regarding the association between different types of CERS and depressive symptoms and the existence of potential mediators in these relationships still remain unanswered. Therefore, it is important to specify which aspects of CERS are related with depressive symptoms and identify the specific CERS that may be deemed as risk and/or protective factors against the development of depression. Using Garnefski et al.'s, (2001) classification of CERS, it is hypothesized that adaptive regulation strategies (i.e., positive refocusing, positive reappraisal, refocusing on planning, putting into perspective and acceptance) will be associated with a decrease in depression levels and an increase in self-esteem, while maladaptive strategies (i.e., rumination, self-blame, blaming others and catastrophizing) will be associated with an increase in depression levels and a decrease in self-esteem. By clarifying the role of self-esteem as a mediator of the relationship between CERS and depressive symptomatology, we may better understand the precise nature of the relationship between the three variables. The second hypothesis for this study is that self-esteem mediates the relationship between these CERS and depresssion. Therefore, the aim of this study is to examine the relationship between the use of different CERS, self-esteem, and depressive symptomatology in a convenience sample of Turkish university students to increase the level of understanding associated with the processes related to depression which, in the long turn, may contribute to the promotion of mental health.

Method

Participants

A total of 274 university students participated in the study. Of the total sample, 45 (16.4%) were male, 229 (83.6%) were female, and their ages ranged between 17 to 28 years, with a mean age of 19.45 (SD = 1.42). Seventy five of the students (27.3%) were studying law, 79 (28.7%) were studying philosophy, and 88 (32%) were studying sociology. Participants did not report any previous psychiatric diagnoses, however; 12 (4.4%) reported that they had seen the school psychologist/counselor during high school.

Cognitive Emotion Regulation Questionnaire (CERQ)

The CERQ (Garnefski et al. 2001) was developed to measure CERS by asking participants to what extent they used various strategies in response to experiencing threatening or stressful life events. The questionnaire contains 36 items and consists of nine conceptually distinct subscales: self-blame ("I feel that I am the one to blame for it"), blaming others ("I feel that others are to blame for it"), rumination ("I dwell upon the feelings the situation has evoked in me"), catastrophizing ("I often think that what I have experienced is the worst that can happen to a person"), putting into perspective ("I think that it all could have been much worse"), positive refocusing ("I think of something nice instead of what has happened"), positive reappraisal ("I think that the situation also has its positive sides"), acceptance ("I think that I have to accept the situation"), and refocusing on planning ("I think about a plan of what I can do best"). Each one of the nine subscale contains 4 items and was measured on a five-point Likert type scale ranging from (1) almost never to (5) almost always. Subscale scores are computed by summing up the scores in each subscale where the scores range from 4 to 20. Higher scores indicate a more frequent use of that strategy. A nine factor structure was reported, which explained 64.6% of the variance and CERQ subscales were reported to have good reliability ranging from .40 to .60 and validity ranging from .68 to .83 (Garnefski et al. 2001). Onat and Otrar (2010) adapted the CERQ to Turkish by translating the scale and examining its psychometric properties in a Turkish sample of 466 university students. Cronbach's alpha for the scale was found to be .78. In this study, Cronbach's alpha for the overall scale was found to be .83 and for this study the reliability coefficients for the subscales were found as follows: .73 for self-blame, .59 for acceptance, .79 for rumination, .56 for positive refocusing, .80 for refocusing on planning, .66 for positive reappraisal, .55 for putting into perspective, .78 for catastrophizing, and .74 for other blame.

Depression Symptomatology

The Symptom Check List-90 Revised (SCL-90-R) (Derogatis 1977) was developed to evaluate a broad range of psychological problems and symptoms of psychopathology and has 9 subscales. Response categories are based on a five-point Likert scale ranging between 0 (not at all) and 4 (very much). Higher scores indicate a higher intensity of the experienced depressive symptoms. Scores are computed by adding the items in the subscales. The SCL-90-R was translated and adapted into Turkish (Dağ 1991) and the Cronbach's alpha for the scale was reported to be .97. Moreover, it was also reported that the Cronbach's alpha coefficents for the subscales ranged from .79 to .88. In this study, the depressive symptom levels of the participants were assessed using the depression subscales of the SCL-90-R which contains 13 items for depression (e.g."Feeling

no interest in things "). In this study the internal consistency was found to be .90 for the depression subscale.

Rosenberg Self-Esteem Scale (RSES)

The RSES (Rosenberg 1965) is a ten item scale used to evaluate participants' self-esteem. High self-esteem scores suggest that individuals have self-respect and consider him or herself worthy. Low self-esteem scores suggest an unfavorable opinion of oneself and self-dissatisfaction. The scale is designed as a 4-point Likert-type scale. Lower scores indicate lower levels of self-esteem. The scale was found to be reliable ($\alpha = .71$). Cuhadaroğlu (1986) translated the scale into Turkish. She and Tuğrul (1994) provided support for the validity and reliability of the scale where Tuğrul (1994) reported the internal consistency of the RSES to be .83 and Cronbach's alpha of the scale was found to be .76. Item total correlations of the scale ranged from .21 to .66. The participants' levels of agreement with the 10 items (such as "I feel that I'm a person of worth, at least on an equal plane with others") were averaged to produce an index of self-esteem. In this study, Cronbach's alpha reliability of the scale was found to be .88.

Procedure

Written approval for this study was obtained from the author's institutional ethics committee. Participants in this study consisted of first year Turkish university students taking an introductory psychology course as an elective, which was offered by the author at the same university. Information regarding the study was provided to the students prior to data collection. Student participation was on a voluntary basis and they received extra credit for participating in the study. Confidentiality was assured and informed consent was obtained from the participants. Data were collected during the class hours and the administration of each questionnaire took about 15 min. The data analyzed in this study were collected as part of a larger study.

Table 1 Means, standard deviations, and ranges of the variables

Variables	Mean	SD	Range
Depression	16.57	11.09	0–50
Self esteem	30.08	5.14	10–40
Cognitive coping strategies			
Acceptance	12.66	2.81	4–20
Positive refocusing	12.80	2.84	4–20
Refocus on planning	15.17	2.88	7–20
Positive reappraisal	14.25	3.30	5–20
Putting into perspective	13.11	2.86	4–20
Self blame	12.06	2.53	5–20
Catastrophizing	9.40	3.51	4–20
Blaming others	10.87	2.96	4–20
Rumination	14.78	3.17	6–20

Statistical Analysis

The Statistical Package for Social Sciences (SPSS v.22) was used to analyze the data. After cleaning the data, descriptive statistics were obtained for the demographic variables. Correlations between the variables of this study were calculated. After conducting independent sample t-tests, a multivariate analysis of variance was applied to examine the effects of gender on the variables in this study. In addition, hierarchical regression analyses were performed to identify the predictors of depressive symptoms. For the regression analysis, because of the gender differences related to the depression scores, gender was entered in the first step using the enter method, followed by the nine CERS, where depression symptom levels was the criterion variable. Self-esteem was entered into the regression analyses as the final step with the enter procedure. Next, five mediation analyses were conducted to investigate whether self-esteem mediated the effect of CERS on depression scores by means of the SPPS version of indirect custom dialog (Preacher and Hayes 2008).

Table 2 Correlation matrix of the variables

		2	3	4	5	6	7	8	9	10	11
1	Depression	−.592**	.229**	−.145*	−.210**	−.235**	−.040	.426**	.364**	.000	.293**
2	Self esteem		−177**	.160*	.295**	.325**	.105	−.434**	−.322**	.120	−.160**
Cognitive coping											
3	Acceptance			.226**	.078	.117	.297**	.288**	.120	.093	.198**
4	Positive refocusing				.296**	.426**	.330**	.012	−.190**	.105	.037
5	Refocus on planning					.597**	.329**	.036	−.193**	.028	.361**
6	Positive reappraisal						.570**	−.048	−.370**	.064	.108
7	Putting into perspective							.081	−.104	−.157*	.160*
8	Self blame								.340**	.024	.355**
9	Catastrophizing									.247**	.265**
10	Blaming others										.287**
11	Rumination										

* $p < .05$, ** $p < .001$

Results

Means, Standard Deviations, and Ranges of the Variables

Means, standard deviations, and ranges of the variables are presented in Table 1. Results indicated that refocusing on planning was the strategy used most often to regulate emotion, which was followed by rumination, positive reappraisal, putting into perspective, positive refocusing, and acceptance. Catastrophizing was the least used strategy and this was followed by blaming others and self-blame. Results also indicated that more adaptive cognitive strategies were used more often than less adaptive strategies.

Correlations among Variables

Correlations (Table 2) indicated that depression level was negatively correlated with self-esteem ($r = -.592$, $p < .001$), positive reappraisal ($r = -.235$, $p < .001$), refocusing on planning ($r = -.210$, $p = .002$), and positive refocusing ($r = -.145$, $p = .029$). Also, depression scores was found to be positively correlated with self-blame ($r = .426$, $p < .001$), catastrophizing ($r = .364$, $p < .001$), rumination ($r = .293$, $p < .001$), and acceptance ($r = .229$, $p = .001$). No correlation between blaming others and depression level was found ($r = .000$, $p = .999$). Self-esteem was found to be positively correlated with positive reappraisal ($r = .325$, $p < .001$), refocusing on planning ($r = .295$, $p < .001$), and positive refocusing ($r = .160$, $p = .011$). Self esteem was also negatively correlated with self-blame ($r = -.434$, $p < .001$), catastrophizing ($r = -.322$, $p < .001$), acceptance ($r = -.177$, $p = .005$), and rumination ($r = -.160$, $p = .010$). Again, the correlation between blaming others and self-esteem was not significant ($r = .120$, $p = .054$). Pearson correlations for the CERS showed that of the 36 correlations, 21 were significant with correlation coefficients ranging from .426 to −.157.

Gender Differences in the Measures of the Study

For this sample, an independent sample t-tests revealed that there was a significant effect of gender on the level of depression symptoms [t (233) =2.10; $p = .037$] but not on self-esteem. It was found that females depression symptoms (M = 17.26; SD = 11.11) were higher than males (M = 13.29; SD = 10.56). To examine the main effect of gender on the use of CERS, a multivariate analysis of variance (MANOVA) was performed. Results indicated that there was not a significant gender differences in the use of CERS.

Predictors of Depression: Regression Analysis

As seen in Table 3, 42% of the total variance in depression scores was explained by the predictor variables. Results from the regression analysis revealed that when gender was entered in the first step, it accounted for 1% of the variance in depression scores (F (1218) = 4.12, $p < .05$). When the CERS were entered in the second step, they explained 32% of the variance (F (9209) = 11.93, $p < .001$). Finally, when self-esteem was entered in the third step, it accounted for an additional 10% of the variance (F (1208) = 38.44, $p < .001$).

Table 3 Predictors of depression

	Predictors in set	*B*	Beta β	t	Model R^2
1					.01
	Gender	−4.07	−.14	−2.03*	
2					.32
	Gender	−3.14	−.11	−1.83	
	Self-blame	1.15	.26	4.06***	
	Blaming others	−.45	−.12	−1.94*	
	Rumination	.87	.25	3.52***	
	Catastrophizing	.49	.16	2.26*	
	Putting into perspective	.01	.00	.02	
	Positive refocusing	−.25	−.06	−1.00	
	Positive reappraisal	−.03	−.01	−.11	
	Acceptance	.50	.13	2.06*	
	Refocus on planning	−1.02	−.27	−3.48***	
3					.42
	Gender	−2.53	−.08	−1.60	
	Self-blame	.58	.13	2.11*	
	Blaming others	−.15	−.04	−.70	
	Rumination	.65	.19	2.84**	
	Catastrophizing	.35	.11	1.76	
	Putting into perspective	−.03	−.01	−.11	
	Positive refocusing	−.21	−.05	−.92	
	Positive reappraisal	.13	.04	.47	
	Acceptance	.36	.09	1.59	
	Refocus on planning	−.60	−.16	−2.15*	
	Self esteem	−.86	−.40	−6.20***	

*$p < .05$, **$p < .01$, ***$p < .001$

In the second step of the regression, after controlling for the variance accounted for by gender, results indicated that the increased use of blaming others ($pr = -.13$, t [209] = −1.94, $p < .05$) and refocusing on planning ($pr = -.23$, t [209] = −3.48, $p < .001$) were related to lower levels of depression. In contrast, the increased use of self-blame ($pr = .27$, t [209] = 4.06, $p < .001$), rumination ($pr = .24$, t [209] = 3.52, $p < .001$), catastrophizing ($pr = .16$, t [209] = 2.26, $p < .05$) and acceptance ($pr = .14$, t [209] = 2.06, $p < .05$) were related to higher levels of depression.

In the third step of the regression analysis, results indicated that an increase in self-esteem was related to a decrease in depression levels ($pr = -.40$, t [208] = −6.20, $p < .001$). Moreover, results of this step of the regression analysis revealed that the standardized coefficients of self-blame in the second step (Beta = .26, $p < .001$) were reduced upon the addition of self-esteem to the regression (Beta = .13, $p < .05$). Similarly, the standardized coefficients of rumination (Beta = .25, $p < .001$) and refocusing on planning (Beta = −.27, $p < .001$) in the second step decreased after the addition of self-esteem into the regression in the third step (in the third

step, Beta for rumination = .19, $p < .01$; Beta for refocusing on planning = −.16, $p < .05$). The standardized coefficients for blaming others (Beta = −.12, $p < .05$), catastrophizing (Beta = .16, $p < .05$), and acceptance (Beta = .13, $p < .05$) were significant in the second step. However, in the third step, their effects on depression scores were not significant after self-esteem was added to the regression analysis. The last step of the regression analysis showed that self-esteem affected depression scores, after controlling for the effect of the CERS.

Relationships between CERS, Self Esteem and Depression: Mediation Analyses

The mediator role of self-esteem, which carries the influence of CERS to depression, was tested.

Baron and Kenny's (1986) suggestion for mediating relationships were used for the selection of CERS as an independent variable. As a result, rumination, catastrophizing, self-blame, acceptance, and refocusing on planning were used as independent variables for each mediation analysis.

The indirect effects were tested using a bootstrap estimation technique with 1000 samples (Shrout and Bolger 2002). For all five mediation analyses, self-esteem scores were the mediator and depression scores were the dependent variable. If the confidence intervals did not involve zero for the indirect effects, results were interpreted as significant. As shown in Table 4, self-blame, rumination, catastrophizing, acceptance and refocusing on planning predicted depression, which shows the direct effects of these strategies. Moreover, results showed that the indirect effects in all analyses were significant: self blame, z = 5.62, $p < .001$, κ2 = .23; rumination, z = 2.48, p < .001, κ2 = .10; catastrophizing, z = 4.66, p < .001, κ2 = .19; acceptance, z = 2.30, p < .05, κ2 = .10; and refocusing on planning z = −4.86, p < .001, κ2 = .21. In other words, self-esteem partially mediated the influence of self-blame, rumination, catastrophizing, and acceptance on depression; however, it also carries the total influence (full mediation) of refocusing on planning to depression symptoms.

Discussion

The first aim of this study was to examine the relationship between different Cognitive Emotion Regulation Strategies (CERS) and depression. In general, the results of this study are consistent with previous studies indicating relationships between different CERS and depression (Garnefski et al. 2001, 2002, 2004). Additionally, there is a negative relationship between self-esteem and depression. The second aim was to investigate the mediator role of self-esteem between different CERS and depresssion. It was found that self-esteem mediated the associations between depression symptoms and self-blame, rumination, catastrophizing, acceptance, and refocusing on planning.

One of the important results is that more frequent use of rumination and self-blame were found to be associated with higher levels of depression symptoms. Moreover, more frequent use refocusing on planning and higher levels of self-esteem were found to be associated with the reporting of lower levels of depression symptoms. This result is consistent with the literature which shows that in addition to catastrophizing and positive reappraisal, refocusing on planning, self-blame, and rumination are best at predicting concurrent depression (d'Acremont and Van der Linden 2007). Similarly, previous studies have shown that the strategies of self-blame and catastrophizing were related to self-reported depressive symptoms (Garnefski et al. 2001, 2002, Garnefski and Kraaij 2007; Lei et al. 2014; Martin and Dahlen 2005; Ongen 2010). Moreover, it has been shown that rumination tends to be associated with depression (Nolen-Hoeksema et al. 1994) and people who engage in rumination when distressed have more prolonged periods of depression and are more likely to develop depressive disorders (Nolen-Hoeksema 2000). Similar to other studies, this study assumes that people use only one emotion regulation strategy in each case to regulate their emotions. For this reason, the impact of each strategy on depression was examined individually. However, when regulating their emotions in the face of adverse events, people may use multiple strategies at the same time. Eisenbarth (2012) asserted that 'Coping strategies likely operate in conjunction with one another and it may

Table 4 Results of mediation analyses

Independent variable(IV)	Effect of IV on M (a)		Effect of M on DV (b)		Direct effect (c')		Indirect effect (axb)		
	B	*SE(B)*	*B*	*SE(B)*	*B*	*SE(B)*	*B*	*SE(B)*	95% CI
Self blame	−.94***	.12	−1.06***	.13	.90**	.26	1.00	.18	[.70;1.39]
Rumination	−.28**	.11	−1.19***	.12	.72***	.19	.33	.15	[.08; .66]
Catastrophizing	−.50***	.09	−1.12***	.12	.60**	.18	.56	.15	[.27;. 88]
Acceptance	−.27*	.11	−1.26***	.12	.54*	.21	.34	.15	[.08; .67]
Refocus on planning	.65***	.12	−1.22***	.12	−.11	.23	−.79	.19	[−1.21;-.44]

Path/regression coefficients are unstandardized

Mediator is self esteem and dependent variable is depression

M, Mediator; *IV*, Independent variable; *DV*, Dependent variable

*$p < .05$, **$p < .01$, ***$p < .001$

be valuable to consider the profile or combination of strategies endorsed by individuals rather than simply examining coping strategies discretely or in isolation of one another' (p. 485). Future studies need to investigate the patterns of different emotion regulation strategies and the effects of the use of combined strategies on depression. As a result, the impact of different combined strategies on depression, as well as those at risk for psychopathology can be identified.

The results of the mediation analysis showed that self-esteem mediated the relationships between self-blame, rumination, catastrophizing, acceptance, refocusing on planning and depression levels. Specifically, frequent use of self-blame, rumination, catastrophizing, and acceptance were related to higher levels of depression symptoms and these relationships were mediated by lower levels of self-esteem. Moreover, frequent use of refocusing on planning was related to lower levels of depression and this relationship was mediated by higher levels of self-esteem. These results are consistent with previous research that reported self-esteem to be strongly related with levels of depression (Rosenberg 1985; Schroevers et al. 2003; Sowislo and Orth 2013).

Considering the important influence that self-esteem has on severity of depression symptoms, the results from this study suggest that people may acquire various approaches that can increase and reinforce their self-esteem during psychotherapy or protect them against the development of depression.

Result of the current study indicated that rumination was a predictor of depression level. This result is consistent with the literature where previous studies (Garnefski et al. 2002, 2004; Nolen-Hoeksema 1998). Thus, people who use rumination as an emotional regulation strategy may be prone to depression. With regards to the other cognitive strategies, self-blame showed a significant relationship with depression scores, which is also consistent with the literature (Garnefski et al. 2001, 2002, 2003; Kraaij et al. 2003). This finding suggests that placing the blame on one's self, as the source of their problem, and catastrophizing the consequences of an event may interfere with active problem solving. Also consistent with this finding, Metalsky et al. (1993) reported that the combination of self-blame and low self-esteem and events that caused stress or aversive reactions lead to an increase in depression.

Refocusing on planning was negatively correlated with depression and was found to be a predictor of depression. Refocusing on planning appears to be an important adaptive emotion regulation strategy when a person is confronted with a threatening or stressful life event and it might help one to think about what can be done about it by planning now and for the future. Our findings showed that, although, rumination and refocusing on planning were positively related, interestingly, the increase in rumination was associated with an increase in depression, while, refocusing on planning was associated with a reduction in depression. While trying to regulate emotions, future studies may aim to identify and understand the variables that determine the selection and use of rumination or refocusing on planning.

In this study, acceptance was positively correlated with and found to be a predictor of depression. The literature regarding the relationship between acceptance and psychological problems are mixed. Generally, acceptance has been considered to be an adaptive strategy (e.g., Garnefski et al. 2001); however, there are other studies that report acceptance as being related with psychological problems (e.g., Martin and Dahlen 2005; Lei et al. 2014; Tuna and Bozo 2012). It may be the case that whether or not acceptance is an adaptive cognitive strategy depends on the situation. Similarly, it was argued that acceptance may not be as adaptive in situations where stressors can be altered (Carver et al. 1989).

When the mean scores of the CERS were examined, results indicated that refocusing on planning was the most often used strategy; however, catastrophizing was the least used strategy followed by blaming others and self-blame. This result is consistent with previous findings (Garnefski et al. 2001; Garnefski and Kraaij 2007). On the other hand, the mean score for rumination in this study was found to be higher than previous findings (Garnefski et al. 2001). One explanation for this difference may be found in the characteristics of the sample of the current study which used university freshman in their first semester. With this in mind, these students may have had difficulties in adapting to the university life style. As a result, they may have experienced high levels of stress and possibly used rumination more often, which in turn may have lead to an increase in depression symptoms.

Gender differences were examined in terms of CERS and the other variables of the study. Results showed that no significant gender differences existed in the use of CERS and levels of self-esteem. However, females were found to be more depressed than males. It was reported that comparable cognitive mechanisms were at work in the development of depressive symptomatology in men and women (Garnefski et al. 2004). For the Turkish psychology literature, gender differences related to depression are inconsistent. While some findings do not report any gender differences related to levels of depression (Aydın and Demir 1989; Hisli 1988; Yıldız and Duy 2017) others have reported findings similar to the current study where females were found to be more depressive than males (Ongen 2010). These findings suggest that gender differences need to be examined more closely in future studies pertaining to the relationship between CERS and depression.

There are some limitations in this study that need to be addressed. First, the sample was a convenience sample comprised of Turkish university students who volunteered to participate. Second, the gender ratio in the sample was not balanced. These issues limit the generalizability of the findings from this study. As a result, further studies in this area are strongly encouraged to use a balanced gender sample that extends beyond university students, such as children,

adolescents, young adults, adults, and the aging population as well as different clinical populations. Furthermore, the self-report nature of this study may have involved some biases and placed restrictions on the validity of the results; therefore, in future studies, other forms of data collection methods, such as interviews, should be used. Finally, another limitation of this study is that the results are based on a cross-sectional data. These results should be tested in a longitudinal analysis so that relationships among CERS, self-esteem and depression symptoms can be fully understood.

The present study hypothesized that people who use certain CERS, such as rumination and self-blame, may be more vulnerable to developing various psychological problems like depression. In addition, using certain CERS, like refocusing on planning and having high levels of self-esteem, may increase a person's psychological health and may prevent the development of depression symptoms. Thus, while the use of adaptive CERS is important, increasing self-esteem may also be an effective strategy to develop effective prevention and intervention strategies against depression. The present findings may have implications related to the development of content for interventions focused on emotion regulation strategies. For example, in order to increase the use of adaptive CERS, teaching refocusing on planning abilities could be included in an intervention for people who are at risk. As a result, the more adaptive CERS could be nurtured and this may help prevent the development of depression.

In conclusion, an important strength of this study is that it is one of the few studies that focuses on the relationship between CERS, self–esteem, and depression in a Turkish sample. In addition, the present results offer additional support for the relationship between CERS and self-esteem regarding depression symptomatology for a sample from a developing country. The findings from this study contribute to the determination of important variables such as self-esteem and specific CERS which can be targeted in prevention programmes and also be included in the treatment of depression. These interventions may be aimed at increasing self-esteem, reducing maladaptive strategies such as self-blame and rumination, and increasing the strategy of refocusing on planning. Moreover, the present study has considerable importance in not only identifying CERS related to depression symptoms but also sets forth the importance of self–esteem and the role it plays in regulating such symptoms.

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Compliance with Ethical Standards

Conflict of Interest Author Özden Yalçınkaya-Alkar declares that she has no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

References

Aldao, A., & Nolen-Hoeksema, S. (2010). Specificity of cognitive emotion regulation strategies: A transdiagnostic examination. *Behaviour Research and Therapy, 48*, 974–983.

Aydın, G., & Demir, A. (1989). Prevalance of depressive symptoms among METU students. *Journal of Human Sciences, 8*, 27–40.

Baumeister, R. F., Campbell, J. D., Krueger, J. I., & Vohs, K. D. (2003). Does high self-esteem cause better performance? Interpersonal success, happiness, or healthier lifestyles? *Psychology Science in the Public Interest, 4*, 1–44.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173–1182.

Branden, N. (1994). *The six pillars of self-esteem*. New York: Bantam Books.

Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology, 56*, 267–283.

Campbell, J. D., & Lavallee, L. F. (1993). Who I am? The role of self concept confusion in understanding the behaviour of people with low self-esteem. In R. F. Baumeister (Ed.), *Self-esteem: The puzzle of low self regard* (pp. 3–20). New York: Plenum.

Crocker, J., & Wolfe, C. T. (2001). Contingencies of self-worth. *Psychological Review, 108*, 593–623.

Cuhadaroğlu, F. (1986). *Adolesanlarda benlik saygısı. Yayınlanmamıs uzmanlık tezi.* Ankara: Hacettepe Universitesi.

d'Acremont, M., & Van der Linden, M. (2007). How is impulsivity related to depression inadolescence? *Evidence from a French validation of the cognitive emotion regulation questionnaire, Journal of Adolescence, 30*, 271–282.

Dağ, I. (1991). Belirti Tarama Listesi'nin (SCL-90-R) universite oğrencileri icin guvenirliği ve gecerliği. *Türk Psikiyatri Dergisi, 2*, 5–12.

Derogatis, L. R. (1977). *SCL-90: Administration, Scoring and Procedures Manual-I for the Revised) Version*. John Hopkins university School of Medicine, Clinical Psychometrics Research Unit, Baltimore.

Doron, J., Thomas-Ollivier, V., Vachon, H., & Fourtes-Bourbousson, M. (2013). Relationships between, cognitive coping, self esteem, anxiety and depression: A cluster analysis approach. *Personality and Individual Differences, 55*, 515–520.

Eisenbarth, C. (2012). Coping profiles and psychological distress: A cluster analysis. *North American Journal of Psychology, 14*, 485–496.

Freire, T., & Tavares, D. (2011). Influence of self-esteem and emotion regulation in subjective and psychological well-being of adolescents: Contributions to clinical psychology. *Revista Psiquiatria Clínica, 38*, 184–188.

Garnefski, N., & Kraaij, V. (2006). Relationships between cognitive emotion regulation strategies and depressive symptoms: A comparative study of five specific samples. *Personality and Individual Differences, 40*(8), 1659–1669.

Garnefski, N., & Kraaij, V. (2007). The cognitive emotion regulation questionnaire: Psychometric features and prospective relationships

with depression and anxiety in adults. *European Journal of Psychological Assessment, 2007*(23), 141–149.
Garnefski, N., Kraaij, V., & Spinhoven, P. (2001). Negative life events, cognitive emotion regulation and depression. *Personality and Individual Differences, 30*, 1311–1327.
Garnefski, N., Boon, S., & Kraaij, V. (2003). Relationships between cognitive strategies of adolescents and depressive symptomatology across different types of life events. *Journal of Youth and Adolescence, 32*, 401–408.
Garnefski, N., Legerstee, J., Kraaij, V., van den Kommer, T., & Teerds, J. (2002). Cognitive coping strategies and symptoms of depression and anxiety: A comparison between adolescents and adults. *Journal of Adolescence, 25*, 603–611.
Garnefski, N., Teerds, J., Kraaij, V., Legerstee, J., & van den Kommer, T. (2004). Cognitive emotion regulation strategies and depressive symptoms: Differences between males and females. *Personality and Individual Differences, 36*, 267–276.
Gross, J. J. (1998). The emerging field of emotion regulation: An integrative review. *Review of General Psychology, 2*, 271–299.
Gross, J. J. (2001). Emotion regulation in adulthood: Timing is everything. *Current Directions in Psychological Science, 10*, 214–219.
Gross, J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology, 85*, 348–362.
Hisli, N. (1988). A study of the validity of the Beck depression inventory. *Turkish Journal of Psychology, 6*, 118–122.
Hofmann, S. G., & Kashdan, T. B. (2010). The affective style questionnaire: Development and psychometric properties. *Journal of Psychopathology and BehavioralAssessment, 32*, 255–263.
Jermann, F., Van der Linden, M., d'Acremont, M., & Zermatten, A. (2006). Cognitive emotion regulation questionnaire (CERQ): Confirmatory factor analysis and psychometric properties of the French translation. *European Journal of Psychological Assessment, 22*, 126–131.
John, O. P., & Gross, J. J. (2004). Healthy and unhealthy emotion regulation: Personality processes, individual differences, and lifespan development. *Journal of Personality, 72*, 1301–1334.
Kraaij, V., Garnefski, N., de Wilde, E. J., Dijkstra, A., Gebhardt, W., Maes, S., & ter Doest, L. (2003). Negative life events and depressive symptoms in late adolescence: Bonding and cognitive coping as vulnerability factors? *Journal of Youth and Adolescence, 32*, 185–193.
Lei, H., Zhang, X., Cai, L., Wang, Y., Bai, M., & Zhu, X. (2014). Cognitive emotion regulation strategies in out patients with major depressive disorder. *Psychiatry Research, 218*, 87–92.
Lyubomirsky, S., & Nolen-Hoeksema, S. (1993). Self-perpetuating properties of dysphoric rumination. *Journal of Personality and Social Psychology, 65*, 339–349.
Makikangas, A., Kinnunen, U., & Feldt, T. (2004). Self-esteem, dispositional optimism, and health: Evidence from cross-lagged data on employees. *Journal of Research in Personality, 38*, 556–575.
Martin, R. C., & Dahlen, E. R. (2005). Cognitive emotion regulation in the prediction of depression, anxiety, stress, and anger. *Personality and Individual Differences, 39*, 1249–1260.
Metalsky, G. I., Joiner, T. E., Hardin, T. S., & Abramson, L. Y. (1993). Depressive reactions to failure in a naturalistic setting: A test of the hopelessness and self-esteem theories of depression. *Journal of Abnormal Psychology, 102*, 101–109.
Nezlek, J. B., & Kuppens, P. (2008). Regulating positive and negative emotions in daily life. *Journal of Personality, 76*, 561–579.
Nolen-Hoeksema, S. (1998). The other end of the continuum: The costs of rumination. *Psychological Inquiry, 9*, 216–219.
Nolen-Hoeksema, S. (2000). The role of rumination in depressive disorders and mixed anxiety-depressive symptoms. *Journal of Abnormal Psychology, 109*, 504–511.
Nolen-Hoeksema, S., Parker, L. E., & Larson, J. (1994). Ruminative coping with depressed mood following loss. *Journal of Personality & Social Psychology, 67*, 92–104.
Onat, O., & Otrar, M. (2010). Bilissel Duygu Duzenleme Olceğinin gecerlik ve guvenirlik calısmaları (adaptation of cognitive emotion regulation questionnaire to Turkish: Validity and reliability studies). *M.Ü. Atatürk Eğitim Fakültesi Eğitim Bilimleri Dergisi, 31*, 123–143.
Ongen, D. E. (2010). Cognitive emotion regulation in the prediction of depression and submissive behavior: Gender and grade level differences in Turkish adolescents. *Procedia Social and Behavioral Sciences, 9*, 1516–1523.
Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods, 40*, 879–891.
Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton: Princeton University Press.
Rosenberg, M. (1985). Self-concept and psychological well-being in adolescence. In R. L. Leahy (Ed.), *The development of the self* (pp. 205–246). Orlando: Academic Press.
Rosenberg, M., Schooler, C., Schoenbach, C., & Rosenberg, F. (1995). Global self-esteem and specific self-esteem: Different concepts, different outcomes. *American Sociological Review, 60*, 141–156.
Schroevers, M. J., Ranchor, A. V., & Sanderman, R. (2003). The role of social support and self-esteem in the presence and course of depressive symptoms: A comparison of cancer patients and individuals from the general population. *Social Science & Medicine, 57*, 375–385.
Shrout, P. E., & Bolger, N. (2002). Mediation in experimental and nonexperimental studies: New procedures and recommendations. *Psychological Methods, 7*, 422–445.
Sowislo, J. F., & Orth, U. (2013). Does low self-esteem predict depression and anxiety? A meta-analysis of longitudinal studies. *Psychological Bulletin, 139*, 213–240.
Thompson, R. A. (1991). Emotional regulation and emotional development. *Educational Psychology Review, 3*, 269–307.
Tuğrul, C. (1994). Alkoliklerin cocuklarının aile ortamlarındaki stress kaynakları, etkileri ve stresle basa cıkma yolları. *Türk Psikoloji Dergisi, 9*, 57–73.
Tuna, E., & Bozo, O. (2012). The cognitive emotion regulation questionnaire: Factor structure and psychometric properties of the Turkish version. *Journal of Psychopathology and Behavioral Assessment, 34*, 564–570.
Yıldız, M. A., & Duy, B. (2017). The predictive role of emotion regulation strategies on depressive and psychosomatic symptoms in adolescents. *Current Psychology, 2017*. https://doi.org/10.1007/s12144-017-9616-6.