

RUNNING HEAD: Cognitive emotion regulation strategies

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Adaptive cognitive emotion regulation moderates the relationship between dysfunctional attitudes and depressive symptoms during a stressful life period : a prospective study

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Abstract

Background and Objectives - Dysfunctional cognitions are known to emerge in stressful situations and are critical for the onset of depressive symptoms. The goal of this study is to investigate whether adaptive and/or maladaptive emotion regulation strategies moderate the relationship between dysfunctional attitudes and depressive symptoms under stress.

Methods - In a longitudinal study, 92 healthy but unselected undergraduates were followed for three months including a stress period (four weeks of examinations).

Results - Our findings demonstrate that the more adaptive emotion regulation strategies are used in daily life (measured at baseline), the weaker the relationship between dysfunctional attitudes and depressive symptoms during stress. Interestingly, no single strategy demonstrates a unique predictive value, but only the combination of several adaptive strategies moderates the relationship between dysfunctional attitudes and depressive symptoms. Although participants with elevated depressive symptoms use more maladaptive emotion regulation strategies, these latter strategies do not moderate the association between dysfunctional attitudes and depressive symptoms.

Limitations - The use of a sample of undergraduates limits the generalizability and the clinical significance of our results.

Conclusions - Altogether, although dysfunctional attitudes are activated and accessible in response to certain life stressors, the strategies that healthy individuals use to adaptively regulate these cognitions seem important in determining the likelihood of depressive symptoms.

Keywords: dysfunctional attitudes – depressive symptoms – emotion regulation strategies

Introduction

Cognitive models of depression attribute a central role to the activation of (otherwise latent) dysfunctional attitudes under stress, cognitions that are critical to elicit depressed mood (Beck, 1967; Beck, Rush, Shaw, & Emery, 1979; Monroe & Simons, 1991; Zuckerman, 1999). Dysfunctional cognitions or attitudes reflect a person's negatively biased assumptions and beliefs regarding oneself, the world, and the future (Beck et al., 1979). For example, individuals who interpret negative (stressful) events in terms of their own inadequacies and inferiority are more likely to develop depressive symptoms (e.g., Ingram, Miranda, & Segal, 1998). Although the association between dysfunctional attitudes and depressive symptoms is well established (Miranda & Person, 1988), the mechanisms that influence this association remain to be fully understood.

Dysfunctional attitudes embody a constellation of negative representations of self-referent pessimistic perspectives. Interestingly, individuals use cognitive strategies - defined as conscious, self-regulatory mental strategies - to cope with such thoughts that are activated under stress (Garnefski, Kraaij, & Spinhoven, 2001). These strategies are referred to as cognitive emotion regulation strategies (CERS). CERS help people to regulate their emotions during or after the experience of threatening or stressful events (e.g., Garnefski et al., 2001). For example, when experiencing a negative life event, individuals may have negative thoughts or beliefs about the self, often representing perfectionistic standards, such as "if I fail at my work, then I am a failure as a person". Individuals use CERS to regulate these thoughts, where they can use adaptive strategies such as positively reappraisal or acceptance. In contrast, individuals can also use maladaptive strategies by, for example, catastrophizing about the situation. Although emotion regulation is a unique human capacity, large individual differences exist in the strategies and the adaptiveness of the strategies individuals use during a stressful life period. These individual differences are essential because CERS to adaptively

deal or cope with stress related thoughts are considered a protective factor against the activation of depressive feelings (e.g., Brockmeyer et al., 2012; Garnefski & Kraaij, 2006; Ehring, Fisher, Schnulle, Bösterling, Tuschen-Caffier, 2008; Pfeiffer et al., 2011), and are implicated in emotional well being (Gross & John, 2003). Possibly, habitual CERS could influence the way dysfunctional attitudes develop in depressive symptoms, which could explain individual differences in depressive mood under stress. These trait CERS could be targets in therapeutical interventions for early intervention to modify depressive symptoms.

In this context there is a wide variety of CERS that can be used to cope with emotionally arousing thoughts elicited by the experience of threatening or stressful life events. These strategies range from theoretically more adaptive strategies (e.g., positive refocusing, acceptance, and positive reappraisal) to more maladaptive strategies (e.g., self-blame, ruminative thinking, and catastrophizing). When investigating complex mechanisms such as the activation of dysfunctional attitudes and depressive symptoms under stress, it has been suggested to consider classes of strategies instead of focussing on one single cognitive strategy (Garnefski et al., 2001). On the other hand, it is interesting to know which cognitive strategy is most influential in this respect (see also Aldao, Nolen-Hoeksema, & Schweizer, 2010). Therefore, to investigate basic mechanisms associated with dysfunctional attitudes, CERS and depressive symptoms, this study is performed in an unselected sample of healthy volunteers in periods of elevated life stress.

We conducted a longitudinal study in a large group of undergraduates who were tested five times over a 3 month period. We selected a period that included naturally occurring stress events for these undergraduates, namely the examinations period (e.g., Fox, Cahill, & Zougkou, 2010). During this naturalistic stress generating context, we planned four assessment moments to measure the occurrence of dysfunctional attitudes (e.g., inadequacies, inferiority, etc) and the experience of depressive symptoms. The use of CERS to cope with

potentially stressful thoughts during daily life was measured at baseline, eight weeks before the start of the examinations (i.e., low stress conditions). Our hypotheses were twofold. On the one hand, we predicted that the use of a group of adaptive CERS would reduce the well established association between dysfunctional attitudes and depressive symptoms. In other words, if individuals generally use adaptive CERS, such as positive reappraisal, then dysfunctional thoughts (that arise while studying for the examinations) would be less related to depressive symptoms. On the other hand, we predicted that the use of a group of maladaptive CERS would increase the association between negative cognitions and depressive symptoms. Specifically, if individuals generally use maladaptive CERS, such as ruminating on the consequence what will happen if (s)he fails, the same dysfunctional thoughts would be more related to depressive symptoms. Finally, we investigated which cognitive strategy - on itself – is most important in moderating the association between dysfunctional attitudes and depressive symptoms.

Methods

Design overview

This study used a prospective design where we examined predictors of responding to a naturalistic stressor (i.e., exam stress; Fox et al., 2010; Vanderhasselt et al., 2012).¹

Participants

An undergraduate sample of 92 students of Gent University (20M/72F) with a mean age of 20.27 ($SD=2.04$) participated in this study. Participants were recruited via the university website.

Material

¹ This study is conducted part of a larger longitudinal project, assessing different measures of cognitive control as well as genetic information.

Beck Depression Inventory II (BDI-II; Beck, Steer, & Brown, 1996, Dutch translation by Van der Does, 2002). The BDI-II was administered to evaluate depressive symptoms. The BDI-II is a widely used self-report questionnaire consisting of 21 multiple choice format items (4 point scale), to assess the presence and severity of cognitive, motivational, affective, and somatic symptoms of depression. Past reports demonstrated established reliability and validity in clinical and non-clinical samples (Hautzinger, Bailer, Worall, & Keller, 1995). In the present study, internal consistency of the BDI-II was very good at each assessment moment (see Table 1).

Dysfunctional Attitudes Scale (DAS-A, Weissman, 1979; Dutch translation by Van den Broeck, 2002). The DAS-A has 40 statements to which participants respond on a 7-point scale. The DAS-A assesses dysfunctional beliefs that are thought to reflect a person's self-evaluation, concerns about approval from others, prerequisites for happiness, and perfectionist standards (e.g., "If I do not do as well as other people, it means I am a weak person"). Studies have documented that the DAS-A has good test-retest reliability (correlation of .84 over an 8-week period; Weissman, 1979). Internal consistency reliability measured in the present study was very good (see Table 1).

Cognitive Emotion Regulation Questionnaire (CERQ, Garnefski et al., 2001, Garnefski, Kraaij, & Spinhoven, 2002; Dutch translation by the same authors). The CERQ assesses the self-regulating, conscious cognitive strategies individuals use to cope with arousing thoughts in response to stressful life events. The scale consists of 36 items (responding via a 5 point scale) which are divided into nine conceptually different subscales (each consisting of the sum of four items): (1) Acceptance (thoughts of accepting what you have experienced and resigning yourself to what has happened); (2) Refocus on planning (thinking about what steps to take and how to handle the negative event); (3) Refocus positive (thinking about joyful and pleasant issues instead of thinking about the actual event); (4)

Positive reappraisal (thoughts of creating a positive meaning to the event in terms of personal growth); (5) Putting into perspective (emphasizing the relativity when comparing it to other events); (6) Self-blame (thoughts of putting the blame of what you have experienced on yourself); (7) Other-blame (thoughts of putting the blame of what you have experienced on the environment or another person); (8) Rumination or focus on thought (thinking about the feelings and thoughts associated with the negative event); (9) Catastrophizing (thoughts of explicitly emphasizing the terror of what you have experienced).

Although nine subscales are extracted from the CERQ, these subscales can be subsumed under a class of theoretically more adaptive CERS (the first five subscales), and a class of theoretically more maladaptive CERS (the last four subscales); always referring to the self-regulating, conscious cognitive components of emotion regulation in response to stressful life events (Garnefski et al., 2001; Garnefski & Kraaij, 2006). We calculated two sum scores: CERQ_adaptive referring to individuals' scores to a class of adaptive CERS; and CERQ_maladaptive referring to individuals' scores to a class of maladaptive CERS. These two subscales were also confirmed by a data driven factor analysis². The internal consistency of these two subscales at baseline is very high (see Table 1).

Procedure

All participants received a complete description of the study and provided written informed consent (protocol approved by the local ethics committee of Ghent University). Next, during the initial laboratory session (T1), participants completed the questionnaires:

²We applied a data driven Exploratory Factor Analysis (EFA) to look for the presence of these two factors (e.g., adaptive versus maladaptive CERS) in the CERQ. EFA was conducted by using principal components factor analysis with varimax rotation method (Kaiser normalization). Varimax rotation method is often used in surveys to see how groupings of questions (items) measure the same concept. The p-value obtained from Bartlett's test of sphericity was less than .001, showing that the data were factorable. We forced the factor analysis extraction to 2 fixed factors with a maximum of 25 iterations for convergence. The rotated component matrix demonstrated that twenty items were clearly loaded to factor one (with KMO value more than .41), and the other sixteen items were clearly loaded on factor 2 (with KMO value more than .45). All items in factor one were derived from subscales that can be considered as adaptive: (1) Acceptance, (2) Refocus on planning, (3) Refocus positive, (4) Positive reappraisal, and (5) Putting into perspective); whereas all items from factor two were derived from subscales that can be considered as maladaptive (6) Self-blame, (7) Other-blame, (8) Rumination or focus on thought, (9) Catastrophizing.

BDI-II, DAS-A, and the CERQ. At follow-up approximately 8 weeks later (T2-T5), all participants were preparing for and performing their examinations. During that period, participants completed the DAS-A and BDI-II during four consecutive weeks. Importantly, the instructions of these two latter questionnaires were modified to examine a period of one week between two measurements (i.e. “how you were feeling or what were you thinking over the last week”). The questionnaires were sent out weekly through an internet application at fixed days. Participants were instructed to complete the questionnaires on the same day or the day after receipt. Students received financial compensation for their participation.

Statistical Approach.

The data comprised a multilevel (or hierarchically nested) data structure with dysfunctional attitudes reports over 4 test moments during the examination period (level 1) nested within individual scores of CERS (level 2) in order to predict depressive symptoms (BDI-II). The data were analyzed with multilevel regression analyses using the HLM program (Raudenbush, Bryk, & Congdon, 2004; Version 6.01). The level-1 predictor (i.e. DAS-A) was standardized group-mean centered; Level-2 predictors (i.e. CERQ_adaptive and CERQ_maladaptive) were standardized and grand-mean centered to allow for comparisons across Level 2 units and for a clearer interpretation of coefficients. A full maximum likelihood estimation was used for all models. The significance level was set at an alpha level of .05.

Results

Of 92 participants, two did not return their questionnaires at one test moment, and one did not return his/her questionnaires at two test moments. Their data were all listed as missing.

Descriptives

Mean scores and standard deviation of self-report measures at all test moments are listed in Table 1. Higher scores are indicative of more depressive symptoms and dysfunctional attitudes, as well as the use of adaptive or maladaptive CERS.

Depressive symptoms ($p < .02$) and dysfunctional attitudes ($p < .04$) were significantly lower at baseline compared to the first three measurements during the examination period. The average scores of adaptive CERS ($M = 2.93$; $SD = .68$) were significantly higher compared to the average scores of maladaptive CERS ($M = 2.31$; $SD = .54$), $t(92) = 11.47$, $p < .001$.

Maladaptive CERS, $b = .0005$, $t = -.30$, $p = .76$, and adaptive CERS, $b = .0004$, $t = .27$, $p = .79$, did not moderate the relation between DAS and BDI (using a regression model with ordinary least squares) that were measured one week after the inclusion (and 7 weeks before the examinations).

Multi-level modelling

The level 1 predictor (DAS-A at four consecutive time points) and the level 2 predictor (sum scores CERQ) were entered in a multilevel model to investigate the moderating effect of CERS upon the relationship between dysfunctional attitudes and depressive symptoms during all four weeks of the examinations. We tested two multilevel models, one with CERQ_adaptive and the other with CERQ_maladaptive as level 2 predictor. For an overview of the main and interaction effects of these multi-level models, we refer to Table 2 and Table 3.

The baseline model indicated that there was a significant amount of unexplained variance in participants' depressive mood scores as a significant chi-square associated with the variance component, $\chi^2(91) = 1087.13$, $p < .0001$, was found. Inspection of the baseline model with no predictors indicated that about 74% of the variance in ratings of negative mood was due to variation between subjects (intraclass correlation) and 26% to variation within subjects, warranting a multi-level analysis. First, a positive relation between the level 1

predictor (DAS-A) and BDI-II scores was observed, $\beta=.49$, $p=.003$. For CERQ_maladaptive scores, a positive association with BDI-II scores was observed, $\beta=.52$, $p=.004$, whereas CERQ_adaptive and BDI-II were not associated, $\beta=.03$, $p=.78$. Furthermore, it was investigated how the Level-1 association between DAS-A and BDI-II varied as a function of the Level-2 predictor (referred to as a cross-level interaction). No cross-level interaction was observed for baseline CERQ_maladaptive, indicating that the association between DAS-A and BDI-II did not differ for individuals high and low in maladaptive CERS, ($\beta=.18$, $p=.20$). On the other hand, it was found that baseline CERQ_adaptive moderated the association between DAS-A and BDI-II during stress periods. In particular, DAS-A scores were less strongly associated with BDI-II scores when baseline CERQ_adaptive was higher ($\beta=.32$, $p=.03$). We refer to Table 2 for details of the coefficients of the model with CERQ_adaptive, and Table 3 for details of the coefficients of the model with CERQ_maladaptive.

We performed a separate multilevel model with level 1 predictor (DAS-A at four consecutive time points) and the level 2 predictor (all the different adaptive CERQ sub scores) to investigate the unique predictive value of each of the adaptive CERS upon the relationship between dysfunctional attitudes and depressive symptoms. None of these subscales demonstrates a main effect, $\beta s < .18$, $p s > .12$, nor moderated the relation between dysfunctional attitudes and depressive symptoms, $\beta s < .44$, $p s > .09$. The same analysis was performed for maladaptive CERS, inserting all the separate strategies as a level 2 predictor. This multilevel model generated no main, $\beta s < .21$, $p s > .17$, or interaction, $\beta s < .21$, $p s > .25$, effects.

Finally, we explored the multilevel model with the level 1 predictor BDI-II and the level 2 predictor CERS (separate for CERQ_adaptive and CERQ_maladaptive) on dysfunctional attitudes. No cross-level interaction was observed for both CERQ_maladaptive or CERQ_adaptive ($p s > .26$).

Discussion

A large sample of unselected undergraduates were followed for three months comprising four weeks during the examination period. Participants report in general more depressive symptoms and dysfunctional attitudes during the examination period compared to a baseline measurement outside of a stressful period. Notably, dysfunctional attitudes and depressive symptoms were assessed as they occurred over the last week, to focus on the transient and unique nature of these thoughts and depressive symptoms in healthy individuals dealing with a life period of enhanced stress.

The present findings demonstrate that CERS play a central role in whether dysfunctional attitudes are associated with depressive symptoms in a stressful situation. More specifically, the use of adaptive CERS weakens the relation between dysfunctional attitudes and sustained depressive symptoms during students' examination period. Results indicate that adaptive CERS help participants handle dysfunctional cognitions, specifically when going through during stressful situations. Indeed, the fact that no moderation for adaptive CERS is observed at baseline underscores the importance of adaptive CERS in well functioning individuals that are going through a stressful life period. The current findings are in line with a study of Crues et al. (2002) who observed that the improvement in cognitive coping strategies and reduction in dysfunctional attitudes were closely associated with decreases in depressive symptoms in HIV-infected men. Moreover, a recent study of Stange et al. (2013) observed in adolescents at risk for bipolar disorder that emotion-regulatory characteristics and cognitive styles may work in conjunction to confer risk for and resilience against future depression.

The present findings add to the literature by demonstrating that trait adaptive CERS, as they were measured 8 weeks before the start of the examinations, moderate the strength of the association between dysfunctional attitudes and depressive responding. Interestingly, the

statistical model for the reverse association, whether adaptive CERS influence the degree to which depressed mood is associated dysfunctional cognitions, does not yield a significant effect. This means that, although the level 1 data in HLM are cross-sectional in nature, adaptive CERS specifically moderate the association between dysfunctional attitudes and depressive symptoms. Also conceptually, it would be difficult to interpret how cognitive strategies influence the relationship of how a wider range of depressive symptoms - including mood, cognitive symptoms, and behavioural symptoms – are associated with dysfunctional attitudes. Especially because it is well known that dysfunctional attitudes are critical to elicit depressive symptoms during stressful life periods (Miranda & Person, 1988). Therefore, even though our data imply no causality or directionality at the statistical level, the conceptual interpretation is that adaptive CERS moderate the association between dysfunctional attitudes and depressive symptoms.

The current findings also have clinical implications, namely that the habitual use of adaptive cognitive strategies to manage and control dysfunctional cognitions might work as a resilience or protective factor against the development of depressive feelings under stress. In other words, although dysfunctional attitudes are accessible during stressful life periods, the strategies that individuals use to regulate these cognitions (acceptance, focus on positive and planning, positive reappraisal and putting in perspective) seem to influence the occurrence of associated depressive symptoms. The current findings are interesting because they highlight that individuals can exert some control over depressive symptoms. This is in line with the idea that CERS are important moderating factors in individual risk and protective factors associated with emotional problems (Garnefski & Kraaij, 2007). In the current study, we also considered the unique predictive value of the different adaptive CERS. However, none of the strategies in itself uniquely moderates the relationship between dysfunctional attitudes and depressive symptoms. The reason might be that different people use different strategies, and

that the sum scores for different individuals might thus represent different subscales. In the current study, habitual cognitive strategies that characterize each individual's style of responding to stressful events and handling of dysfunctional thoughts are evaluated using the well validated CERQ. Healthy volunteers are known to use a variety of cognitive strategies to handle stressful situations (Webb et al., 2012; Gross & Thompson, 2007), especially when going through a naturally occurring stress situation. Moreover, well functioning individuals seem to employ multiple ways to regulate their emotions (Webb et al., 2012; Gross & Thompson, 2007). These observations emphasize the importance of combining different adaptive CERS, instead of denoting a central role to a single strategy in the regulation of dysfunctional attitudes that are activated under stress.

In contrast to our results based on adaptive CERS, we did not observe that maladaptive CERS increase the association between dysfunctional attitudes and depressive symptoms. This is surprising because a number of authors have suggested that depressive mood and symptoms would be a consequence of a frequent use of maladaptive emotion regulation (Ehring et al., 2008; Garnefski & Kraaij, 2006; Gross & John, 2003). Moreover, individuals who have a maladaptive cognitive tendency to repeatedly and passively focus on dysfunctional attitudes are vulnerable to experiencing depressive symptoms of greater duration and severity (Nolen-Hoeksema, 1991). A possible reason why we could not observe an association with maladaptive CERS can be found in a recent meta-analysis from Aldao et al. (2011). These authors proposed that no single emotion regulation strategy was uniquely associated to depression, but that depressive symptoms were associated to a combination of absent adaptive (reappraisal) and present maladaptive (avoidance and rumination) strategies. Moreover, Aldao et al. (2011) observed that, in general, maladaptive strategies were more strongly related to psychopathology than the adaptive strategies, and that the differentiation between adaptive and maladaptive strategies is based on their relationships with symptoms

and psychopathology. This is in line with our study where we observe a direct positive relationship between maladaptive CERS, dysfunctional attitudes and depressive symptoms during all test moments including baseline ($rs > .35$, $ps < .001$), whereas adaptive CERS are never correlated to dysfunctional attitudes and/or depressive feelings ($rs < .13$, $ps > .22$). Because we selected a non-clinical group of undergraduates, the use of maladaptive CERS might be quite limited. Indeed (in line with Garnefski et al., 2007), our participants report much more adaptive CERS compared to maladaptive CERS ($p < .001$), and the mean BDI-II score throughout the study is relatively low. Therefore, future studies should investigate whether (a combination of) maladaptive and adaptive CERS play a role in the development of dysfunctional attitudes into depressive symptom in groups of dysphoric and depressed individuals. Moreover, (mal)adaptive cognitive strategies are also dependent on the context or preceding stressful event, and they might mediate or act as the explanatory link in how dysfunctional attitudes give rise to depressive symptoms. Such a research question warrants a more controlled design to study content specific CERS that are activated by specific dysfunctional cognitions and mediate the occurrence of depressive symptoms. Further research should disentangle the mediator – moderator effects of CERS in the relation between dysfunctional attitudes and depressive responding, in healthy samples as well as samples vulnerable to depression.

Although the present study has a number of strengths, such as its premise to investigate the interplay between cognitive factors and emotion regulation strategies within a prospective design with repeated measurements in a large sample, there are some limitations. The use of a sample of undergraduates limits the generalizability and the clinical significance of our results. Moreover, because the majority of our sample consisted of females, we are unable to test gender effects. Future research based on larger and more representative populations are therefore warranted to replicate and extend the current research findings for

theoretically adaptive and maladaptive CERS, and investigate whether certain CERS are more effective than others in specific groups of patients. Finally, although the examination period is a naturalistic stressor in daily life of undergraduate students, our data show that it is a rather mild stressor. Depressive symptoms were increased during the first three weeks, but were not significantly different from baseline during the last (fourth) week. Possibly, this is because in this last week, most exams were over and the examination period was almost done. In defense of our design, participants reported negative events (as measured with the adverse events questionnaire) that were related to the examinations during all four weeks ($ps < .007$). Moreover, also during all four weeks, they reported that these negative events had an impact on their daily life (also measured with the adverse events questionnaire), $ps < .001$. Nevertheless, future research might want to select specific life events in volunteers, such as a relationship break up, that are more stressful.

Despite these limitations, the results of the current study provide important new evidence for the idea that adaptive CERS can attenuate the association between dysfunctional attitudes and depressive symptoms. A better understanding of these individual differences in emotion regulation could help to gain more insight in individual trajectories and in the long-term impact of these mechanisms on psychological health and wellbeing.

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Table 1. Mean scores (and standard deviation) with Cronbach's alpha (α) of all self-report questionnaires at T1 – T5 ($N = 92$). The baseline measurements (trait measures, level 2) are grayscale.

	T1	T2	T3	T4	T5
BDI-II	6.16 (6.29) $\alpha = .88$	8.30 (6.61) $\alpha = .88$	8.17 (7.44) $\alpha = .91$	7.74 (7.71) $\alpha = .93$	5.30 (7.24) $\alpha = .94$
DAS-A	125.43 (26.77) $\alpha = .86$	129.79 (31.12) $\alpha = .89$	129.28 (31.69) $\alpha = .91$	130.30 (31.44) $\alpha = .90$	127.74 (31.08) $\alpha = .91$
CERQ_adaptive	59.39 (14.56) $\alpha = .93$	N/A	N/A	N/A	N/A
CERQ_maladaptive	36.20 (10.11) $\alpha = .90$	N/A	N/A	N/A	N/A

Note: BDI-II: Beck Depression Inventory-II; DAS-A: Dysfunctional Attitudes Scale-version A; CERQ_adaptive: sum scores of all the adaptive emotion regulation strategies of the Cognitive Emotion Regulation Questionnaire (CERQ); CERQ_maladaptive: sum scores of all the maladaptive emotion regulation strategies of the CERQ.

Table 2. Multilevel models assessing the association between dysfunctional attitudes and individual differences in depressive symptoms and the moderating effects of a class of adaptive cognitive emotion regulation strategies.

	Coefficient	SE	T	P value
Intercept (γ_{00})	.02	.09	.17	.87
CERQ_adaptive (γ_{01})	-0.03	.12	-.27	.78
DAS-A (γ_{10})	.53	.14	3.67	.001
DAS-A x CERQ_adaptive (γ_{11})	-.32	.14	-2.24	.03

Note. Regression equation: $Y = \beta_0 + \beta_1(\text{DAS-A}) + r$, with $\beta_0 = \gamma_{00} + \gamma_{01}(\text{CERQ_adaptive}) + u_0$, $\beta_1 = \gamma_{10} + \gamma_{11}(\text{CERQ_adaptive}) + u_1$. BDI-II: Beck Depression Inventory-II; DAS-A: Dysfunctional Attitudes Scale-version A; CERQ_adaptive: sum scores of all the adaptive emotion regulation strategies of the Cognitive Emotion Regulation Questionnaire (CERQ)

Table 3. Multilevel models assessing the association between dysfunctional attitudes and individual differences in depressive symptoms and the moderating effects of a class of maladaptive cognitive emotion regulation strategies.

	Coefficient	SE	t	P value
Intercept (γ_{00})	.02	.09	.19	.85
CERQ_MALADAPTIVE (γ_{02})	.52	.18	2.98	.004
DAS-A (γ_{10})	.52	.15	3.58	.001
DAS-A x CERQ_maladaptive (γ_{11})	-.18	.14	-1.29	.20

Note. Regression equation: $Y = \beta_0 + \beta_1(\text{DAS-A}) + r$, with $\beta_0 = \gamma_{00} + \gamma_{01}(\text{CERQ_maladaptive}) + u_0$, $\beta_1 = \gamma_{10} + \gamma_{11}(\text{CERQ_maladaptive}) + u_1$. *BDI-II*: Beck Depression Inventory-II; *DAS-A*: Dysfunctional Attitudes Scale-version A; *CERQ_maladaptive*: sum scores of all the maladaptive emotion regulation strategies of the Cognitive Emotion Regulation Questionnaire (*CERQ*)