

The Cognitive Emotion Regulation Questionnaire

Psychometric Features and Prospective Relationships with Depression and Anxiety in Adults

Nadia Garnefski and Vivian Kraaij

University of Leiden, The Netherlands

Abstract. The psychometric properties of the Cognitive Emotion Regulation Questionnaire (CERQ) as well as its prospective relationships with symptoms of depression and anxiety were studied in an adult general population sample. The results showed that the CERQ had good factorial validity and high reliabilities, with Cronbach's α s ranging between .75 and .87. In addition, the cognitive emotion regulation strategies accounted for considerable amounts of variance in emotional problems and strong relationships were found between the cognitive strategies self-blame, rumination, catastrophizing and positive reappraisal (inversely) and symptoms of depression and anxiety, both at first measurement and at follow-up. The CERQ might therefore be considered a valuable and reliable tool in the study of individual risk and protective factors associated with emotional problems, while providing us with important targets for intervention.

Keywords: cognitive-emotion regulation, cognitive coping, emotional problems

Introduction

Cognitive Emotion Regulation

Cognitive emotion regulation refers to the conscious, cognitive way of handling the intake of emotionally arousing information (Garnefski, Kraaij, & Spinhoven, 2001; Thompson, 1991) and can be considered part of the broader concept of emotion regulation defined as "all the extrinsic and intrinsic processes responsible for monitoring, evaluating, and modifying emotional reactions, especially their intensive and temporal features" (Gross, 1999; Thompson, 1994, p. 27). Years of research have shown that the regulation of emotions by cognitions or thoughts is inextricably associated with human life and helps people to keep control over their emotions during or after the experience of threatening or stressful events (e.g., Garnefski et al., 2001; Garnefski, van den Kommer et al., 2002). For example, when experiencing a negative life event, we may be inclined to have thoughts of blaming ourselves or we may, instead, blame others. We may dwell on our feelings by ruminating or we may try to accept or positively reappraise the situation. Although the capability of advanced thinking and regulating emotions through cognitions is universal, large individual differences exist in the amount of cognitive activity and in the content of the thoughts by which people regulate their emotions in response to life experiences, events, and stressors.

Obviously, the concept of conscious, cognitive, emotion regulation is narrowly related to the concept of cognitive coping. One important difference between the two perspectives is that both the widely accepted problem-focused and emotion-focused dimensions of coping include a mixture of cognitive and behavioral strategies, while the cognitive emotion regulation theory is based on the assumption that thinking and acting refer to different processes and, therefore, considers cognitive strategies in a conceptually pure way, separate from behavioral strategies (Garnefski et al., 2001; Garnefski, van den Kommer et al., 2002).

The Cognitive Emotion Regulation Questionnaire (CERQ)

About 5 years ago, it was observed that no instruments were available that measured the cognitive components of emotion regulation in adolescents and/or adults (Garnefski et al., 2001). Following that observation, in 2001 the Cognitive Emotion Regulation Questionnaire (CERQ) was developed (Garnefski et al., 2001; Garnefski, Kraaij, & Spinhoven, 2002). Nine cognitive emotion regulation strategies were distinguished within the CERQ on theoretical and empirical bases; each referring to what someone thinks after the experience of threatening or stressful events. *Self-blame* refers to thoughts of putting the blame for what you have experienced on yourself. *Other-blame*

refers to thoughts of putting the blame for what you have experienced on the environment or another person. *Rumination or focus on thought* refers to thinking about the feelings and thoughts associated with the negative event. *Catastrophizing* refers to thoughts of explicitly emphasizing the terror of what you have experienced. *Putting into perspective* refers to thoughts of brushing aside the seriousness of the event/emphasizing the relativity when comparing it to other events. *Positive refocusing* refers to thinking about joyful and pleasant issues instead of thinking about the actual event. *Positive reappraisal* refers to thoughts of creating a positive meaning to the event in terms of personal growth. *Acceptance* refers to thoughts of accepting what you have experienced and resigning yourself to what has happened and *Refocus on planning* refers to thinking about what steps to take and how to handle the negative event. These dimensions were defined either by taking out or reformulating the cognitive dimensions of existing coping measures (Carver, Scheier & Weintraub, 1989; de Ridder, 1997), “transforming” non-cognitive coping strategies into cognitive dimensions or adding new strategies on theoretical grounds (for a more elaborated explanation of the way the particular dimensions were chosen, see Garnefski et al., 2001; Garnefski, van den Kommer et al., 2002, Garnefski, Kraaij et al., 2002). Therefore, some of the distinguished cognitive emotion regulation strategies, such as positive reappraisal or acceptance, come from the coping tradition (Carver et al., 1989), while others, such as rumination or catastrophizing, refer to separate literature fields (e.g., Nolen-Hoeksema, 2000; Sullivan, Bishop, & Pivic, 1995). An important limitation of the separate research traditions had been that – although all separate concepts had been found to be related to mental health in previous research in some way or another – it had not been possible to draw conclusions about the joint role of the separate cognitive strategies in the development of psychopathology. The development of the CERQ made comprehensive, integrative studies of the relationships between cognitive emotion regulation strategies and mental health possible, which was important in order to be able to fully understand the joint role of different cognitive emotion regulation strategies.

In a large, general population, adolescent sample psychometric properties were found to be good: principal component analyses provided empirical support to the allocation of items to subscales, while internal consistencies ranging from .68 to .83 with most Cronbach's α s exceeding .80. Test-retest correlations ranged between .40 and .60, reflecting moderately stable styles (Garnefski et al., 2001). Psychometric properties, however, have not yet been tested in adults. The CERQ has, however, been included in a number of adolescent, adult, and elderly studies studying the relationships between cognitive emotion regulation strategies and maladjustment. Strong cross-sectional relationships have been found between the use of the nine cognitive emotion regulation strategies and emo-

tional problems such as depression, anxiety, stress, and anger (e.g., Jermann, Van der Linden, d'Acremont, & Zermatten, 2006; Garnefski, Boon, & Kraaij, 2003; Garnefski et al., 2001, Garnefski, van den Krommer et al., 2002; Garnefski & Kraaij, 2006; Garnefski, Legerstee, Kraaij, van den Kommer, & Teerds, 2002; Garnefski, Teerds, Kraaij, Legerstee, & van den Kommer, 2003; Kraaij, Garnefski, & van Gerwen, 2003; Kraaij, Garnefski, de Wilde et al., 2003; Kraaij, Pruyboom, & Garnefski, 2002; Martin & Dahlen, 2005). The strongest and most consistent relationships were found between the cognitive emotion regulation strategies of rumination, catastrophizing, and self-blame, and the reporting of emotional problems in all age groups (Garnefski & Kraaij, 2006). This suggests that by using certain cognitive emotion regulation strategies, people may be more vulnerable to developing symptoms of psychopathology in response to negative life events (Garnefski, van den Krommer et al., 2002). Other outcomes have suggested that by using other cognitive strategies, such as positive reappraisal, people may more easily tolerate or master negative life experiences (Garnefski & Kraaij, 2006). It might, therefore, be argued that important targets for intervention might be found on the basis of cognitive emotion regulation research. Prospective studies including the CERQ, however, have not yet been done, although these will be important for drawing conclusions about longer term influences of the use of cognitive emotion regulation strategies.

Research Questions

To date, no studies have reported on the psychometric properties of the CERQ in adults nor on prospective data including the CERQ and measures of emotional problems. The first aim of the present study, therefore, was to report on the factor structure, the Cronbach's α s, and the test-retest correlations in a general population sample comprising 611 adults at first measurement and 301 adults after a follow-up period of 1 year. On the basis of the results in the adolescent sample, it was expected that the psychometric properties in the adult sample would be similar, with both the factorial structure and internal consistencies confirming the distinction into nine subscales and moderately high test-retest correlations.

The second aim was to study to what extent specific cognitive emotion regulation strategies were related to measures of emotional problems in adults after a follow-up period of 1 year. To make comparison with cross-sectional relationships possible, the cross-sectional results will be presented as well. It was expected that – comparable to the results of available cross-sectional studies in adolescents – the cognitive emotion regulation strategies would account for a considerable amount of the variance in emotional problems at follow-up and that especially strong relationships would be found between emotional problems and

self-blame, rumination, catastrophizing, and positive reappraisal, both at first measurement and at follow-up.

Materials and Methods

Participants

At first measurement, the sample comprised 611 adults from the general population ranging between 18 and 65 years. The mean age was 41 years and 11 months, 40% were male, and 63% were married, engaged, or living together with 35% either single or divorced. The educational level ranged from primary school (4%), lower vocational or lower general secondary education (20%), intermediate vocational education (16%), higher general secondary and preuniversity education (11%), to higher vocational and university education (48%). Of the initial population, 301 persons (49%) participated in the second measurement. At follow-up, the mean age was 43 years and 6 months (SD 10.26) and 37% were male. Sample characteristics were not significantly different from the characteristics at first measurement.

Procedure

The sample was obtained by approaching the population of a general practitioner's office in the period between January and April 2000. In total 2029 questionnaires (one per household) were sent to the home addresses, of which 630 were returned. Because of ethical issues, it was not possible to obtain information on differences between the 630 people who filled out the questionnaire and the 1377 who did not. People who filled in the questionnaire were guaranteed anonymity. For the purpose of the present study, only persons between 18 and 65 of age were selected ($N = 611$). An informed consent form was included in which the participant was asked whether he or she would allow us to establish contact again for participation in the follow-up study after a certain period. Signed permission was given by 430 persons. The second measurement took place in the period between January and April 2001. Questionnaires were sent to all 430 participants who had given informed consent, of which 301 were returned.

Instruments

Cognitive Emotion Regulation Questionnaire (CERQ)

To measure the specific cognitive emotion regulation strategies participants used in response to the experience of threatening or stressful life events, the CERQ was used (Garnefski, Kraaij et al., 2002). The CERQ is a 36-item questionnaire consisting of the following nine conceptually

distinct subscales, each consisting of four items and each referring to what someone thinks after the experience of threatening or stressful life events: self-blame, other-blame, rumination, catastrophizing, putting into perspective, positive refocusing, positive reappraisal, acceptance, and planning.

Cognitive emotion regulation strategies were measured on a 5-point Likert scale ranging from 1 (*almost never*) to 5 (*almost always*). Individual subscale scores were obtained by summing the scores belonging to the particular subscale (ranging from 4 to 20). Previous research on cognitive emotion regulation strategies has shown that all subscales have good internal consistencies ranging from .68 to .86 (Garnefski, Kraaij et al., 2002).

Depression and Anxiety

Depressive and anxiety symptoms were measured by subscales of the SCL-90 (Symptom Check List; Derogatis, 1977; Dutch translation and adaptation by Arrindell and Ettema, 1986). The depression subscale consists of 16 items assessing whether and to what extent the participants reported symptoms of depression; the anxiety subscale consists of 10 items, assessing whether and to what extent participants report symptoms of anxiety. Answer categories of the items range from 1 (*not at all*) to 5 (*very much*). Scale scores are obtained by summing the items belonging to the scale. Previous studies have reported Cronbach's α coefficients ranging from .82 to .93 for depression and from .71 to .91 for anxiety (Arrindell & Ettema, 1986). In the present study the Cronbach's α reliability of the depression scale was .93 both at first measurement (1) and second measurement (2), while the Cronbach's α of anxiety was .91 in both measurements. Correlation between depression 1 and depression 2 was .72; correlation between anxiety 1 and anxiety 2 was .67, while both the correlations between depression 1 and anxiety 1 and between depression 2 and anxiety 2 were .80.

Statistical Analysis

First, means and standard deviations of the subscales were described, followed by Cronbach's α reliability analyses and test-retest correlations. Subsequently, the factor structures of the CERQ at first measurement and at follow-up were studied by means of principal component analyses. In the latter analysis both oblimin and varimax rotations were performed. Both rotation methods yielded the same results. Because of its easier interpretability, only the results of varimax rotation will be presented. Subsequently, correlations among subscales were calculated. Relationships between cognitive strategies at first measurement and symptoms of depression and anxiety at first measurement and at follow-up were studied by means of Pearson correlations and Multiple Regression Analyses.

Results

Means and Standard Deviations at First measurement And Follow-Up

Table 1 displays the means and standard deviations of the CERQ scales at first measurement and at follow-up. In general, at both measurements the theoretically more adaptive cognitive strategies (such as positive reappraisal, planning, and putting into perspective) were reported to have been used more often than the less adaptive strategies (such as catastrophizing, self-blame, and other-blame). The highest mean score was found for the reporting of the cognitive strategy of planning. Catastrophizing and other-blame were reported to have been used as a cognitive coping strategy to the least extent.

Reliabilities of the Scales (Cronbach's α and Test-Retest)

Cronbach's α reliability coefficients were computed for both measurements (see also Table 1). Cronbach's α reliabilities at both measurements were acceptably high. None of the Cronbach's α s was below .75. At first measurement, Cronbach's α reliabilities of the subscales ranged from .75 to .86 and at follow-up from .75 to .87.

Test-retest reliability coefficients were determined by computing Pearson correlations between subscale scores of first and second measurement. Taking into consideration the 1-year follow-up period, test-retest reliabilities of the subscales were found to be adequate to good with values ranging from .48 to .65 (see Table 1). In addition to the same-scale cross-time correlations, different-scale cross-time correlations were calculated. They ranged from .24 to .42. In all cases, different-scale cross-time correlations were significantly lower than same-scale cross-time correlations, except for the cross-time correlations between positive reappraisal and planning. Correlations between positive reappraisal 1 and planning 2 was .42 ($p < .001$), while correlation between planning 1 and positive reappraisal 2 was .40 ($p < .001$) (no table).

Factor Structure

First two principal component analyses were performed, with varimax rotation: (1) on the data of the first measurement and (2) on the data of the follow-up. The factor loadings listed in the first and second column of Table 2 are the correlations between the items and the factors on the basis of the factor structure matrices of the first and second measurement, respectively. On the data of the first measurement, nine factors were extracted, together explaining 68.2% of the variance. Communalities ranged between .55 and .78. Factors were fully in accord with the a priori as-

signment of items to the scales, while all loadings on the a priori factors exceeded .55.

Nine factors were also extracted on the data of the second measurement, together explaining 68.6% of the variance with communalities ranging between .52 and .79. For each of the factor loadings of the second measurement, except for one, the conclusion held that its highest loading was on the scale to which it theoretically belonged. The exception was for the item "I often think that what I have experienced is much worse than what others have experienced," which obtained a relatively weak loading of .34 on its a priori catastrophizing scale and a relatively high loading (not in the table) of .41 on the other-blame subscale. All other loadings exceeded .52 on the a priori factors.

In addition, confirmatory factor analysis (CFA) was performed for both measurements (no table). A model was constructed in which the items of the nine subscales were assumed to correlate with the corresponding nine theoretical factors. The model was tested by means of structural equation modeling (EQS). On theoretical grounds, correlations between error terms of the cognitive strategies and correlations between the nine factors were allowed.

In both measurements, the structural model appeared to have a good fit. At first measurement, the average absolute standardized residual was .045; $\chi^2(546) = 591.58$; $p = 0.08$; comparative fit index (CFI) = 0.92. At second measurement comparable results were found: an average absolute standardized residual of .049; $\chi^2(560) = 558.79$; $p = 0.51$; CFI = 0.97. In both measurements, estimated factor loadings were comparable to the results of principal component analyses (PCA).

Correlations Between Subscales

Correlations between first-measurement subscales ranged between $-.08$ (catastrophizing and positive reappraisal) and .69 (positive reappraisal and planning), with a mean correlation coefficient of .25. Correlations between follow-up subscales ranged between $-.13$ (catastrophizing and positive reappraisal) and .67 (positive reappraisal and planning). At follow-up a mean correlation coefficient of .25 was found, indicating moderate correlations between subscales at both measurements (no table).

Relationships Between CERQ at First Measurement and Depression and Anxiety Symptoms at First Measurement and at Follow-Up

Pearson correlations between cognitive strategies at measurement 1 and symptoms of depression at measurement 1 ranged from $-.21$ (positive reappraisal) to .53 (catastrophizing), while correlations with symptoms of depression at measurement 2 ranged from $-.13$ (positive reappraisal)

Table 1. Scale properties of the CERQ at first measurement (Time 1) and follow-up (Time 2): Cronbach's α reliabilities, test-retest reliabilities, means, and standard deviations

CERQ scales	<i>M1 (SD)</i>	<i>M2 (SD)</i>	α (Time 1)	α (Time 2)	<i>r</i> (1–2)
Self-blame	8.22 (2.96)	8.56 (3.01)	.75	.75	.55**
Acceptance	11.01 (3.53)	10.43 (3.29)	.76	.76	.51**
Rumination	10.46 (3.72)	10.11 (3.57)	.83	.83	.60**
Positive refocusing	10.01 (3.53)	9.79 (3.43)	.85	.87	.52**
Refocus on planning	13.03 (3.89)	12.57 (3.57)	.86	.86	.48**
Positive reappraisal	12.46 (4.07)	12.30 (3.70)	.85	.84	.57**
Putting into perspective	11.64 (3.91)	11.26 (3.77)	.82	.83	.56**
Catastrophizing	6.05 (2.43)	6.05 (2.38)	.79	.79	.61**
Blaming others	6.38 (2.69)	6.04 (2.38)	.82	.81	.65**

** $p < .01$

Table 2. Factor structure of the Cognitive Emotion Regulation Questionnaire (CERQ) at first measurement (Time 1) and follow-up (Time 2); items listed by a priori assignment to subscales

Scale name and items	Factor loadings	
	Time 1	Time 2
Self-blame		
I feel that I am the one to blame for it	.70	.70
I feel that I am the one who is responsible for what has happened	.71	.70
I think about the mistakes I have made in this matter	.55	.57
I think that basically the cause must lie within myself	.80	.77
Acceptance		
I think that I have to accept that this has happened	.73	.77
I think that I have to accept the situation	.70	.71
I think that I cannot change anything about it	.66	.65
I think that I must learn to live with it	.69	.61
Focus on thought/rumination		
I often think about how I feel about what I have experienced	.75	.66
I am preoccupied with what I think and feel about what I have experienced	.77	.74
I want to understand why I feel the way I do about what I have experienced	.66	.69
I dwell upon the feelings the situation has evoked in me	.68	.77
Positive refocusing		
I think of nicer things than what I have experienced	.76	.79
I think of pleasant things that have nothing to do with it	.85	.87
I think of something nice instead of what has happened	.83	.80
I think about pleasant experiences	.67	.74
Refocus on planning		
I think of what I can do best	.69	.81
I think about how I can best cope with the situation	.75	.80
I think about how to change the situation	.74	.71
I think about a plan of what I can do best	.78	.77
Positive reappraisal		
I think I can learn something from the situation	.67	.72
I think that I can become a stronger person as a result of what has happened	.59	.59
I think that the situation also has its positive sides	.64	.52
I look for the positive sides to the matter	.73	.70

Scale name and items	Factor loadings	
	Time 1	Time 2
Putting into perspective		
I think that it all could have been much worse	.62	.60
I think that other people go through much worse experiences	.77	.79
I think that it hasn't been too bad compared to other things	.68	.79
I tell myself that there are worse things in life	.70	.80
Catastrophizing		
I often think that what I have experienced is much worse than what others have experienced	.75	.34
I keep thinking about how terrible it is what I have experienced	.64	.75
I often think that what I have experienced is the worst that can happen to a person	.70	.80
I continually think how horrible the situation has been	.59	.78
Blaming others		
I feel that others are to blame for it	.75	.71
I feel that others are responsible for what has happened	.82	.79
I think about the mistakes others have made in this matter	.72	.72
I feel that basically the cause lies with others	.83	.81

Table 3. Relationships between cognitive emotion regulation strategies and symptoms of depression and anxiety at first measurement (Time 1) and at follow-up (Time 2): multiple regression analysis

	Depressive symptoms		Anxiety symptoms	
	β (Time 1)	β (Time 2)	β (Time 1)	β (Time 2)
Self-blame (1)	.25***	.17***	.18***	.07
Acceptance (1)	.07	.05	.05	.05
Rumination (1)	.28***	.14*	.23***	.11
Positive refocusing (1)	-.01	.05	.08	.02
Refocus on planning (1)	-.05	-.03	.02	-.02
Positive reappraisal (1)	-.35***	-.21**	-.40***	-.20*
Putting into perspective (1)	-.01	-.01	.00	.05
Catastrophizing (1)	.29***	.29***	.36***	.39***
Blaming others (1)	.08	.11	.05	.08
R^2	.44***	.28***	.42***	.28***

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

to .46 (catastrophizing). Correlations with symptoms of anxiety ranged from $-.23$ (positive reappraisal) to $.54$ (catastrophizing) at measurement 1 and from $-.14$ (positive reappraisal) to $.51$ (catastrophizing) at measurement 2.

In addition, four multiple regression analyses were performed with depression and anxiety symptoms of measurement 1 and 2 as dependent variables and the nine cognitive coping strategies of measurement 1 as independent variables (Table 3). Table 3 shows that all regression models were significant ($p < .001$). Percentages of explained variance were 44% and 28% for the prediction of depression scores at first and second measurement, respectively. Percentages of explained variance of anxiety scores at first and second measurement were 42% and 28%.

The most important significant predictors of depressive symptoms at both measurements and anxiety symptoms at first measurement were positive reappraisal, catastrophizing, rumination, and self-blame. In the prediction of anxiety symptoms at second measurement only positive reappraisal and catastrophizing reached the level of significance. Regarding the directions of relationships: The cognitive strategies of catastrophizing, rumination, and self-blame were positively related to the reporting of symptoms of depression and anxiety, implying that a more frequent use of these strategies was related to the reporting of more symptoms. In addition, frequent use of positive reappraisal appeared to be related to the reporting of less symptomatology¹.

¹ When depression and anxiety scores at first measurement were included as control variables in the multiple regression analyses (MRAs) with depression and anxiety at follow-up as dependent variables, only catastrophizing remained as a significant predictor with β coefficients of $.17$ and $.23$, respectively. This can be explained by the high correlations between depression/anxiety at first measurement ($.80$) and depression/anxiety at second measurement ($.80$).

Discussion

In an earlier study, strong empirical evidence was found for the psychometric properties of the CERQ in an adolescent general population sample aged 12 to 18 (Garnefski et al., 2001). In the present study, the psychometric properties of the CERQ were tested in an adult general population sample. The results of PCA provided strong empirical support to the allocation of items to subscales in the adult sample as well, proving factorial validity across the two samples. CFA confirmed these results. The reliabilities of the scales were also good in this sample with most Cronbach's α s exceeding .80. Test-retest correlations suggested that cognitive emotion regulation strategies were relatively stable strategies, even after a follow-up period of 1 year, although not as stable as personality characteristics, where test-retest correlations generally tend to exceed .70 (e.g., Costa, Bagby, Herbst, & McCrae, 2005). It may be concluded from these results that the CERQ is not only a reliable measure for use in adolescent samples, but also for adults.

Further, it was confirmed that strong cross-sectional relationships existed between symptoms of emotional problems and cognitive emotion regulation strategies, fitting in with previous CERQ studies. As in the adolescent general population sample (Garnefski et al., 2001), strong relationships were found between the cognitive emotion regulation strategies of rumination, catastrophizing, self-blame and positive reappraisal (inversely), and the reporting of emotional problems. These results also fit in with the findings of other studies on the separate concepts of self-blame (Anderson, Miller, Riger, Dill, & Sedikides, 1994), rumination (Nolen-Hoeksema, Parker, & Larson, 1994), catastrophizing (Sullivan et al., 1995), and positive reappraisal (Carver et al., 1989). On the basis of the present study, the conclusion is that the relationships between rumination, self-blame, catastrophizing, lack of positive reappraisal, and symptoms of psychopathology do not only hold in adolescents, but also in adults.

In addition, the present study was the first study to show prospectively that a considerable percentage of the variance in symptoms of depression and anxiety could be explained by the use of the cognitive strategies self-blame, rumination, catastrophizing, and the (apparently more adaptive) strategy positive reappraisal one year earlier.

A major motive underlying this research was the identification of individual risk factors and protective factors associated with the development and continuation of emotional problems and to make this information available for prevention and intervention purposes. Although numerous cognitive therapies have been developed for the treatment of mental disorders, these approaches tend to focus rather generally on challenging maladaptive beliefs (e.g., Meichenbaum, 1977). As yet, cognitive therapies have not been designed to target the specific cognitive emotion regulation strategies individuals use to manage their stressful

experiences. Cognitive therapies might benefit from employing techniques designed to modify patterns of cognitive emotion regulation. Our approach and results may be helpful for a more targeted treatment. Existing reframing and cognitive restructuring techniques may be used to challenge assertions of rumination, catastrophizing, and self-blame and to provide thoughts of positive reappraisal. Thought stopping, attention-shift, and psychological distancing techniques may be helpful to learn to shift one's perception and disrupt thoughts of rumination (Sharoff, 2002). In addition, adequate effect studies should be performed to assess the effectiveness of cognitive emotion regulation based interventions.

A limitation of the design was that the detection of depression and anxiety as well as the assessment of cognitive emotion regulation strategies was made on the basis of self-reported evaluations, which may have caused a certain bias. Future studies should address research questions concerning relationships between cognitive emotion regulation and emotional and behavioral problems by using both self-reported and other forms of data collection, such as interviews or expert judgments.

Unlike earlier studies (i.e., Garnefski et al., 2001) no second-order analyses were performed to make a distinction between "appropriate" strategies and "inappropriate" strategies. Our reason for this approach is the belief that what is called appropriate in one specific circumstance is not appropriate in all circumstances. Later articles on the CERQ have shown that the appropriateness of certain strategies may largely depend on the type of life event experienced (e.g., Garnefski, Baan, & Kraaij, 2005). In our opinion, conclusions about which strategies are to be considered "good" or "bad" can, therefore, only be drawn on a study-by-study basis. Clearly, much more research is needed before the question of which cognitive strategy may be considered (in)appropriate under what circumstances – if at all – can be definitely answered.

Another conceptual issue pertains to the assumption that cognitive emotion regulation "may help people to keep control over their emotions during or after the experience of threatening or stressful events." The question is to what extent all cognitive strategies – such as rumination and catastrophizing – really might be considered helpful to achieve this goal of emotion regulation. Although this conceptual issue can not easily be solved, it might be argued that it is the other side of these strategies, i.e., low rumination and low catastrophizing, that represent the helpfulness of these cognitive strategies.

A strong point of the present study was the prospective design, which shows that that cognitive emotion regulation strategies can "predict" emotional problems on the longer term. A question that remains to be answered, however, is whether a causal interpretation of this relationship is feasible. Although the results of the present study were based on prospective data, it is important to acknowledge that no conclusions can be drawn about causal pathways or directions of influence. Correlations between depres-

sion and anxiety at first measurement and depression and anxiety at second measurement were high, possibly explaining some of the strong relations between cognitive strategies at first measurement and depression/anxiety scores at second measurement. Still, whatever the directions of influence may be, it is clear that the use of certain cognitive emotion regulation strategies and emotional problems are *related* issues. The relationships between the use of the cognitive emotion regulation strategies of self-blame, catastrophizing, and rumination and the reporting of symptoms of depression and anxiety, especially, suggest that the existence of such symptoms might indicate the existence of “nonadaptive” strategies of cognitive emotion regulation. It seems, therefore, reasonable to assume that therapeutically changing these cognitive strategies will bring about changes in depression/anxiety symptoms as well.

There is little doubt that cognitive emotion regulation strategies play an important role in influencing people’s lives. Further exploration of the nature of cognitive emotion regulation and its determinants and consequences is important, as it might carry important implications for the content of prevention and intervention. The present study has shown that the CERQ might be a valuable and reliable tool in the study of these issues, not only in adolescents, but also in adults.

References

- Arrindell, W.A., & Ettema, J.H.M. (1986). *SCL-90. Handleiding bij een multidimensionele psychopathologie-indicator* [Manual for a multidimensional psychopathology-indicator/Dutch translation and adaptation]. Lisse, The Netherlands: Swets & Zeitlinger.
- Anderson, C.A., Miller, R.S., Riger, A.L., Dill, J.C., & Sedikides, C. (1994). Behavioral and characterological styles as predictors of depression and loneliness: review, refinement, and test. *Journal of Personality and Social Psychology*, *66*, 549–558.
- 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.
- Costa, P.T., Bagby, R.M., Herbst, J.H., & McCrae, R.R. (2005). Personality self-reports are concurrently reliable and valid during acute depressive episodes. *Journal of Affective Disorders*, *89*, 1–3.
- Derogatis, L.R. (1977). *SCL-90: Administration, scoring and procedures manual-I for the r(evised) version*. Baltimore: John Hopkins University School of Medicine, Clinical Psychometrics Research Unit.
- Garnefski, N., Baan, N., & Kraaij, V. (2005). Psychological distress and cognitive emotion regulation strategies among farmers who fell victim to the foot-and-mouth crisis. *Personality and Individual Differences*, *38*, 1317–1327.
- 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., van den Kommer, T., Kraaij, V., Teerds, J., Legerstee, J., & Onstein, E. (2002). The relationship between cognitive emotion regulation strategies and emotional problems. *European Journal of Personality*, *16*, 403–420.
- 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*, 1659–1669.
- Garnefski, N., Kraaij, V., & Spinhoven, P. (2001). Negative life events, cognitive emotion regulation and depression. *Personality and Individual Differences*, *30*, 1311–1327.
- Garnefski, N., Kraaij, V., & Spinhoven, P. (2002). *Manual for the use of the Cognitive Emotion Regulation Questionnaire*. Leiden: DATEC.
- 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. (2003). Cognitive emotion regulation strategies and depressive symptoms: Differences between males and females. *Personality and Individual Differences*, *36*, 267–276.
- Gross, J.J. (1999). Emotion regulation: Past, present, future. *Cognition and Emotion*, *13*, 551–573.
- 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.
- Kraaij, V., Garnefski, N., & van Gerwen, L. (2003). Cognitive coping and anxiety symptoms among people who seek help for fear of flying. *Aviation, Space, and Environmental Medicine*, *74*, 273–277.
- Kraaij, V., Garnefski, N., Wilde, E.J. de, Dijkstra, A., Gebhardt, W., Maes, S., & Doest, L. ter (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.
- Kraaij, V., Pruymboom, E., & Garnefski, N. (2002). Cognitive coping and depressive symptoms in the elderly: A longitudinal study. *Aging and Mental Health*, *6*, 275–281.
- 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.
- Meichenbaum, D. (1977). *Cognitive-behavior modification: An integrated approach*. New York: Plenum.
- 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 and Social Psychology*, *67*, 92–104.
- de Ridder, D. (1997). What is wrong with coping assessment? A review of conceptual and methodological issues. *Psychology and Health*, *12*, 417–431.
- Sharoff, K. (2002). *Cognitive coping therapy*. New York: Brunner-Routledge.
- Sullivan, M.J.L., Bishop, S.R., & Pivik, J. (1995). The Pain Catastrophizing Scale: Development and validation. *Psychological Assessment*, *7*, 524–532.

- Thompson, R.A. (1991). Emotional regulation and emotional development. *Educational Psychology Review*, 3, 269–307.
- Thompson, R.A. (1994). Emotional regulation: A theme in search for definition. *Monographs of the Society for Research in Child Development*, 59, 25–52.

Nadia Garnefski

Department of Psychology
Division of Clinical and Health Psychology
Leiden University
P.O. Box 9555
NL-2300 RB Leiden
The Netherlands
E-mail garnefski@fsw.leidenuniv.nl