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Cognitive emotion regulation strategies and depressive symptoms: differences between males and females

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Abstract

The present study focuses on comparability of men and women in (a) the extent to which they use specific cognitive emotion regulation strategies in response to the experience of life stress and (b) the extent to which the use of these strategies is related to the reporting of depressive symptoms. In a general population sample of 251 males and 379 females, data were obtained on symptoms of depression and the use of nine cognitive emotion regulation strategies. Significant differences were found in the strategies Rumination, Catastrophizing and Positive refocusing: women reported to use these strategies more often than men. However, no differences were found in the extent to which specific cognitive strategies were related to the reporting of depressive symptomatology. In both groups, higher extents of reporting self-blame, rumination and/or catastrophizing as strategies were strongly related to higher depression scores, whereas higher extents of using positive reappraisal were related to lower depression scores.

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1. Introduction

It is widely acknowledged that women are about twice as likely as men to suffer from clinically relevant symptoms of depression (e.g. Nolen-Hoeksema, 1987). The processes underlying these pervasive differences, however, are still poorly understood. Several biological and psychosocial explanations have been proposed to account for the sex differences in depression (Ingram, Miranda, & Segal, 1998; Weissman & Klerman, 1977). A first explanation refers to the possibility

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that sex differences in depression might be artifacts of other differences between men and women, such as differences in socioeconomic status or level of education or differences in the extent to which they acknowledge and seek help for their depression. A second explanation suggests that women's greater vulnerability to depression might be the result of biological characteristics unique to women, for example by hormonal or genetic predispositions. Epidemiological studies, however, did not find much support for these two models (Ingram et al., 1998; Nolen-Hoeksema, 1987). A third explanation refers to the hypothesis that women might be more likely than men to encounter negative life events, and that these negative life events in their turn are related to the onset of depression. Although evidence indeed has been found that women might be more likely to encounter life events factors that may trigger depression, past research has also shown that, without including other factors, the experience of life events alone is not enough to adequately account for the large differential rates of depression in women as compared with men (Ingram et al., 1998). A fourth explanation refers to the influence of individual vulnerability factors, as expressed by personality characteristics. Although it has been shown that stable personality traits, such as neuroticism and attributional styles characterized by globality, stability and internality are involved in the vulnerability to depression, there is insufficient support for the notion that they contribute to the increased risk to females by a direct mechanism (Piccinelli & Wilkinson, 2000).

A fifth explanation focuses on the ways people cope with stressful experiences. There is accumulating empirical evidence for the hypothesis that the higher rates of depressive symptoms in women might be related to their less effective ways of coping. Empirical studies consistently suggest the global conclusion that women in general tend to rely on passive and emotion-focused coping strategies to a greater extent than men (Thoits, 1995; Vingerhoets & Van Heck, 1990). An important direction for empirical investigations therefore pertains to the question of whether specific coping strategies are related to the higher rates of depression in women. The concept of coping, however, is a broad conceptual rubric encompassing behavioral as well as cognitive regulatory processes. It has been argued that although all kinds of coping are important and should be examined, attempts should be made to describe aspects of the construct, while cognitive and behavioral aspects should be clearly distinguished (Gross, 1999; Garnefski, Kraaij, & Spinhoven, 2001). The present study will therefore exclusively focus on differences in the use of specific cognitive coping strategies between men and women and their relationship with depressive symptomatology.

Previous studies have shown that cognitive coping strategies such as *ruminating*, *self-blame* and *catastrophizing* are positively related to depression and/or other measures of mental ill-health, while strategies such as *positive reappraisal* are negatively related (Anderson, Miller, Riger, Dill, & Sedikides, 1994; Sullivan, Bishop, & Pivik, 1995; Carver, Scheier, & Weintraub, 1989; Garnefski et al., 2001). Nolen-Hoeksema (1991) has shown that women in general have more ruminative response styles than men, i.e. are more likely than men to amplify their moods by ruminating about their depressed states. It may be argued, that, regardless of the initial source of a depressive episode (biological or psychological) the more ruminative responses of women may form a risk factor for severe and prolonged periods of distress (Nolen-Hoeksema, 1987). Ruminative responses may interfere with effective problem solving, because they may make negative cognitions more accessible and because they may interfere with the initiation of positive behaviors (Nolen-Hoeksema, 1991). No information is available on the extent to which men and women differ in the use of the other cognitive strategies.

On the basis of the research on ruminative responses, only conclusions can be drawn about the general ruminative style of responding and not about the content of cognitions. Although ruminative response styles as such may help to explain why women are more likely to become (severely) depressed than men, they carry only global recommendations for interventions, i.e. that interventions for depressed women should be ones that help to distract them from their mood and increase activity (Nolen-Hoeksema, 1987). Distraction, however, is not the perfect coping strategy either, as not dealing with one's feelings may lead to externalizing disorders such as alcoholism and violent behavior (Fivush & Buckner, 2000). To create opportunities for a more targeted tailoring of treatment and preventive measures, focus of study should also include the *content of cognitions* or cognitive coping strategies by means of which men and women regulate their emotions. Whereas the relationship between cognitive coping strategies and emotional well-being is already *implicit* in psychological treatments such as thought stopping, self-instructional training and other cognitive approaches (Beck, 1976; Ellis, 1962; Wells & Matthews, 1994), empirical research into these issues should help to make these premises of cognitive therapies more *explicit*. Questions should be asked such as: if it is true that women are more likely than men to show depressed mood, and that a depressed mood in its turn is positively related to catastrophizing and negatively to positive reappraisal, is it also true, then, that women are more likely to report catastrophizing and less likely to report positive reappraisal as a cognitive strategy than men? The identification of cognitive coping strategies that are used to a greater extent by women than by men may provide specific information by which to explain women's greater vulnerability to depression.

Another question that is even more important than the question whether men and women differ in the extent to which they report different cognitive coping strategies is the question whether the same or other cognitive coping strategies are responsible for depression in men and women. Although it might be true that women are more inclined to 'catastrophize' than men, it still also might be true that 'catastrophizing' in men is related to the reporting of depressive symptoms in a comparable way, just as it may be argued that although women may encounter more life events than men, still the experience of life events in men might be related to depression in the same way as in women. The answer to the question whether the same cognitive coping variables that are predictive of depression in women are also predictive of depression in men may provide important clues for content of intervention in both groups.

The present paper will focus on these issues by comparing men and women from a general population sample regarding (a) the extent to which various cognitive emotion regulation strategies are used in response to the experience of life stress; and (b) the relationship between the use of these strategies and reporting of depressive symptomatology.

2. Method

2.1. Sample

The total sample comprised 630 subjects, of whom 251 were males (39.8%) and 379 females (60.2%), ranging in age from 18 to 71 years old, with a mean age of 42.0 (S.D.=11.44). As regards education level, 3.7% reported primary school as the highest form of completed

education, 10.4% lower vocational education, 9.9% lower general secondary education, 15.5% intermediate vocational education, 10.7% higher general secondary or pre-university education and 47.4% higher vocational education or university (2.2% other nonspecified levels of education). In the sample 62.8% were married, engaged or lived together, 25.1% unmarried, 9.8% divorced and 2.2% widowed. No differences between males and females were found in marital status. However, males and females did differ with regard to mean age and level of their highest form of education. Males were on average significantly older ($M=43.99$; $S.D.=11.82$) than females ($M=40.69$; $S.D.=11.28$) and males had a significantly higher average level of education as well.

2.2. 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 person per household, aged 18 years or older) were sent to the home addresses, of which 630 were returned and 22 could not be delivered to the correct address. Because of ethical issues, it was not possible to obtain information on possible differences between the 630 people who filled out the questionnaire and the 1377 who did not. People who filled out the questionnaire were guaranteed anonymity.

2.3. Measurements

2.3.1. Cognitive emotion regulation

The Cognitive Emotion Regulation Questionnaire (CERQ) (Garnefski et al., 2001) was used to assess what participants tend to think after the experiences of threatening or stressful life events. The instrument includes nine conceptually distinct scales. These scales all consist of four items referring to what people think after the experience of threatening or stressful life events, ranging from 1 [(almost) never] to 5 [(almost) always]. A subscale score can be obtained by adding up the four items, the minimal score is 4 and the maximum score 20. The higher the subscale score, the more the specific cognitive strategy is used. The following cognitive emotion regulation strategies were measured: *Self-blame*, referring to thoughts of putting the blame of what you have experienced on yourself; *Other-blame*, referring to thoughts of putting the blame of what you have experienced on the environment or another person; *Acceptance*, referring to thoughts of accepting what you have experienced and resigning yourself to what has happened; *Refocus on planning*, referring to thinking about what steps to take and how to handle the negative event; *Refocus positive*, referring to thinking about joyful and pleasant issues instead of thinking about the actual event; *Rumination or focus on thought*, referring to thinking about the feelings and thoughts associated with the negative event; *Positive reappraisal*, referring to thoughts of creating a positive meaning to the event in terms of personal growth; *Putting into perspective*, referring to thoughts of brushing aside the seriousness of the event/emphasizing the relativity when comparing it to other events and *Catastrophizing*, referring to thoughts of explicitly emphasizing the terror of what you have experienced.

In a recent study the reliabilities of the scales of the CERQ were reported. The lowest alpha reliability was 0.68 (blaming others) and the highest 0.83 (rumination). Five of the alphas were above 0.80. The test–retest correlations after a period of 5 months were found to be acceptable to

good with values ranging between 0.41 (acceptance) and 0.59 (refocus on planning) (Garnefski et al., 2001).

2.3.2. Depressive symptomatology

Depressive symptomatology was measured by a subscale of the SCL-90 (Derogatis, 1977; Dutch translation and adaptation by Arrindell & Ettema, 1986). The subscale depression includes 16 items, referring to symptoms of depression, for example low mood, inability to enjoy oneself, lowered self-esteem, loss of appetite and lack of energy. Each of the items is measured on a five-point Likert scale of distress, ranging from 1 (not at all) to 5 (very much). The minimum depression score is 16 and the maximum 64. Previous studies have reported reliability coefficients ranging from 0.82 to 0.93 for the depression subscale. It was also found that test-retest reliabilities were good and that convergent validity with other conceptually related scales was strong (Arrindell & Ettema, 1986; Derogatis, 1977). In the present sample women and men significantly differed in depression scores [$t(620) = -2.75$; $P = 0.006$]. As was to be expected, women ($M = 25.73$; $S.D. = 11.40$) reported significantly more symptoms of depression than men ($M = 23.36$; $S.D. = 9.02$).

2.3.3. Life events

A checklist was used to collect data on the experience of negative life events. The main function of including this measure was to be able to control for the influence of number of negative life events in studying the relationships between cognitive emotion regulation strategies and symptomatology. Life events that were measured were: divorce of parents and/or self; long-lasting and/or severe physical or mental illness of self and/or significant others, death of a spouse and/or significant others, attempted suicide of self and/or significant others, violence, abuse of drugs and/or alcohol within family and/or relationship, unwanted pregnancy, having been victim of crime, accident, sexual abuse and/or physical abuse (self). These events were assessed for three different periods of life: before the age of 16; between the age of 16 and 1 year ago; the last year; and in none of these periods. For the purpose of the present study only the total number of life events experienced throughout life was included as a variable. In the present sample women and men significantly differed in the number of life events they reported to have experienced throughout life [$t(1,618) = -3.50$; $P = 0.001$] with women indicating to have experienced more life events on average ($M = 4.54$; $S.D. = 3.52$) than males ($M = 3.60$; $S.D. = 2.81$).

2.4. Data-analysis

To study gender differences in the use of cognitive emotion regulation strategies, multivariate analysis of variance was performed with age, level of education and life events as covariates (MANCOVA). The covariates were included because significant differences existed between males and females with regard to these three variables (see description of *sample* and *measurements*, Section 2.3.3). *F*-tests were used to study the bivariate differences.

To study the gender differences with regard to the relationship between use of cognitive strategies and reporting of depressive symptomatology, three multiple regression analyses were performed: one for males, one for females and one for the total sample, all correcting for age, level of education and number of life events experienced.

3. Results

3.1. Differences in use of cognitive emotion regulation strategies between males and females

Means and standard deviations in Table 1 show that both in males and females *Refocus on Planning* is the most reported strategy, followed by *Positive reappraisal*, *Putting into perspective* and *Acceptance*. MANCOVA tested whether an overall multivariate difference existed in the reporting of cognitive emotion regulation strategies between males and females, after correcting for age, education level and number of life events. The results showed that there was a significant overall difference between the two samples [Wilks $\lambda = 0.94$; $F(9,566) = 3.61$; $P = 0.000$]. Univariate F-tests (also with inclusion of the covariates) showed that the strongest significant differences between males and females were found in the reporting of the cognitive emotion regulation strategies *Rumination* and *Catastrophizing* (Table 1). Both strategies were reported more often by females than by males. A smaller significant difference was found for positive refocusing. Also this strategy was reported more often by females than by males.

3.2. Differences between males and females in the relationship between use of cognitive emotion regulation strategies and reporting of depressive symptoms

First, multiple regression analysis was performed for males (Table 2). To control for the variables age, level of education and number of life events these variables were entered first in the analysis. Together these variables explained 10.4% of the variance in depression scores in males. Subsequently, the cognitive emotion regulation strategies were entered in the analysis. By adding the nine cognitive strategies, the total amount of explained variance increased to 50.2%. In males, the conclusion holds that the more they report to use *Catastrophizing*, *Rumination* and/

Table 1

Differences between males and females in reporting of cognitive emotion regulation strategies: means, standard deviations and F-tests

	Males		Females		F-test ^a	
	<i>M</i>	S.D.	<i>M</i>	S.D.	<i>F</i>	Significance
Self-blame	8.37	2.88	8.21	3.18	0.85	
Acceptance	10.38	3.73	10.84	3.57	0.91	
Rumination	9.46	3.56	10.77	3.87	9.71	**
Positive Refocusing	9.42	3.74	10.15	3.54	6.29	*
Refocus on Planning	12.71	3.86	12.85	3.90	0.28	
Positive Reappraisal	11.87	4.03	12.43	4.09	3.63	
Putting into Perspective	11.26	3.85	11.59	3.88	2.87	
Catastrophizing	5.68	2.30	6.61	3.04	7.45	**
Other-blame	6.20	2.50	6.53	2.93	0.00	

* $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$.

^a ANCOVA correcting for covariates age, education level, and life events.

Wilks' lambda (with covariates age, education level and life events) = 0.95; $F(9,566) = 3.61$; $P = 0.000$.

Table 2

Relationships between cognitive coping strategies and symptoms of depression in males and females: multiple regression analyses

Predictors	Males β	Females β	Total β
<i>Background variables</i>			
Gender	–	–	–0.03
Age	–0.08	–0.09*	–0.08
Level of education	–0.11	–0.14**	–0.13
Number of negative life events	0.12*	0.12**	0.12
<i>Cognitive strategies</i>			
Self-blame	0.13*	0.19***	0.17***
Acceptance	0.06	0.06	0.06
Rumination	0.31***	0.21***	0.26***
Positive Refocusing	0.03	–0.03	–0.00
Refocus on Planning	–0.16*	0.07	–0.02
Positive Reappraisal	–0.22**	–0.31***	–0.28***
Putting into Perspective	0.01	0.03	0.03
Catastrophizing	0.41***	0.31***	0.34***
Other-blame	0.02	0.04	0.03
Total explained variance (R^2)	50.2%	47.1%	47.6%

* $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$. Model males: $F(12,219) = 18.37$; $P = 0.000$. Model females: $F(12,333) = 24.66$; $P = 0.000$. Model total group: $F(13,564) = 39.37$; $P = 0.000$.

or *Self-blame* as cognitive strategies the more depressive symptoms they report and the more they report to use *Positive Reappraisal* and/or *Refocus on Planning* the less depressive symptoms they report.

The same analysis was repeated for females (Table 2). In this group age, level of education and number of life events together explained 11.9% of the variance. By adding the cognitive emotion regulation strategies, the total explained variance increased to 47.1%. Significant cognitive strategies were *Catastrophizing*, *Rumination*, *Self-blame* and *Positive reappraisal*. Also in females the conclusion held that more reporting of the first three strategies was related to more symptomatology, while the reporting of the latter strategy was related to less symptomatology. *Refocus on planning* did not reach the level of significance in females.

Finally, multiple regression analysis was performed for the total group (Table 2). Besides age, level of education and number of life events also gender was entered in the first step of the analysis, here. These four variables alone explained 11.9% of the variance. By adding the cognitive emotion regulation strategies, the total amount of explained variance increased to 47.6%. Again significant relationships with depressive symptoms were found for *Catastrophizing*, *Rumination*, *Positive reappraisal* and *Self-blame*, confirming the previous regression analyses that these are the cognitive emotion regulation strategies that matter to both men and women.

4. Discussion

The results of the present study show that, although differences exist in the extent to which certain cognitive strategies are used by men and women, they play an important role in the reporting of symptoms of depression in both groups. First, the strongest significant differences between men and women were found in the cognitive emotion regulation strategies *Rumination* and *Catastrophizing*: women reported to ruminate as well as to catastrophize more often than men. In general, these findings are in line with earlier empirical findings showing us that women tend to focus more on their emotional experience, acknowledge and discuss emotions more openly and ruminate more on sadness than men do (Fivush & Buckner, 2000; Nolen-Hoeksema, 1987).

Second, however, no differences were found between men and women in the extent to which specific cognitive strategies were related to the reporting of depressive symptomatology: cognitive strategies that appeared to be (mal)adaptive in females appeared to be (mal)adaptive in males too. In both groups, higher extents of reporting *Self-blame*, *Rumination* and/or *Catastrophizing* as strategies were strongly related to higher depression scores, whereas higher extents of using positive reappraisal were related to lower depression scores. It can be concluded that although men and women might differ in the extent they use certain cognitive strategies, still comparable cognitive mechanisms are at work in the depressive symptomatology of men and women.

To what extent may these results help to explain women's vulnerability to depression? First, it has been shown that women were more inclined than men to use maladaptive cognitive strategies such as *Rumination* and *Catastrophizing*. Second, it was shown that these maladaptive cognitive strategies in their turn were strongly related to the reporting of depression. Together, these findings show that women may use less adaptive cognitive emotion regulation strategies than men and, therefore, give considerable evidence for the hypothesis that the higher rates of depressive symptoms in women might be related to their less effective ways of coping.

This study was not able to identify cognitive variables that were exclusively predictive of depression in women, but not in men. This suggests, that—although it might be true that men in general may be less inclined to develop depressive symptoms—the existence of depressive symptoms in males may form an indication for the existence of—possibly long-established—‘unadaptive’ strategies of cognitive emotion regulation, just as in females. It may, therefore, be worthwhile, in both groups, to aim intervention efforts simultaneously at psychopathology and cognitive emotion regulation strategies, for example, by challenging ‘unadaptive’ strategies such as *Rumination*, *Self-blaming* and *Catastrophizing* and supplying more ‘adaptive’ strategies such as *Positive reappraisal*. On the basis of the present study no evidence was found for the functionality of distraction-like strategies, such as *Positive refocusing*, which was suggested in previous research (Nolen-Hoeksema, 1987). In general, the assumption that a patient's symptoms will be relieved if irrational beliefs or dysfunctional thoughts are changed is not a new one. In fact, one of the basic premises of cognitive therapies is that things are inappropriately viewed by people suffering from depressive symptoms and that therapy should bring about changes in those views (e.g. Beck, 1976; Ellis, 1962). New is that our approach and results give important clues for a more targeted tailoring of treatment, in both males and females.

A limitation of the design was that the detection of depressive symptoms as well as the assessment of cognitive emotion regulation strategies had to be made on the basis of self-reported

evaluations, which may have caused some bias. It is important for future studies to address research questions concerning cognitive emotion regulation by using both self-reported and other forms of data collection, such as interviews, expert judgments or experimental research.

Further, the results of the present study are based on cross-sectional data. No conclusions can be drawn regarding the development, course and changes of symptom patterns and patterns of cognitive emotion regulation in time. It is also important to acknowledge that nothing can be concluded about directions of influence. Theoretically, it would be just as likely that certain cognitive coping strategies lead to emotional problems such as depression and anxiety, as the other way around. Circular causal mechanisms may also be at work, which would make both assumptions true at the same time. Or even a third variable may account for the relation between the reporting of specific cognitive emotion regulation strategies and the reporting of symptoms of depression and/or anxiety. More prospective design studies should therefore be set up in future answering questions such as whether a temporal order can be found in the emergence of emotional and behavioral symptoms and the use of specific cognitive emotion regulation strategies.

In addition, a point of concern is the representativeness of the sample studied. The response rate was moderately low which makes it possible that selection has occurred. Of the sample 60.2% were females. Males could have been less willing to participate. Further, it is possible that people who were depressed were less inclined to fill out the questionnaire. Unfortunately, because of ethical reasons, it was not possible to obtain information on possible differences between persons who participated and persons who did not.

Despite these limitations, the results clearly show that although depressive symptoms as well as cognitive strategies such as *Rumination* and *Catastrophizing* are reported to a lesser extent by men than by women, the use of such cognitive strategies is closely related to the reporting of depression in both groups. This suggests that the use of these strategies may be just as maladaptive for males as for females. The exploratory character of the results makes replication and further research (e.g. inclusion of other factors) necessary. However, if our results can be confirmed, they carry important implications for the focus and content of intervention and prevention of mental health problems.

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