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## Brief report: Cognitive emotion regulation strategies and psychological adjustment in adolescents with a chronic disease

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### Abstract

Objective of the study was to examine how cognitive emotion regulation strategies were related to psychological maladjustment in adolescents with a chronic disease. The sample consisted of adolescents with a diagnosis of Juvenile Idiopathic Arthritis (JIA). A self-report questionnaire was used to assess Internalizing problems and Quality of Life. The specific cognitive emotion regulation strategies that were used in response to the disease were measured by the Cognitive Emotion Regulation Questionnaire (CERQ). Correlations and Multiple regression analyses showed that Rumination and Catastrophizing were the most important ‘predictors’ of psychological maladjustment in adolescents with JIA, suggesting that they should be considered as maladaptive cognitive emotion regulation strategies in response to a chronic disease such as JIA. Challenging these maladaptive cognitive emotion regulation strategies may therefore play an important role in intervention strategies.

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It has been shown that adolescents with a chronic disease have increased risks to experience internalizing symptoms, overall adjustment problems and a lower Quality of Life (Boekaerts & Röder, 1999; Lebovidge, Lavigne, Donenberg, & Miller, 2003). One of the most common chronic diseases of children and adolescents is Juvenile Idiopathic Arthritis (JIA). Adolescents with JIA often have to face a broad range of difficulties associated with their disease. These include dependency upon their families, isolation from their peers and a wide range of physical problems (e.g., muscle and joint pain, swelling and impaired function of affected limbs, eye problems, skeletal abnormalities, and infections). Having a chronic disease such as juvenile chronic arthritis can therefore be considered as an additional stressor that might compound the daily stressors that adolescents must cope with at their developmental stage of life.

Despite similar health problems, some adolescents may develop more psychological problems than others (Sandstrom & Schanberg, 2004). There is increasing evidence that (ongoing) psychological distress in response to a life stressor may be associated with the cognitive emotion regulation strategies that someone uses to deal with that stressor (e.g., Garnefski & Kraaij, 2006). Cognitive emotion regulation strategies can be defined as the conscious, mental strategies individuals use to cope with the intake of emotionally arousing information (Garnefski, Kraaij, & Spinhoven, 2001). Whereas responses to stress such as Self-blame, Rumination and Catastrophizing, generally speaking, have been shown to be related to reporting of more emotional problems, responses such as Positive Reappraisal have been shown to be related to fewer problems in adolescents (Garnefski, Boon, & Kraaij, 2003; Garnefski & Kraaij, 2006; Garnefski et al., 2001; Garnefski, Legerstee, Kraaij, van den Kommer, & Teerds, 2002; Jermann, Van der Linden, d'Acremont, & Zermatten, 2006; Martin & Dahlen, 2005). Thus far, however, there has been no study of the relationship between cognitive emotion regulation strategies and psychological adjustment in a sample of adolescents with a specific chronic disease such as JIA.

The present study will focus on the relationship between cognitive emotion regulation strategies, Internalizing problems and Quality of Life in adolescents with Juvenile Idiopathic Arthritis (JIA). By studying which cognitive emotion regulation strategies are related to adjustment problems in adolescents with JIA, important clues might be found for a more targeted tailoring of intervention (Garnefski et al., 2001).

## Method

### *Sample and procedure*

The sample consisted of 53 adolescents with a diagnosis of Juvenile Idiopathic Arthritis, ranging in age between 12 and 18 years with a mean age of 14 years and 3 months ( $SD = 1.83$ ), and 30.2% ( $N = 16$ ) being male. Participants were recruited from the outpatient pediatric JIA clinic of Leiden University Medical Center (LUMC) in the Netherlands. Before their visit to the physician informed consent was obtained. The adolescents completed the questionnaires at the hospital immediately after the adolescent visited the physician. About 90% of the adolescents who were invited to participate actually agreed to participate in the study. Completing the questionnaires took between 20 and 30 min and took place in the presence of a researcher. Confidentiality was guaranteed. Permission for the study was obtained from the Medical Ethical Committee from the LUMC.

## Measurements

### *Cognitive emotion regulation strategies*

The cognitive emotion regulation strategies that adolescents used in response to their JIA were measured by the Cognitive Emotion Regulation Questionnaire (CERQ; Garnefski, Kraaij, & Spinhoven, 2002). The CERQ is a 36-item questionnaire, consisting of the following nine conceptually different subscales, each consisting of four items measured on a 5-point Likert scale and each referring to what someone thinks after the experience of a stressful life event (here: having JIA): Self-blame, Other-blame, Acceptance, Planning, Positive Refocusing, Rumination, Positive Reappraisal, Putting into Perspective, and Catastrophizing. The following instruction was given: “You are in the hospital because of your illness. There are more adolescents who have this particular illness and every one copes with it in his or her own way. The following questions concern your thoughts about having this illness”. Research has shown that the subscales have good internal consistencies, with alphas ranging from 0.67 to 0.81 (Garnefski et al., 2001, 2002). In the present study, the subscales had good internal consistencies, with alphas ranging from 0.60 to 0.80,<sup>1</sup> except for the subscale Other-blame (0.32), which was therefore excluded from further analyses in the present study. Correlations among CERQ subscales ranged from  $-0.02$  (Acceptance and Self-blame) to 0.55 (Rumination and Catastrophizing).

### *Internalizing problems*

Internalizing problems were measured by the Depression and Anxiety subscales of the SCL-90, respectively consisting of 15 and 10 items measured on a 5-point Likert scale (Symptom Check List; Derogatis, 1977; Dutch translation and adaptation by Arrindell & Ettema, 1986). Previous studies have reported alpha-coefficients ranging from 0.82 to 0.93 for Depression and from 0.71 to 0.91 for Anxiety. In addition, both subscales have been found to show strong convergent validity with other conceptually related scales (Arrindell & Ettema, 1986). As the Depression and Anxiety subscales were highly correlated ( $r = 0.70$ ), the two scales were combined into one total score. Reliability of the total scale was 0.89.

### *Health-related Quality of Life*

The quality of daily functioning of the adolescents was measured by the DUX-25 (Conolly & Johnson, 1999; Kolsteren, Koopman, Schalekamp, & Mearin, 2001). The DUX-25 assesses the affective evaluation of physical, emotional, social and home aspects of daily life functioning of children and adolescents. The DUX-25 consists of 25 items. A total Quality of Life score was calculated by summing all items. Previous studies have shown that alpha reliability of the total scale was 0.90 and that test–retest correlations were good (Kolsteren et al., 2001). In the present study, the reliability of the total scale was 0.92. The correlation between Health-related Quality of Life and Internalizing problems was 0.46.

<sup>1</sup> Alpha reliabilities in the present study were: Self-blame (0.67), Other-blame (0.32), Acceptance (0.73), Planning (0.70), Positive Refocusing (0.80), Rumination (0.73), Positive Reappraisal (0.63), Putting into Perspective (0.71), Catastrophizing (0.68).

## Results

Means and standard deviations of the CERQ subscales are presented in Table 1 (2nd and 3rd column). To study the bivariate relationships between CERQ scales and the two outcome measures (Internalizing problems and Quality of Life), Pearson correlations were calculated. To study the multivariate relationships, Multiple Regression Analysis was performed (MRA; method stepwise), in order to control for the mutual correlations among CERQ scales. By performing MRA, the unique relationships between CERQ scales and outcomes can be studied by correcting for the influence of the other variables. The results are presented in Table 1.

The correlations presented in the fourth column of Table 1 show that the cognitive emotion regulation strategies of Rumination and Catastrophizing had the strongest correlations with the total Internalizing problem score. The MRA results presented in the fifth column of Table 1 show that – even after controlling for the influence of the other CERQ scales – the relationships of Internalizing problems with Rumination and Catastrophizing remained significant.

Pearson correlations as well as MRA results concerning the relationships between CERQ scales and total Quality of Life showed that Rumination was the most important ‘predictor’ of a lower Quality of Life (Table 1, 6th and 7th column).

## Discussion and conclusion

The present study is the first to report associations between cognitive emotion regulation strategies and psychological adjustment in a sample of adolescents with Juvenile Idiopathic Arthritis (JIA). Although the sample was small and the power to find significant results was low, some interesting relationships were found. The most remarkable finding was the relationship between the two indicators of maladjustment and Rumination. Rumination, referring to thinking all the time

Table 1  
CERQ scales: descriptives, Pearson correlations and stepwise MRA results with Internalizing problems and Quality of Life as outcomes.

	Descriptives		Internalizing problems		Quality of Life	
	<i>M</i>	<i>SD</i>	Pearson <i>r</i>	MRA $\beta$	Pearson <i>r</i>	MRA $\beta$
CERQ subscales						
Self-blame	5.14	1.65	0.22		–0.22	
Acceptance	11.48	3.41	0.26		–0.23	
Rumination	8.65	2.85	0.53***	0.35*	–0.31**	–0.30*
Positive Refocusing	13.16	3.89	0.09		0.18	
Planning	9.59	2.51	0.12		–0.08	
Positive Reappraisal	10.44	3.31	0.24		0.06	
Putting into Perspective	12.83	3.38	0.14		–0.14	
Catastrophizing	6.20	2.31	0.53***	0.33*	–0.10	
Explained variance				$R^2 = 0.36***$		$R^2 = 0.08*$

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

about the feelings and thoughts associated with having a chronic disease was not only associated with the reporting of Internalizing problems, but also with a lower health-related Quality of Life. In addition, the cognitive strategy of Catastrophizing or emphasizing the terror of having JIA was related to Internalizing problems, but not to a lower Quality of Life.

The findings suggested that strongly Ruminating and Catastrophizing in response to having JIA should be considered as maladaptive cognitive emotion regulation strategies. These findings fit in with findings in general population samples where the same strategies were related to maladjustment (Garnefski et al., 2006; Nolen-Hoeksema, Parker, & Larson, 1994; Sullivan, Bishop, & Pivik, 1995). On the basis of the present study, the conclusion can be added that a relationship between these cognitive emotion regulation strategies and Internalizing problems also holds in a specific sample of adolescents with JIA. Challenging these maladaptive cognitive emotion regulation strategies may therefore play an important role in intervention strategies to be developed for adolescents with juvenile idiopathic arthritis.

In the present study, no significant associations were found between maladjustment and cognitive emotion regulation strategies that were expected to be adaptive, such as Positive Reappraisal. It is too early to conclude that these strategies do not have to play a role in interventions. Instead, relationships between such strategies and maladjustment should be further explored to find out whether this finding can be replicated or rather reflects a power issue, caused by the small sample size.

A limitation was that no indicators of the severity of JIA symptoms were included in the study. It is advisable to include such an index of JIA symptoms in future studies, to be able to investigate whether cognitive strategies might play mediating or moderating roles in the relationship between JIA (severity) and outcomes. In addition, although clear relationships have been shown between cognitive emotion regulation strategies and psychological maladjustment, the cross-sectional character of the study does not allow drawing conclusions about causality. Still, whatever the directions of influence may be, it might be argued that Rumination and Catastrophizing could be important indicators of mental health problems in adolescents with JIA.

Generalizing the findings beyond the sample would only be possibly after replicating the study with other specific chronic disease samples and populations, while including prospective elements. If our results can be confirmed, they carry important implications for the focus and content of intervention and prevention of mental health problems, not only in youngsters with JIA, but in all adolescents experiencing a chronic disease.

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