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## Cognitive coping strategies and symptoms of depression and anxiety: a comparison between adolescents and adults

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The present study focused on comparability of adolescents and adults in the reporting of cognitive coping strategies and their relationship to symptoms of depression and anxiety. Two samples were included: 487 adolescents attending a secondary school and 630 adults from a general practitioners practice. Data were obtained on symptoms of depression and anxiety and the use of nine cognitive coping strategies: acceptance, catastrophizing, other-blame, positive reappraisal, putting into perspective, refocus on planning, positive refocusing, rumination and self-blame.

The results showed that all cognitive coping strategies were reported by adolescents to a significantly lesser extent than by adults. Further, it was shown that both in adolescents and adults a considerable percentage of the variance in symptomatology was explained by the use of cognitive coping strategies. Although adolescents and adults differed in relative strength of the relationships, generally speaking, conclusions were the same: in both groups, the cognitive coping strategies self-blame, rumination, catastrophizing and positive reappraisal were shown to play the most important role in the reporting of symptoms of psychopathology, showing the importance of introducing prevention and intervention programmes at an early stage.

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### Introduction

In all stages of life, people have to deal with a wide range of stressors and challenges to adapt to the world. Even very young children attempt to modify their environment in simple and primitive ways. As children grow older, their coping repertoire increases and shifts from primarily external, behaviourally oriented coping strategies to more internal, cognitively based ones (Aldwin, 1994). Especially, the period of adolescence forms an important stage in the development of cognitive coping skills, as this is the period in which the more advanced cognitive abilities are being mastered (Aldwin, 1994). Just like the biological changes of puberty, the cognitive transitions of adolescence have far-reaching implications for the psychological development of youngsters (Steinberg, 1999). Important features of adolescent thinking are, for example, the ability to consider things in hypothetical and abstract terms and to monitor ones' own cognitive activity during the process of thinking. These advanced forms of reflection make the adolescent able to take the perspective of other persons, to plan ahead, to see future consequences of an action and to provide alternative explanations of events. Such cognitions and thoughts are very important in their ability to manage or regulate emotions or feelings, and to keep control over emotions and/or not getting overwhelmed by them, for example during or after the experience of threatening or stressful events. Examples of cognitive coping strategies people may use in the experience of negative life events are tendencies to blame yourself for what has happened, to ruminate, to accept

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what you have experienced, to blame others, to catastrophize or to positively reappraise the situation (Garnefski *et al.*, 2001).

Although the capability of advanced thinking and regulating emotions through thoughts and cognitions is universal, large individual differences exist in the amount of cognitive activity and in the content of thoughts of adolescents by means of which they regulate their emotions in response to life experiences, events and stressors. Cross-sectional studies in “general population” adolescents have shown that, especially, cognitive emotion regulation styles such as *self-blaming*, *catastrophizing* and *rumination* play an important role in the relationship between the experience of negative life events and maladjustment (Garnefski *et al.*, 2001). This finding suggests that by using certain cognitive strategies, adolescents may be more vulnerable to developing psychopathology in response to negative life events or, the other way around, that by using other cognitive strategies, adolescents may more easily tolerate or master negative life experiences.

Existing evidence suggests that deviation in adolescence might have serious consequences for subsequent adult development and it is precisely this observation that reflects the importance of performing systematic studies on cognitive vulnerability factors in this particular period of development (Peterson and Leffert, 1995; Ingram *et al.*, 1998). Although it is definitely not true that all adolescents in difficulty become adults in difficulty—in fact recovery from emotional or behavioural problems before reaching adulthood is fairly common—the reverse often appears to be true: adult disturbance is nearly always preceded by adolescent disturbance (Merikangas and Angst, 1995; Smith, 1995). Therefore, although changes in cognitive variables may occur between adolescence and adulthood, data on adolescent cognitive factors may not only provide us with important clues on cognitive vulnerability factors for adolescents, but also for adult psychopathology (Ingram *et al.*, 1998). If it is true that the same cognitive mechanisms serving as vulnerability factors for psychopathology in adolescents also appear to serve as vulnerability factors in adults, important clues for content and point in time of intervention may be suggested.

Previous research distinguished between nine conceptually different cognitive coping strategies that people may use to regulate the emotions in response to life stress, i.e. self-blame, other-blame, rumination, catastrophizing, putting into perspective, positive refocusing, positive reappraisal, acceptance and refocus on planning (Garnefski *et al.*, 2001). Although these aspects of cognitive coping have all received attention in recent years, most of the relevant work on cognitive coping is scattered through different bodies of literature and generally has not been integrated (Gross, 1998; Eisenberg, 2000). As it may be assumed that the separate strategies rather refer to overlapping than to separate processes, there is a need for research integrating the different cognitive coping strategies into one and the same study. The present study will focus on this issue by comparing adolescents and adults regarding (a) the extent to which the nine separate cognitive coping strategies are used in response to the experience of life stress; and (b) the extent to which the use of these strategies is related to depression and anxiety symptomatology.

## Method

### *Sample*

*Adolescent general population sample.* The adolescent sample comprised 487 12–16-year-old secondary school students (mean age 13 years and 11 months), attending a state

school in The Netherlands. The sample consisted of 41.1% boys and 58.9% girls, while 21% attended lower general secondary education, 41% higher general secondary education and 38% pre-university education. The sample consisted of 6.2% pupils coming from ethnic minorities. As regards their home situations, 91.6% of the sample were living in intact families (father, mother and children), 7.3% were living in one-parent families and 1.1% were living in other "home" settings (foster parents, foster home, with others).

*Adult general population sample.* The adult sample comprised a general population sample of 630 adults ranging from 18 to 71 years old, with a mean age of 42 years. There were 39.8% males and 60.2% females and 8.7% came from an ethnic minority. In this sample, 25.6% lived alone, 64.6% lived with their family/partner, 3.7% with their parents, 7.2% scored "other" or was missing.

With regard to the highest form of education they had received, 3.7% finished primary school, 10.3% finished lower vocational education, 9.8% lower general secondary education, 15.4% intermediate vocational education, 10.6% higher general secondary education/pre-university education, 47.0% higher vocational education/university, while 3.2% scored "other" or was missing.

### *Procedure*

*Adolescent general population sample.* To obtain the adolescent sample, a letter was sent to the directors of three different state schools in The Netherlands. In this letter, schools were invited to participate in the research project. Together these schools offered a total sample of 487 students. Permission for the participation of students was obtained from the parents' council. Data were gathered by means of a written questionnaire filled out by the students in their own classroom, during regular school hours (about 25 min in total), under supervision of their own teacher and two graduate psychology students. The students were guaranteed anonymity in relation to their parents, teachers and fellow students. All children agreed to participate.

*Adult general population sample.* The adult sample was gathered by cooperating with a general practitioners practice in the Western part of the Netherlands. The population of this practice consisted of 3059 persons of 18 years and older. By randomly selecting one person per household, a total group of 2029 persons remained. These 2029 persons received an invitation to participate in the study, by mail. The questionnaire and a return envelope were included. In total, 23 questionnaires could not be delivered to the correct address. Three weeks after the first mailing a reminder was sent, to thank those who sent back the filled out questionnaire and to remind those who did not send it back yet. In total, 630 completed questionnaires were obtained.

### *Instruments*

The questionnaire consisted of measures on cognitive coping strategies, depressive symptoms and anxiety symptoms, which will be described in detail below.

*Cognitive coping strategies.* Cognitive coping strategies are measured by the Cognitive Emotion Regulation Questionnaire (CERQ) (Garnefski *et al.*, 2001). Cognitive coping strategies are defined as "the cognitive way of managing the intake of emotionally arousing information" (Thompson, 1991), involving thoughts or cognitions that help to manage or regulate our emotions. More specifically, the CERQ assesses what people think after the

experience of threatening or stressful life events. The CERQ consists of 36 items and nine conceptually different subscales. Each subscale consists of four items. Each of the items has five categories (Likert scale), ranging from “never” to “always”. A subscale score can be obtained by adding up the four items (range: from 0 to 16), indicating the extent to which a certain cognitive coping strategy is used. The nine subscales are: self-blame, other-blame, acceptance, refocus on planning, positive refocusing, rumination, positive reappraisal, putting into perspective, and catastrophizing. It has been shown that the  $\alpha$ -reliabilities of the subscales range from 0.68 to 0.83, with five of the  $\alpha$ s higher than 0.80 (Garnefski *et al.*, 2001).

*Symptoms of depression and anxiety.* Symptoms of depression and anxiety were measured by two 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 report symptoms of depression. In the adolescent sample, one of the items was dropped because of the age of the subjects (i.e. the item concerning loss of sexual interest). 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  $\alpha$ -coefficients ranging from 0.82 to 0.93 for depression and from 0.71 to 0.91 for anxiety. In addition, test–retest reliabilities are found to be good and both subscales have been found to show strong convergent validity with other conceptually related scales (Arrindell and Ettema, 1986).

## Results

Mean scores and standard deviations of the cognitive coping strategies in the adolescent and adult samples are shown in Table 1. The cognitive coping strategy that is reported most often by adolescents is “refocus on planning” ( $M = 9.70$ ) and the cognitive coping strategy that is reported least often by this group is “catastrophizing” ( $M = 5.81$ ). In the adult sample, the same result was found.

To answer the question as to what extent overall differences exist between adolescents and adults in the extent to which the nine cognitive coping strategies are reported, multivariate analyses of variance (MANOVA) were performed. The results indicated that significant overall differences exist between the adolescent and adult samples (Wilks  $\lambda = 0.756$ ;  $p < 0.001$ ). To study which of the nine cognitive coping strategies were responsible for the significant differences between adolescents and adults, univariate  $F$ -tests were performed.

Significant differences between the adolescent and adult samples were found for all nine specific cognitive coping strategies. All nine cognitive coping strategies were reported significantly more often by adults than by adolescents. The largest differences were found for the cognitive coping strategies positive reappraisal, refocus on planning, putting into perspective and rumination. Smaller differences were found in the reporting of acceptance, self-blame, positive refocusing, other-blame and catastrophizing.

To study whether differences exist between adolescents and adults in the extent to which symptoms of depression and anxiety are predicted by the separate cognitive coping strategies, in both groups multiple regression analyses have been performed with depression and anxiety as dependent variables and the nine cognitive coping strategies as independent variables.

**Table 1** Differences in reporting of cognitive coping strategies between adolescents and adults: means, standard deviations and F-tests

	Adolescents		Adults		Univariate F-tests	
	M	S.D.	M	S.D.	F (1,1206)	p
Acceptance	8.98	3.36	10.65	3.63	68.69	0.000
Catastrophizing	5.81	2.28	6.23	2.80	8.20	0.004
Other-blame	5.97	2.04	6.40	2.76	9.35	0.002
Positive reappraisal	8.57	2.98	12.20	4.07	313.63	0.000
Putting into perspective	9.25	3.37	11.45	3.86	111.49	0.000
Refocus on planning	9.70	3.43	12.79	3.88	212.29	0.000
Positive refocusing	9.21	3.39	9.86	3.63	10.27	0.001
Rumination	8.15	3.37	10.24	3.80	100.24	0.000
Self-blame	7.28	2.91	8.27	3.06	32.96	0.000

**Table 2** Relationships between cognitive coping strategies and symptoms of depression and anxiety in the adolescent and adult samples: multiple regression analyses

Cognitive coping strategies	Depressive symptoms		Anxiety symptoms	
	Adolescents $\beta$	Adults $\beta$	Adolescents $\beta$	Adults $\beta$
Acceptance	0.04	0.07*	-0.08	0.09*
Catastrophizing	0.10*	0.35***	-0.01	0.39***
Other-blame	-0.07	0.04	-0.08	0.01
Positive reappraisal	-0.13**	-0.29***	-0.05	-0.32***
Putting into perspective	0.05	0.01	0.02	0.01
Refocus on planning	-0.03	-0.06	-0.02	-0.02
Positive refocusing	-0.08	0.01	0.03	0.09*
Rumination	0.45***	0.28***	0.54***	0.18***
Self-blame	0.31***	0.17***	0.19***	0.12**
Total explained variance (R)	38.8%***	43.3%***	32.7%***	37.0%***

\* $p \leq 0.05$ ; \*\* $p \leq 0.01$ ; \*\*\* $p \leq 0.001$ .

Table 2 shows that all regression models are significant ( $p < 0.001$ ) with percentages of explained variance ranging from 32.7% for the prediction of anxiety scores in the adolescent sample to 43.3% for the prediction of depressive symptoms in the adult sample.

In the adolescent sample, the most important significant "predictors" of depressive symptoms were rumination, self-blame and to a lesser extent positive reappraisal and catastrophizing. In the adult sample, the same four strategies appeared to be significant predictors of depressive symptoms. However, in this group, catastrophizing and positive reappraisal showed stronger relationships than rumination and self-blame.

Two important "predictors" of anxiety symptoms in the adolescent sample were found: rumination and self-blame. In the adult sample, four strategies were found to be significantly related to anxiety symptoms: catastrophizing, positive reappraisal, rumination and self-blame. In addition, acceptance and positive refocusing showed significant, although weak, relationships. Comparable to the "prediction" of depressive symptoms, in adults the strongest relationships were found for catastrophizing and positive reappraisal.

As regards the directions of the relationships, the cognitive coping strategies self-blaming, rumination and catastrophizing were positively related to the reporting of symptoms of depression and anxiety. This implies 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 symptomatology.

## Discussion and conclusions

The present study focused on comparability of adolescents and adults regarding the reporting of cognitive coping strategies and their relationship to symptoms of depression and anxiety. Although previous studies have shown that separate cognitive coping strategies, such as self-blame and rumination, are related to poorer emotional well-being, conclusions about separate constructs in general tend to refer to separate research traditions (Gross, 1998). The present study adds to the existing literature by (1) including the separate cognitive coping strategies in one and the same study in order to study their joint contributions to mental health and (2) comparing the cognitive coping processes of adolescents and adults.

The results showed that, generally speaking, all nine cognitive coping strategies were reported significantly less often by adolescents than by adults. The largest difference was seen in the cognitive coping strategy "positive reappraisal", showing that adolescents less often than adults report trying to create a positive meaning to a negative life event in terms of personal growth.

Further, it was shown that both in adolescents and adults a considerable percentage of the variance in symptoms of depression and anxiety could be explained by the use of cognitive coping strategies. Although adolescents and adults differed in relative strength of the relationships, generally speaking, in both groups the cognitive coping strategies self-blame, rumination, catastrophizing and positive reappraisal were shown to play the most important role in the reporting of symptoms of psychopathology.

As regards the cognitive coping strategy of self-blaming, the results suggest that this type of strategy is strongly related to the reporting of symptoms of depression and anxiety in both adolescents and adults. As far as adults are concerned, this means a confirmation of other studies showing that an attributional style of putting the blame of what you have experienced on yourself is related to depression and other measures of ill-health (Anderson *et al.*, 1994). On the basis of the present study, the conclusion can be added that a relationship between self-blaming and symptoms of depression and anxiety is already visible in adolescents, even to a stronger extent than in adults.

The results also suggest a strong impact for a cognitive coping style of rumination, fitting in with the findings of Nolen-Hoeksema *et al.* (1994) who showed that a ruminative coping style tended to be associated with higher levels of depression in adults. The present study adds that rumination is also an important predictor of symptoms of depression and anxiety in adolescence.

Also the finding that catastrophizing is related to adult maladaptation is confirmed in the literature (for example: Sullivan *et al.*, 1995). A significant relationship between catastrophizing and symptoms of depression, although much weaker than in adults, was found in adolescents too.

Further, an important place in the findings is reserved for the cognitive coping strategy positive reappraisal or the tendency to try to attach a positive meaning to the event in terms

of personal growth. Also, earlier studies had shown that using “positive reappraisal” as a coping strategy was positively related to measures of optimism and self-esteem and negatively to anxiety (Carver, 1989). The present study also shows that the reporting of more use of positive reappraisal as a cognitive coping strategy is related to the reporting of less symptoms of psychopathology. In addition, it is shown that this relationship seems much stronger in adults than in adolescents.

The above results suggest that, although all cognitive coping strategies characterizing adults are also reported by adolescents, the extent to which these strategies are used shows an increase from adolescence to adulthood. This seems especially true for the cognitive coping strategy positive reappraisal. It might be argued that cognitive coping strategies become more refined and matured in time. Another conclusion suggested is that, generally speaking, the same cognitive mechanisms appear to be at work in the reporting of psychopathology in adolescents and adults. Although strengths of relationships vary between the two samples, the type and directions of relationships between cognitive coping styles and psychopathology are the same.

The results show that some cognitive coping styles (such as self-blame, rumination and catastrophizing) may be more maladaptive than others (such as positive reappraisal). The results also show that relationships between adaptive and maladaptive cognitive coping strategies and symptomatology already exist in adolescence. What are the possible implications of these results for prevention and intervention? One of the conclusions of a recent review study concerning the prevention of mental disorders in school-aged children was that it is best to direct preventive interventions at risk and protective factors rather than to categorical problem behaviours (Greenberg *et al.*, 2001). During the past decades, a number of risk factors have been found to place a child at increased risk for psychopathology, such as handicaps, developmental delays, emotional difficulties, family circumstances, interpersonal problems, poverty and school failure (Greenberg *et al.*, 2001). The present study clearly shows that maladaptive cognitive coping styles also form an important risk factor for psychopathology in adolescents and adults. An important target for preventive interventions may therefore be to prevent maladaptive cognitive coping strategies from turning into long-established and difficult-to-change styles by reducing non-adaptive strategies and acquiring more adaptive strategies, preferably to be introduced as early as in adolescence.

A limitation of the design was that the detection of depression and anxiety symptoms as well as the assessment of cognitive coping strategies had to be made on the basis of self-reported evaluations, which may have caused some bias. The results of this study may be an under- or overestimation of the extent to which cognitive coping strategies are applied in reality. In addition, the results are based on cross-sectional data. Because of the cross-sectional design, differences between the two samples cannot be interpreted as true developmental differences. Cohort effects may exist. In future, longitudinal design should be performed to study individual developmental changes in time. It might also be argued that the relationships observed in this study could be spurious ones, i.e. expressions of a third factor that were not measured in this study, such as genetic or personality factors or differences in the types and number of problems adolescents and adults are facing.

Further, in interpreting the findings it is important to realize that the adolescent sample comprised predominantly “normal” white secondary school students, aged between 12 and 16 years. In addition, it is important to acknowledge that there is a discrepancy in the response rates of the adolescents (response rate of 100%) and the adult general population

(response rate of 31%), which may have impacted the results. It is not known to what extent the adult sample can be considered a valid reflection of the general population, as the response rate was rather low and no information could be obtained on those who did not participate in the study. In future research, it is important to reach other groups, too, because it is reasonable to assume that, for example, in clinical samples other patterns of cognitive coping strategies will be used; a cognitive coping strategy like catastrophizing, scarcely reported in the present sample, may yield other prevalence rates in a clinical sample.

A strong point in this study has been the use of a large sample of adolescents and adults. Another important aspect is that, as far as we know, it is probably one of the first studies to focus on the extent to which the use of certain maladaptive cognitive coping strategies may form an indication of the severity of mental ill-health in both adolescents and adults.

Although, a clear relationship has been shown between cognitive coping strategies and symptoms of depression and anxiety, the present study does not allow to draw conclusions about the directions of influence. Theoretically, it is just as likely that a certain cognitive coping strategy leads to emotional problems, as the other way around. Circular causal mechanisms may also be at work, which would make both assumptions true at the same time. Still, whatever the directions of influence may be; on the basis of the present study it might be argued that the use of certain cognitive coping strategies can be an important indicator of serious disturbances, both in adolescents and adults.

The exploratory character of this study makes replication necessary, but if our results can be confirmed, they may carry important implications for the focus and content of (preventive) interventions in adolescents and adults.

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