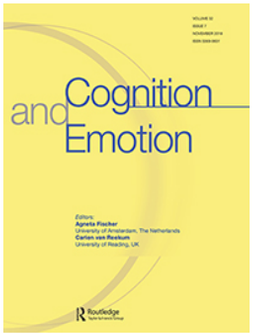

Routledge
Taylor & Francis Group

Cognition and Emotion

ISSN: 0269-9931 (Print) 1464-0600 (Online) Journal homepage: https://www.tandfonline.com/loi/pcem20

Specificity of relations between adolescents' cognitive emotion regulation strategies and symptoms of depression and anxiety

Nadia Garnefski & Vivian Kraaij

To cite this article: Nadia Garnefski & Vivian Kraaij (2018) Specificity of relations between adolescents' cognitive emotion regulation strategies and symptoms of depression and anxiety, Cognition and Emotion, 32:7, 1401-1408, DOI: 10.1080/02699931.2016.1232698

To link to this article: https://doi.org/10.1080/02699931.2016.1232698

Published online: 20 Sep 2016.

COGNITION AND EMOTION
2018, VOL. 32, NO. 7, 1401–1408
https://doi.org/10.1080/02699931.2016.1232698

Routledge
Taylor & Francis Group

Specificity of relations between adolescents' cognitive emotion regulation strategies and symptoms of depression and anxiety

Nadia Garnefski and Vivian Kraaij

Department of Clinical Psychology, University of Leiden, RB Leiden, The Netherlands

ABSTRACT

The aim of this study was to examine the extent to which cognitive emotion regulation strategies were "common or transdiagnostic correlates" of symptoms of depression and anxiety and/or "specific correlates" distinguishing one problem category from the other. The sample comprised 582 13- to 16-year-old secondary school students. Symptoms of depression and anxiety were measured by the SCL-90, and cognitive emotion regulation strategies were measured by the CERQ, in a cross-sectional design. Multivariate regression analyses were performed. Before controlling for comorbidity, the same cognitive emotion regulation strategies that were related to symptoms of depression were also related to symptoms of anxiety. However, after controlling for comorbid anxiety symptoms, rumination, self-blame (only girls), positive reappraisal, and positive refocusing (the latter two inversely) were uniquely (and significantly) associated with depression symptoms; and after controlling for comorbid depression symptoms, catastrophising and other-blame were uniquely related to anxiety symptoms. The results supported the cognitive content-specificity model, in which anxiety is supposed to be uniquely characterised by thoughts concerning the overestimation of threats and harm, and depression is supposed to be uniquely characterised by negative evaluations of self, and of past and future events.

KEYWORDS

Cognitive emotion regulation; cognitive coping; adolescents; depression; anxiety

Cognitive emotion regulation refers to the conscious, cognitive way of handling the intake of emotionally arousing information (Thompson, 1991) and reflects the cognitive part of coping (Garnefski & Kraaij, 2006, 2007; Garnefski, Kraaij, & Spinhoven, 2001) . Previous research has shown that specific cognitive emotion regulation strategies are of particular importance in the context of internalising psychopathology of children and adolescents (Garnefski et al., 2001; Garnefski, Boon, & Kraaij, 2003; Garnefski, Legerstee, Kraaij, Van den Kommer, & Teerds, 2002; Garnefski, Rieffe, Jellesma, Meerum Terwogt, & Kraaij, 2007; Kraaij et al., 2003). Obviously, cognitive emotion regulation strategies are 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. Although the capability of advanced thinking and regulating emotions through thoughts and cognitions is universal, large individual differences exist among adolescents in the amount of cognitive activity and in the content of thoughts by means of which they regulate their emotions in response to life experiences, events, and stressors. Previous research distinguished between nine conceptually different cognitive emotion regulation strategies that adolescents may use to regulate their emotions in response to life stress, that is, self-blame, other-blame, rumination, catastrophising, putting into perspective, positive refocusing, positive reappraisal, acceptance, and planning (Garnefski et al., 2001; Garnefski, Kraaij, & Spinhoven, 2002). More specifically, *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

CONTACT Nadia Garnefski Garnefski@fsw.leidenuniv.nl

experienced on the environment or another person. *Rumination* refers to repetitively focusing on the negative thoughts and emotions associated with experiences. *Catastrophising* refers to thoughts of explicitly emphasising the terror of experiences. *Putting into perspective* refers to thoughts of brushing aside the seriousness of the event/emphasising 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 (Garnefski et al., 2001, 2002).

The relationships between the above-mentioned cognitive strategies and symptoms of depression in adolescents have been studied extensively. Generally speaking, it has been repeatedly shown that especially the strategies of *self-blaming*, *catastrophising*, and *rumination*, and *(inversely) positive refocusing and positive reappraisal* show strong, significant relationships with symptoms of depression in adolescents (Garnefski et al., 2001, 2002, 2003; Garnefski & Kraaij, 2006; Kraaij & Garnefski, 2012, 2015). Although some significant differences have been found between men and women in the reporting of the strategies rumination, catastrophising, and positive refocusing (women report to use these strategies more often than men), no differences have been found in the extent to which the specific cognitive strategies were related to the reporting of depressive symptomatology (Garnefski, Teerds, Kraaij, Legerstee, & van den Kommer, 2004).

There are fewer studies that have focused on the relationships between cognitive emotion regulation and symptoms of anxiety in adolescents. The studies that were performed, however, showed that there was a large overlap in correlates, that is, the same cognitive strategies that were related with symptoms of depression were also found to be associated with symptoms of anxiety (Garnefski et al., 2001; Garnefski, Kraaij, et al., 2002; Legerstee, Garnefski, Verhulst, & Utens, 2011). However, in these studies the high shared variance of depression and anxiety was not taken into account. There is only some preliminary evidence that rumination might show unique and specific relations to symptoms of depression, after partialling out symptoms of anxiety. For example, Epkins, Gardner, and Scanlon (2013) investigated a sample of 125 preadolescent girls who were between 9 and 12 years old and found that, without controlling for the comorbidity, rumination was related to both symptoms of depression and anxiety, and after controlling, rumination only showed unique and specific relations with depression symptoms and not with anxiety symptoms. In addition, Verstraeten, Bijttebier, Vasey, and Raes (2011) showed in a sample of 138 children (aged 9–13) that brooding (rumination) was uniquely related to depression, and worrying (threat related) was uniquely related to anxiety, after controlling for negative affect. However, the evidence is far from conclusive yet. Therefore, the present study will focus on the question whether specific cognitive emotion regulation strategies reflect specific or common/transdiagnostic correlates of symptoms of depression and anxiety in adolescent boys and girls.

Both anxiety and depression are common in adolescents, and the high co-occurrence of the two problem categories has been widely acknowledged (Brady & Kendall, 1992; Cummings, Caporino, & Kendall, 2014). This has resulted in many studies that focus on the question to what extent the two problem categories can be differentiated and/or reflect manifestations of one general emotional distress factor in adolescents. With regard to cognitive factors, the cognitive content-specificity model (based on Beck's cognitive theory) has suggested that each neurotic problem category can be discriminated on the basis of unique cognitive content specific to that disorder (Beck et al., 1987). According to this model, anxiety is supposed to be characterised by thoughts concerning the overestimation of threats and harm, whereas depression is supposed to be characterised by negative evaluations of self, past, and future events. In most empirical studies that tested the model of Beck, problem-specific cognitions were confirmed (Beck & Perkins, 2001; Brown et al., 2014). However, in addition, most studies also observed that significant amounts of the variance of the cognitive content were shared by depression and anxiety (Beck & Perkins, 2001; Brown et al., 2014). Further identification of shared and nonshared cognitive correlates of depression and anxiety will help to more precisely specify the boundaries of the problem categories as well as to improve the understanding of differential aetiology or outcome. The latter might have important implications for preventive and curative interventions.

The present study will focus on the specificity of relations between cognitive emotion regulation

strategies and symptoms of depression and anxiety in adolescent boys and girls. More specifically, it will be studied to what extent such strategies are "common or transdiagnostic" correlates of symptoms of depression and anxiety and/or "specific" correlates distinguishing one problem category from the other. If it is found, that by using certain cognitive strategies, adolescents may be more or less vulnerable to developing symptoms of depression or anxiety, or both types of problem, important targets for intervention may be suggested. With regard to these issues, it is important to take gender differences into account. Although symptoms of depression and anxiety are common in both boys and girls, girls have generally been found to report more symptoms of depression and anxiety than boys (Offer & Schonert-Reichl, 1992). In addition, as mentioned before, some cognitive strategies had been found to be reported more often by women than by men (Garnefski et al., 2004).

To study the research questions, the relationships between the nine cognitive strategies and symptoms of depression were investigated, by controlling for symptoms of anxiety. Comparably, the relationships between cognitive strategies and anxiety symptoms were tested, by controlling for symptoms of depression. In addition, interactions between gender and cognitive strategies were tested. Based on the cognitive content-specificity hypothesis, it was expected that the cognitive strategies of self-blame and rumination would be the most important correlates of symptoms of depression, and the cognitive strategy of catastrophising would be the most important correlates of symptoms of anxiety. Inverse relationships were expected with regard to the relationships between positive reappraisal and positive refocusing, and symptoms of depression and anxiety. No specific hypotheses could be formulated with regard to the specificity of these relations after partialling out the other variables. On the basis of previous studies, no specific interactions with gender were expected.

Methods

The authors declare that they fully disclose details of their data collection and data analysis.

Sample

The sample is a non-clinical, general population sample, consisting of 582 secondary school students aged between 13 and 16 years of age ($M = 14.24$; $SD = 0.84$), of in total six schools for intermediate secondary vocational education. The sample included 51.7% boys.

Procedure

Before the start of the study, 69 schools had been invited to participate. All schools were contacts of the Amsterdam University of Applied Sciences (Hogeschool van Amsterdam, HvA), because they provided internships to students on regular basis. The schools received an invitation mail from the HvA's internship coordinator with information regarding study purpose and procedures. In total, 6 schools with 27 classes agreed to participate. No information is available about the non-participation of the remaining schools. Online self-report questionnaires were filled in by the adolescents during school hours in their classroom, under supervision of their teacher and a Master student in Psychology. Informed consent was obtained from all participants, and all participants were guaranteed anonymity. When participants were younger than 16 years, parental approval for participation was requested, according to Dutch law. Information about the number of non-participants and reasons of refusal was unavailable for ethical reasons. The ethical committee of the University had granted approval.

Instruments

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 & Ettema, 1986). The depression subscale consisted of 15 items (item concerning loss of sexual interest was dropped, because of the age of the subjects), assessing whether and to what extent the participants reported symptoms of depression during the past two weeks; the anxiety subscale consisted of 10 items, assessing whether and to what extent participants reported symptoms of anxiety during the past two weeks. Answer categories of the items ranged from 1 (not at all) to 5 (very much). Scale scores were obtained by summing the items belonging to the scale (with possible range from 15 to 75 for depression and from 10 to 50 for anxiety). Previous studies reported alpha-coefficients ranging from .82 to .93 for depression and from .71 to .91 for anxiety. In addition, test–retest reliabilities were reported to be

good and both subscales were found to show strong convergent validity with other conceptually related scales (Arrindell & Ettema, 1986).

Cognitive emotion regulation

Cognitive emotion regulation strategies that participants used in response to the experience of threatening or stressful life events were measured by the Cognitive Emotion Regulation Questionnaire (CERQ; Garnefski et al., 2001, 2002). The CERQ is a 36-item questionnaire, consisting of the following 9 conceptually distinct subscales: self-blame, other-blame, rumination, catastrophising, putting into perspective, positive refocusing, positive reappraisal, acceptance, and planning. Each scale consists of four items and each refers to what someone thinks after the experience of threatening or stressful life events. 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 up the scores belonging to the particular subscale (ranging from 4 to 20). Previous research on cognitive emotion regulation strategies showed that all subscales (.68 to.86) have good internal consistencies and validity (Garnefski et al., 2001, 2002).

Statistical analysis

Means, standard deviations, range of scores, alpha reliabilities, and Pearson correlations were given for all study variables. Correlations were calculated between specific cognitive emotion regulation strategies and symptoms of depression and anxiety. Two hierarchical multiple regression analyses (MRAs) were performed with depression as the dependent variable, with and without controlling for symptoms of anxiety (method = enter). Gender and the nine cognitive emotion regulation strategies were the independent variables. Because gender was a control variable, it was entered in a first step. If applicable, depression or anxiety was entered in the second step. In addition, interactions between gender and the nine strategies were calculated (after the variables were centred) and included in the MRA. Likewise, two MRAs were performed with regard to anxiety as dependent variable, with and without controlling for depression (method = enter).

Results

Table 1 presents the means, standard deviations, ranges, and alpha reliabilities of the study variables. Reliabilities were moderate to high for all variables. Significant differences between boys and girls were observed for depression and anxiety, as well as for self-blame, acceptance, rumination, positive refocusing, putting into perspective, and catastrophising. With regard to all these variables, girls scored significantly higher than boys (i.e. more depressed and more anxious, higher use of the strategies).

Table 2 presents the Pearson correlations between all study variables and shows that the highest (significant) bivariate Pearson correlations (without controlling for other variables) between CERQ subscales, and symptoms of depression were rumination, catastrophising, self-blame, acceptance, other-blame, and planning (in order of strength of relationships). The highest bivariate Pearson correlations with anxiety were found for the same variables, almost in the same order of strength.

Table 3 presents the results of the final steps of the two hierarchical MRAs with regard to depression. The first column shows the MRA for depression, without controlling for anxiety. Significant direct positive effects were found for rumination, catastrophising, and blaming others. Significant direct inverse effects were found for planning and positive reappraisal. On top of that, a significant interaction effect was found for gender × self-blame. To be able to interpret the interaction effect, the MRAs were repeated for boys and girls, separately (no table). These analyses showed that the interaction effect was due to the fact that the significant effect of self-blame only held true for girls ($\beta = .31$; $p < .001$) and not for boys ($\beta = .05$; *ns*). After controlling for anxiety, in the second column of Table 3, a direct positive effect remained for rumination. Significant, inverse, but low, effects were found for positive refocusing and positive reappraisal. Even after entering anxiety, the significant interaction effect between gender and self-blame remained (Girls: $\beta = .14$; $p < .001$; Boys: $\beta = .01$; *ns*).

Table 4 presents the results of the final steps of two hierarchical MRAs with regard to anxiety. The first column shows the MRA for anxiety, without controlling for depression. The same significant direct positive and negative effects were found as were found for depression (without controlling for anxiety): rumination, catastrophising, blaming others, planning, and positive reappraisal. On top of that, a significant direct, positive effect was found for self-blame. No significant interaction effects were found.

Table 1. Means, standard deviation, ranges, and reliabilities of the study variables.

Study variables	Mean (*SD*) Total group	Mean (*SD*) Boys	Mean (*SD*) Girls	Observed range	Alpha reliability
Symptoms of depression[a]	22.76 (10.45)	20.51 (8.89	25.17 (11.43)***	15–75	.94
Symptoms of anxiety[a]	13.67 (5.61)	12.73 (4.78)	14.68 (6.28)***	10–50	.90
Self-blame	7.51 (3.02)	6.92 (2.80)	8.14 (3.12)***	4–19	.74
Acceptance	8.73 (3.39)	8.22 (3.44)	9.27 (3.25)***	4–20	.72
Rumination	7.89 (3.52)	7.11 (3.18)	8.71 (3.69)***	4–20	.82
Positive refocusing	9.83 (4.10)	9.31 (4.05)	10.37 (4.08)**	4–20	.80
Refocus on planning	9.68 (3.78)	9.49 (3.98)	9.87 (3.54)	4–20	.82
Positive reappraisal	9.23 (3.57)	9.08 (3.73)	9.39 (3.40)	4–20	.72
Putting into perspective	9.72 (3.90)	9.13 (3.89)	10.34 (3.81)***	4–20	.77
Catastrophising	6.33 (2.88)	5.98 (2.58)	6.69 (3.14)**	4–20	.74
Blaming others	6.28 (2.47)	6.27 (2.69)	6.29 (2.22)	4–20	.71

[a]The means for symptoms of depression and anxiety corresponded to the means of the Dutch adolescent general population sample as reported in Arrindell and Ettema (1986) which were 22.4 and 13.5 for symptoms of depression and anxiety, respectively.
**$p < .01$.
***$p < .001$.

After controlling for depression (second column of Table 4), only direct, positive effects remained for catastrophising and blaming others.

Discussion

The findings of the present study support the conclusion that symptoms of depression and anxiety in adolescents refer to two distinct categories of adolescent dysfunctioning. Although the bivariate correlations of cognitive emotion regulation strategies with symptoms of depression and anxiety might suggest otherwise (the same bivariate correlates were observed), after partialling out comorbidity, symptoms of depression were related to other cognitive strategies than symptoms of anxiety. More specifically, rumination, self-blame, positive reappraisal, and positive refocusing (the latter two inversely) turned out to be the cognitive strategies that were uniquely (and significantly) associated with symptoms of depression, and catastrophising and other-blame were the cognitive strategies that were uniquely related to symptoms of anxiety. With regard to self-blame, however, an interaction effect with gender was found: the unique relationship of self-blame with depression was only true for girls and not for boys.

The results gave some confirmation for the cognitive content-specificity model (Beck et al., 1987), in which anxiety is supposed to be uniquely characterised by thoughts concerning the overestimation of threats and harm, and depression is supposed to be uniquely characterised by negative evaluations of self, and of past and future events. On basis of this model, it had been expected that the cognitive strategies of self-blame and rumination would be the most important correlates of symptoms of depression, which was confirmed, except for the fact that the effect for self-blame was only true for girls and not for boys. The finding with regard to rumination also confirmed previous research that had already demonstrated that this strategy showed unique and specific relations to depression, after partialling out anxiety (Epkins et al., 2013; Verstraeten et al., 2011). It had also been expected that the cognitive strategy of catastrophising would be the most important correlate of symptoms of anxiety, which was also confirmed. This was in line with the research of Verstraeten et al. (2011) who also showed that threat-related worrying was uniquely related to anxiety. In addition, it had been expected that positive reappraisal and positive refocusing would be inversely related to both symptoms of depression and anxiety. This was not confirmed for symptoms of anxiety. Although significant, unique coefficients confirmed the relationships with regard to depression, it should be noted that the effects were low.

Because the results of the present study are based on cross-sectional data, no conclusions can be drawn about causal pathways or directions of influence. Theoretically, it is just as likely that certain cognitive emotion regulation strategies lead to anxiety or depression (symptoms), as the other way around. Circular causal mechanisms may also be at work, which would make both assumptions true at the same time. Prospective elements should be included in future studies to help untangle the dynamic aspects of the relationships among these variables. Still, whatever the directions of influence may be: it is clearly shown that certain cognitive emotion regulation

Table 2. Pearson correlations study variables.

	1	2	3	4	5	6	7	8	9	10	11
1. Depression	–										
2. Anxiety	.87***	–									
3. Self-blame	.52***	.45***	–								
4. Acceptance	.37***	.31***	.64***	–							
5. Rumination	.63***	.55***	.68***	.62***	–						
6. Positive refocusing	−.03	−.01	.24***	.45***	.21***	–					
7. Refocus on planning	.17***	.14*	.51***	.58***	.52***	.54***	–				
8. Positive reappraisal	.05	.04	.41***	.56***	.36***	.60***	.70***	–			
9. Putting into perspective	.06	.04	.38***	.53***	.28***	.57***	.56***	.67***	–		
10. Catastrophising	.54***	.52***	.53***	.49***	.63***	.18***	.35***	.30***	.23***	–	
11. Blaming others	.32***	.33***	.36***	.38***	.47***	.26***	.46***	.35***	.31***	.50***	

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

strategies and symptoms of depression and anxiety in adolescents are *related* issues. The relationships between the use of self-blame (for girls) and rumination and the reporting of symptoms of depression suggest that the existence of the latter symptoms might form an indication for the existence of – possibly long-established – "maladaptive" strategies of cognitive emotion regulation. The same applies to catastrophising and other-blame and symptoms of anxiety. The inverse relationships between positive reappraisal and positive refocusing and the reporting of depressive symptoms might suggest that these strategies could be "more adaptive" and might be able to protect youngsters for the development of depressive symptoms. However, because the effects of the latter two strategies were rather low, interpretations should be treated with caution.

The results implicate that cognitive emotion regulation strategies should play an important role in theoretical models and that it may be worthwhile to aim intervention efforts at adolescent's cognitive emotion regulation strategies. The assumption that a patient's symptoms will be relieved if irrational beliefs or dysfunctional thoughts are changed is not a new one. For example, one of the basic premises of cognitive therapies is that things are

Table 3. MRA on symptoms of depression, with and without controlling for symptoms of anxiety.

	Depression		Depression – controlled for anxiety	
	ß	*t*	*ß*	*t*
Symptoms of anxiety	–	–	.71	29.22***
Gender	−.13	1.52	−.06	−1.23
Cognitive strategies				
Self-blame	−.06	−0.55	−.06	−0.86
Acceptance	.04	0.82	.03	1.77
Rumination	.41	8.36***	.18	5.49***
Positive refocusing	−.07	−1.80	−.05	−2.15*
Refocus on planning	−.11	−2.29*	−.01	−0.44
Positive reappraisal	−.15	−3.05**	−.06	−1.98*
Putting into perspective	−.02	−0.46	.02	0.54
Catastrophising	.21	5.08***	.03	1.27
Blaming others	.07	1.97*	−.01	−0.28
Significant interactions with gender				
Gender × Self-blame	.37	2.72**	0.19	2.23*
Model	$F(11, 565) = 53.94$; $p < .001$;		$F(12, 564) = 195.17$; $p < .001$;	
Explained variance (R^2)	$R^2 = .51$		$R^2 = .81$	

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

Table 4. MRA on symptoms of anxiety, with and without controlling for symptoms of depression.

	Anxiety		Anxiety – controlled for depression	
	ß	*t*	*ß*	*t*
Symptoms of depression	–	–	.85	29.35
Gender	.05	1.56	−.02	−0.71
Cognitive strategies				
Self-blame	.18	3.63***	.00	0.16
Acceptance	.01	0.21	−.02	−0.72
Rumination	.34	6.24***	−.02	−.49
Positive refocusing	−.03	0.61	.04	1.30
Refocus on planning	−.14	2.66**	−.04	−1.26
Positive reappraisal	−.13	−2.42*	.00	0.12
Putting into perspective	−.05	−1.07	−.03	−1.05
Catastrophising	.24	5.44***	.11	2.52*
Blaming others	.11	2.69**	.07	2.00*
Significant interactions with gender				
None	–	–	–	–
Model	$F(10, 566) = 39.63$; $p < .001$;		$F(11, 565) = 169.07$; $p < .001$;	
Explained variance (R^2)	$R^2 = .41$		$R^2 = .77$	

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

inappropriately viewed by people suffering from depressive symptoms and that therapy should bring about changes in those views (see for example Beck, 1976; Ellis, 1962). New is that our approach and results might give some clues for a more targeted tailoring of treatment. In case of depressive symptoms, it might be suggested that "maladaptive" strategies such as rumination and self-blame should be challenged (the latter strategy specifically for girls), while the more "adaptive" strategies as positive reappraisal and positive refocusing, should be taught, at the same time. In case of symptoms of anxiety, the "maladaptive" strategies of catastrophising and blaming others should be challenged.

A limitation of the design was that the detection of symptoms of depression and anxiety as well as the assessment of cognitive emotion regulation strategies was made on basis of self-reported evaluations, which may have caused some bias. The results of this study may therefore be an under- or overestimation of the extent to which cognitive emotion regulation strategies are applied in reality. It is important for future studies to address research questions concerning relationships between cognitive emotion regulation and symptoms of depression and anxiety by other forms of data collection as well, such as interviews, expert judgments or experimental research.

It should also be noted that the present sample has been a general population sample, and that relations among variables may be different in adolescents with more severe disorders. In future, comparison studies should be performed focusing on questions such as whether relationships and conclusions of the present study are also valid in adolescents from (specific) clinical populations.

In addition, it is important to note that anxiety symptoms and depression symptoms were highly correlated. Although this is in line with other studies (e.g. Cummings et al., 2014) and we statistically controlled for this correlation, it is still important to note that high amounts of variance were shared by symptoms of depression and anxiety. In addition, also cognitive emotion regulation strategies were (moderately) interrelated. Therefore, in practice most people reporting symptoms of depression will also report comorbid symptoms of anxiety and vice versa. Likewise, in practice mixtures of maladaptive cognitive regulation strategies will be observed rather than clearly defined depression-related or anxiety-related cognitive content. It might therefore be interesting to focus future research on differences in cognitive emotion regulation content between more clearly defined subgroups of people, for example people who have pure symptoms of depression or anxiety versus the combination of the two. In this context, it could also be interesting to investigate whether such subgroups could be distinguished on the basis of specific combinations of cognitive emotion regulation strategies (profiles) instead of specific strategies.

Concluding, the results provide some evidence for the theories claiming that theoretical models designed for the prediction of depression might not simply be used for the prediction of anxiety. This also could mean that adolescents with primary depression would require different (cognitive) intervention approaches than adolescents with primary anxiety. However, the high co-occurrence of depression and anxiety also makes that we have to be careful in drawing conclusions. The exploratory character of these results makes replication, thorough testing and further research (e.g. other samples, other methods) necessary. However, if these results can be confirmed, they might carry important implications for the focus and content of intervention for depression and anxiety in adolescents.

Disclosure statement

No potential conflict of interest was reported by the authors.

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: Swets & Zeitlinger.

Beck, A. T., Brown, G., Steer, R. A., Eidelson, J. I., & Riskind, J. H. (1987). Differentiating anxiety and depression: A test of the cognitive content –specificity hypothesis. *Journal of Abnormal Psychology*, *96*, 179–183.

Beck, A. T. (1976). *Cognitive therapy and the emotional disorders*. New York, NY: International Universities Press.

Beck, R., & Perkins, T. S. (2001). Cognitive content-specificity for anxiety and depression: A meta-analysis. *Cognitive Therapy and Research*, *25*, 651–663.

Brady, E. U., & Kendall, P. C. (1992). Comorbidity of anxiety and depression in children and adolescents. *Psychological Bulletin*, *111*, 244–255.

Brown, H. M., Waszczuk, M. A., Zavos, H. M. S., Trazaskowski, M., Gregory, A. M., & Eley, T. C. (2014). Cognitive content specificity in anxiety and depressive disorder symptoms: A twin study of cross-sectional associations with anxiety sensitivity dimensions across development. *Psychological Medicine*, *44*, 3469–3480.

Cummings, C. M., Caporino, N. E., & Kendall, P. C. (2014). Comorbidity of anxiety and depression in children and

adolescents: 20 years after. *Psychological Bulletin*, *140*, 816–845.

Derogatis, L. R. (1977). *SCL-90: Administration, scoring and procedures manual-I for the r(evised) version*. Baltimore, MD: John Hopkins University School of Medicine, Clinical Psychometrics Research Unit.

Ellis, A. (1962). *Reason and Emotion in psychotherapy*. New York, NY: Lyle Stuart.

Epkins, C. C., Gardner, C., & Scanlon, N. (2013). Rumination and anxiety sensitivity in preadolescent girls: Independent, combined, and specific associations with depressive and anxiety symptoms. *Journal of Psychopathology and Behavioral Assessment*, *35*, 540–551.

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., & 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. (2007). The cognitive emotion regulation questionnaire: Psychometric features and prospective relationships with depression and anxiety in adults. *European Journal of Psychological Assessment*, *23*, 141–149.

Garnefski, N., Kraaij, V., & Spinhoven, P. (2002). *CERQ: Manual for the use of the Cognitive Emotion Regulation Questionnaire*. Leiderdorp: DATEC.

Garnefski, N., Kraaij, V., & Spinhoven, P. H. (2001). Negative life events, cognitive emotion regulation and emotional problems. *Personality and Individual Differences*, *30*, 1311–1327.

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., Rieffe, C., Jellesma, F., Meerum Terwogt, M., & Kraaij, V. (2007). Cognitive emotion regulation strategies and emotional problems in early adolescents: The development of an instrument. *European Child & Adolescent Psychiatry*, *16*, 1–9.

Garnefski, N., Teerds, J., Kraaij, V., Legerstee, J., & van den Kommer, T. (2004). Cognitive emotion regulation strategies and depressive symptoms: Differences between males and females. *Personality and Individual Differences*, *36*, 267–276.

Kraaij, V., & Garnefski, N. (2012). Coping and depressive symptoms in adolescents with a chronic medical condition: A search for intervention targets. *Journal of Adolescence*, *35*, 1593–1600.

Kraaij, V., & Garnefski, N. (2015). Cognitive, behavioral and goal adjustment coping and depressive symptoms in young people with diabetes: A search for intervention targets for coping skills training. *Journal of Clinical Psychology in Medical Setting*, *22*, 45–53.

Kraaij, V., Garnefski, N., Wilde, E. J. de Dijkstra, A., Gebhardt, W., Maes, S., & Doest, L. (2003). Negative life events and depressive symptoms in late adolescence: Bonding and cognitive coping as vulnerability factors? *Journal of Youth and Adolescence*, *32*(3), 185–193.

Legerstee, J. S., Garnefski, N., Verhulst, F. C., & Utens, E. M. W. J. (2011). Cognitive coping in anxiety-disordered adolescents. *Journal of Adolescence*, *34*, 319–326.

Offer, D., & Schonert-Reichl, K. A. (1992). Debunking the myths of adolescence: Findings from recent research. *Journal of the American Academy of Child and Adolescent Psychiatry*, *31*, 1003–1014.

Thompson, R. A. (1991). Emotional regulation and emotional development. *Educational Psychology Review*, *3*, 269–307.

Verstraeten, K., Bijttebier, P., Vasey, M. W., & Raes, F. (2011). Specificity of worry and rumination in the development of anxiety and depressive symptoms in children. *British Journal of Clinical Psychology*, *50*, 364–378.