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Depression and Social Anxiety in Children: Differential Links with Coping Strategies

Mark Wright · Robin Banerjee · Willemijn Hoek ·
Carolien Rieffe · Sheida Novin

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Abstract Strategies that children use for coping with stressors are known to be related to emotional adjustment, but not enough is understood about specific links with social anxiety and depression. The present investigation tested differentiated associations of social anxiety and depression with specific types of coping strategies, and evaluated the direction of these associations over time. In **Study 1**, 404 children aged 8–13 years completed a coping scale modified from Kochenderfer-Ladd and Skinner (*Developmental Psychology* 38:267–278, 2002) in order to evaluate factor structure and subscale internal consistency. In **Study 2**, 270 8–11-year-old children completed depression and social anxiety scales, a sociometric survey, and the coping scale

from **Study 1**, with a follow-up timepoint 9 months later. In **Study 1**, factor analysis revealed six internally consistent coping subscales. In **Study 2**, social anxiety and depression were found to have distinctive longitudinal associations with subsequent coping strategies. Decreased problem-solving, social support-seeking, and distraction were uniquely predicted by depression but not by social anxiety. Internalising coping was a stronger outcome of social anxiety, and increased externalising was uniquely predicted by depression. There was also some evidence for a moderating role of peer relations. However, none of the coping strategies predicted changes in depression or social anxiety over the two timepoints. These results highlight the impact that emotional adjustment may have on children's coping strategies, and clarify important distinctions between social anxiety and depression in relation to coping.

M. Wright (✉) · R. Banerjee
Department of Psychology,
University of Sussex,
Falmer,
Brighton BN1 9QH, UK
e-mail: mlw23@sussex.ac.uk

R. Banerjee
e-mail: r.banerjee@sussex.ac.uk

W. Hoek
Department of Clinical Psychology, Vrije Universiteit,
De Boelelaan 1105,
1081 HV Amsterdam, The Netherlands
e-mail: willemijn.hoek@googlemail.com

C. Rieffe · S. Novin
Faculty of Social and Behavioural Sciences, Leiden University,
Institute of Psychology (2nd floor),
Wassenaarseweg 52,
2333 AK Leiden, The Netherlands

C. Rieffe
e-mail: CRRieffe@FSW.leidenuniv.nl

S. Novin
e-mail: Snovin@FSW.leidenuniv.nl

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Research has shown that social anxiety and depression regularly co-occur (Ingram et al. 2001). For instance, of people with a lifetime diagnosis of social phobia, 37.2% also had a lifetime diagnosis of major depression (Kessler et al. 1994). There is also substantial co-morbidity between depression and social anxiety in childhood, with a review by King et al. (1991) finding correlations based on self-reports ranging from 0.40 to 0.70 in clinical and non-clinical samples. Nonetheless, there is also clear evidence of differentiation between social anxiety and depression with respect to various behavioural, emotional and cognitive characteristics (Brady and Kendall 1992; Ogul and Gencoz 2003; Hong 2007).

In an attempt to understand these similarities and differences, the tripartite model of anxiety and depression

(Clark and Watson 1991) proposes that there is a common core of high negative affect (e.g., feeling upset) in both disorders, but also that positive affect (e.g., enthusiasm) is low especially in depression, whereas physiological hyperarousal (e.g., nervousness) is high especially in anxiety. This model has also been used as a framework for understanding these conditions in children (e.g., Crook et al. 1998; Laurent and Ettelson 2001), and though there has been criticism of the different components in the model (Anderson and Hope 2008), it still serves as a useful basis for exploring underlying commonalities and differences in anxiety and depression. An understanding of these patterns is especially important when treating these disorders. Although recommended treatments for social anxiety and depression commonly have a focus on coping strategies (Lewisohn et al. 1994; Spence et al. 2002), differentiated coping profiles would suggest that it may be more effective to target each disorder in distinct and specific ways. This would of course be important when only one of the disorders is present, but even where there is high comorbidity (see Chavira et al. 2004), targeting the different coping strategies associated with social anxiety and depression may be crucial for successful clinical outcomes.

Thus, recent theoretical and empirical work, as well as the need to recognise more effective treatments, has challenged us to investigate the convergences and divergences between the two disorders (see Anderson and Hope 2008; Zahn-Waxler et al. 2000). We propose that studies of children's strategies for coping with stressors—a core aspect of socio-emotional development—can provide valuable insight into key areas of distinction between social anxiety and depression.

The Relationship Between Coping Strategies and Depression and Social Anxiety

Many theoretical models of coping exist (e.g., Lazarus and Folkman 1984; Roth and Cohen 1986), often with a basic distinction between actively coping with a stressor, and avoiding it and/or coping with the emotions it elicits. Causey and Dubow (1992), and more recently Kochenderfer-Ladd and Skinner (2002), operationalised coping in terms of two specific types of approach strategies (problem-solving and seeking social support) and three types of avoidance strategies (distancing, internalising and externalising), measured in a self-report questionnaire. Reviews of the literature have shown that these dimensions of coping may be linked to features of emotional maladjustment including internalising symptoms (e.g., Compas et al. 2001; Fields and Prinz 1997).

Importantly, there are good theoretical reasons for suggesting that depression and social anxiety act as both

temporal antecedents and consequences of the different coping strategies listed above. First, depression and social anxiety are likely to promote or inhibit particular ways of coping with stressors over time. Major cognitive models of both depression and anxiety hold that these conditions involve distinctive forms of social information-processing (see recent reviews by Banerjee 2008; Kyte and Goodyer 2008) which influence the way children encode, interpret, and then respond to ambiguous and negative events. Thus, it is highly plausible that social anxiety and depression will predict changes over time in how children cope with stressors.

At the same time, one could justifiably predict that the use of different types of coping strategies could lead to changes in depressive and socially anxious symptoms. In a study by Abela et al. (2002), 8- and 12-year-old children using a ruminative response style showed an increase in depressive symptoms over a 6-week period, whereas children using distraction and problem-solving response styles showed no such increase. Additionally, Herman-Stahl et al. (1995) found that over a year, adolescents using approach coping reported fewer depressive symptoms, whereas those using avoidance coping reported more. In a similar vein, treatment of social anxiety has often focused on support in the use of adaptive coping strategies, and this could at least partly explain observed reductions in social anxiety following cognitive-behavioural therapy (e.g., Kendall 1993; Spence et al. 2002). However, despite these promising indications of reciprocal associations between coping and emotional adjustment, to our knowledge there has been no longitudinal assessment of distinctive pathways connecting social anxiety and depression with the various types of coping strategies discussed above, within a single coherent investigation.

Crucially, we do not yet have a detailed understanding of patterns of convergence and divergence in the coping profiles associated with social anxiety and depression. However, there are good reasons to expect differentiation between the two disorders. Building on Beck's (1967) ideas about content specificity in information-processing, Stark et al. (1993) have shown that self-reported cognitions are the biggest predictors of discrimination between anxious and depressed diagnostic categories. In fact, Ingram et al. (2001) observe that whereas the negative cognitions of depressed individuals take the form of declarative statements about past failure and degradation, those of anxious individuals are often in the more 'future-oriented' form of questions. We believe that this kind of cognitive model relates to a fundamental conceptual distinction between past-oriented feelings of hopelessness (underpinning depression) and future-oriented questions about threat (underpinning anxiety). Indeed, Kyte and Goodyer (2008) have argued that enduring negative self-schemas are at the roots of a range of social-cognitive impairments in depression, including coping responses. In

contrast, social anxiety—while also being related to affective characteristics—is especially associated with perceptions of (and responses to) threat in the social environment, in line with the tripartite model's emphasis on hyper-arousal as a key feature of anxiety (see Banerjee 2008). Below, we outline our main expectations for differential links with specific coping strategies.

First, it could be argued that lower use of *problem-solving* and *social support-seeking* is more likely to characterise depression than social anxiety. Both of these strategies are likely to be inhibited by enduring negative self-schemas which create a sense of hopelessness (related to the combination of high negative affect and low positive affect, as described in the tripartite model). Thus, even though problem-solving strategies have generally been negatively associated with internalising symptoms (e.g., Kochenderfer-Ladd 2004), difficulties in orienting to a problem in order to find solutions are especially likely to be associated with depressive symptoms (see Goodman et al. 1995; Ogul and Gencoz 2003; Sacco and Graves 1984). In contrast, as Daleiden and Vasey (1997, p. 418) conclude from their review of research on information-processing characteristics, “there is a clear indication that many responses accessed by anxious children ... are proactive and problem-focused in nature”, possibly reflecting the active intention to ward off perceived threats and reduce the core symptom of arousal. In a similar way, social support-seeking strategies should also have differentiated links with social anxiety and depression. There is emerging evidence to suggest that depression is associated with lower perceived social support in adolescents (e.g., Stice et al. 2004). In contrast, Deisinger et al. (1996) have observed that anxious participants are *more* likely to cope through seeking social support than others, and Rubin et al. (1984) showed that socially withdrawn preschoolers favour adult-dependent solutions for coping with peer conflict, possibly because of greater parental overprotectiveness (see Rapee and Spence 2004).

Second, differentiation between social anxiety and depression can be expected with respect to *externalising* but not to *internalising* coping. Regarding the latter, a ruminative response style is widely seen as a hallmark of depressive disorders in both adults and adolescents (see Nolen-Hoeksema et al. 2007), but rumination, self-blaming, and catastrophising have been associated with social anxiety and fears as well (Garnefski et al. 2006; Vassilopoulos and Banerjee 2008). This is consistent with theoretical expectations regarding the core of negative affect in both disorders (Clark and Watson 1991). In contrast, there is some evidence of positive links between depression and aggressive, externalising coping (e.g., Asarnow et al. 1987; Dise-Lewis 1988), but little indication of such links in the case of social anxiety. Murberg and Bru (2005), commenting

on their findings of links between aggressive coping and depression, suggested that this kind of coping response could be related to the experience of hopelessness, which we have argued is theoretically more central to depression than to social anxiety.

Third, although coping by *distancing* might be related to both social anxiety and depression, in line with the general observation that disengagement from a stressor is linked to internalising symptoms (Compas et al. 2001), this issue is complicated by the fact that distancing has been conceived in multiple forms: cognitively restructuring a stressful event, distracting oneself from the problem, and ignoring the problem (see Kochenderfer-Ladd and Skinner 2002). Cognitive restructuring of a stressful encounter in a more positive way is an effortful cognitive strategy, which seeks to change the negative interpretation of that encounter. Distracting oneself from the thoughts of a stressful encounter (e.g., thinking about different things) also involves effortful cognitive activity, but it is aimed more simply at replacing negative thoughts by turning to a different (and typically more positive) focus of cognition. In contrast, distancing by simply ignoring a stressful encounter differs from restructuring and distraction in that it does not involve effortful cognitive activity aimed at improving feelings. Instead, the aim is simply to avoid the immediate negative effect of the stressful encounter, without proactively attempting to put oneself in a more positive frame of mind. Therefore, the present investigation will involve use of a modified coping scale that includes an expanded set of items relating to positive restructuring and distraction, alongside the entirely avoidant strategies (i.e., strategies aimed at simply ignoring the stressor without any real cognitive effort to lessen its effects). In fact, although the latter strategies may well be linked to greater emotional maladjustment, there is already good evidence that a distractive response style is associated with lower depression (Morrow and Nolen-Hoeksema 1990) and positive ‘refocusing’ has been found to have strong negative relationships with both worry (a feature of social anxiety) and depression (Garnefski et al. 2006). Theoretically, distraction could be a point of discrimination between social anxiety and depression, because the core depressive problems of negative self-schemas and low positive affect could significantly interfere with the possibility of engaging in distraction. However, we do not have a great deal of evidence regarding these issues in youth samples. Similarly, it is not clear whether and how depression and social anxiety might be differentiated by positive restructuring and ignoring strategies. Thus, in order to allow an investigation of distinctive links with social anxiety and depressive symptoms, an initial study will be conducted to explore the factor structure of Kochenderfer-Ladd and Skinner's (2002) coping self-report measure when we add new sets of items

to tap positive restructuring, distraction, and ignoring the problem.

Finally, our study includes a measure of teacher-rated social competence in order to provide some evidence of external validity for the coping subscales, as research has shown that children's social competence and social skills relate to different coping strategies in specific ways. Kliever (1991), for example found that teacher-rated social competence was related to increased 'active coping' (where the child has decided on a plan of action and followed it through), and fewer 'problem behaviours' in coping, and Eisenberg et al. (1993) found that low levels of constructive coping and high levels of 'acting out' were related to low teacher-rated social skills. However, it is important to stress that because teacher ratings are based on external observation of the child's behaviour, it is expected that teacher-rated social competence will be associated with the more observable aspects of coping (problem-solving, seeking social support distraction, and externalising) only; psychological responses to stressors that relate to patterns of internalising or cognitive restructuring will be less observable and therefore are not likely to be strongly associated with teacher ratings.

The Role of Peer Relations

Our investigation also addresses the possibility that the degree to which a given child is accepted or rejected by his or her peers could moderate the links between coping and emotional adjustment. Although peer relations may be equally important in the development of both social anxiety and depression, there is reason to expect that distinctive coping profiles will assume greater or lesser importance for social anxiety and depression depending on the levels of peer acceptance and rejection experienced by the child. Kochenderfer-Ladd and Skinner (2002) have already provided preliminary evidence of interactions between coping and individual differences in peer relations. Moreover, Reijntjes et al. (2006) have demonstrated specific interactions between experimentally-manipulated peer rejection and depressive symptoms, whereby the combination of peer rejection and depression symptoms was more likely to be associated with maladaptive behavioural responses. Theoretically, peer relations are thought to play a key role in increasing or diminishing the impact of risk factors on behavioural outcomes (e.g., see the biopsychosocial model of Dodge and Pettit 2003). Coie (1990) suggests that for rejected children, the stress experienced through poor peer relations and its contribution to psychological disturbance limits successful opportunities for social support, positive interactions, the growth of social competencies, and coping skills. In contrast, popular children's greater repertoire of

socially skilled behaviours, leading to positive social outcomes (Dodge et al. 1986), points to the opposite pattern of associations seen in rejected children. To summarise, given that peer acceptance and rejection are widely known to be associated with different qualities of social interaction (e.g., Gifford-Smith and Brownell 2003), we tested the possibility that coping strategies may be differently associated with emotional adjustment for children varying in peer acceptance and rejection. In particular, we expected that peer relations would be most pertinent in the case of the coping strategies that more heavily depend on positive peer relations for effective use when dealing with a social stressor (i.e., problem-solving and social support seeking). Therefore, where negative relationships are found between these strategies and social anxiety or depression, we expect that poor peer relations (low acceptance/high rejection) will exacerbate them, whereas positive peer relations (high acceptance/low rejection) will minimise them.

The Present Study

We believe that an examination of children's strategies for coping with a stressor can provide insights into key patterns of convergence and divergence between social anxiety and depression. We report on two studies. Our first study was designed to evaluate the factor structure and subscale internal consistency of Kochenderfer-Ladd and Skinner's (2002) self-report coping scale, modified by incorporating new items to tap positive restructuring and distraction as well as purely ignoring items. Our second study was designed to test a number of hypotheses about how coping strategies are associated with social anxiety and depression. It was expected that children higher in depressive symptoms would report less problem-solving, social support seeking and distraction to cope with a stressor, while reporting more internalising and externalising. Children higher in socially anxious symptoms by contrast would use *more* problem-solving and social support seeking; however, we expected them also to use more internalising. No clear hypotheses were made regarding the positive restructuring and ignoring coping strategies.

Our second study was also designed to help us evaluate the direction of the associations between adjustment and coping strategies over time. We used cross-lagged panel analyses to assess the likely causal direction of relationships, by examining how a variable at one timepoint can predict a variable at another timepoint after accounting for stability in the latter over the two timepoints. Although such longitudinal work on this topic is scarce, we feel that there are grounds for predicting reciprocal links, as discussed earlier.

Study 1

Study 1 was designed to evaluate the factor structure and reliability of Kochenderfer-Ladd and Skinner's (2002) self-report coping scale, with newly added items on positive restructuring and distraction.

Method

Participants A total of 404 children were recruited from seven local primary schools located in cities in the Randstad region of the Netherlands. Children were primarily of white ethnicity (78%) with the remainder from Black-Caribbean, Moroccan, Turkish and other ethnic groups and the schools were located in the more affluent areas of the cities where incomes are generally middle to high. The sample consisted of 171 boys and 233 girls, with a mean age of 10.72 years (age range 8.34 to 13.05 years, $SD=0.94$ years). School consent for data collection was given, and parents were provided with full information about the study in a letter and were asked for written consent for their child to participate. Prior to handing out the questionnaires, children were informed about the voluntary nature of the study and were assured that their responses would be processed anonymously.

Measures To assess children's coping responses in a problematic peer situation, a modified version of the Self-Report Coping Scale (SRCS) was used (Causey and Dubow 1992; Kochenderfer-Ladd and Skinner 2002), containing 40 items. The questionnaire included a range of new items relating to distraction and positive restructuring, generated by the authors following a review of the relevant literature and consultation with colleagues. The coping measure describes a specific peer experience: "Imagine that another child was being mean to you by calling you bad names or hitting and pushing you. What would you do? There are all kinds of things that children could do if they were being picked on." Children were then asked to indicate how much they would use each of the 40 coping responses on a 5-point scale. We retained Kochenderfer-Ladd and Skinner's (2002) focus on a specific 'peer problem' stressor in order to avoid having children respond to coping strategies with respect to a range of unknown stressors. Although the measure focuses on self-reported coping in response to a specific stressor, Causey and Dubow (1992) have shown that the self-reported coping strategies in the SRCS are related to peer reports of actual coping behaviour in different situations. There were very little missing data in this sample: overall, 99.40% of the total number of questions were answered across the sample.

Procedure The SRCS questionnaire was administered in school classrooms by two psychology students, who read instructions aloud to the children. Children were asked to put their hand up if they had questions at any point during the procedure, and these were answered by the students administering the questionnaires. Additional questionnaires that were not utilised for the present study were also distributed.

Results and Discussion

The factor structure of the coping questionnaire was analysed using principal components analysis, with missing data replaced with the mean for each question. Initial analysis revealed 9 factors, but three of these had two or fewer items loading onto them, and a scree plot clearly indicated a six-factor solution. We then conducted a further analysis extracting six factors and using varimax rotation. This solution explained 46.93% of the variance. Nine items were removed due to low loadings, unresolvable cross-loadings or low item-total correlations. The resulting scale included 31 items in 6 reliable subscales, measuring Problem-Solving, Seeking Social Support, Internalising, Externalising, Distraction, and Trivialising (see Table 1 for factor loadings and internal consistency and Table 2 for descriptive statistics and intercorrelations). This supports four of the original five subscales from Kochenderfer-Ladd and Skinner (2002), and adds new Distraction and Trivialising subscales.

Interestingly, the new items on Distraction formed a separate factor, but the items on positive restructuring and ignoring clustered together to form what we have termed a 'Trivialising' factor. The items loading on this factor, such as 'I would say I don't care' and 'I tell myself it doesn't matter', all seemed to relate to trivialising, or 'making light' of the problem. These findings suggest that, at least within this age group, positive restructuring and other cognitive strategies for diminishing the importance of the stressor may be difficult to differentiate, perhaps because metacognitive strategies are cognitively more complex and therefore more likely to be understood as children increase in age (see Fields and Prinz 1997).

Study 2

In this study, we first confirmed the factor structure of the coping scale from Study 1 and examined correlations between the coping scores and teacher-rated social competence in order to provide an external criterion for validating the subscales: we expected associations of teacher-rated social competence with the *more observable* coping dimensions of problem-solving, seeking social support,

Table 1 Rotated Factor Loadings for Coping Scale from Principal Components Analysis ($n=404$)

Items	Factor loadings					
	I	II	III	IV	V	VI
<i>Problem-solving: ($\alpha=0.82$)</i>						
I find a way to solve the problem	0.73					
I change something so things will work out	0.73					
I do something to make up for it	0.73					
I do something to change the situation	0.68					
I make a plan of what I am going to do	0.62					
I go over in my mind what to do or say	0.61					
I try to think of different ways to solve the problem	0.54					
<i>Seeking Social support: ($\alpha=0.79$)</i>						
I get help from someone in my family		0.81				
I ask someone in my family for advice		0.78				
I tell a friend or family member what happened		0.69				
I talk to somebody about how it made me feel		0.64				
<i>Externalising: ($\alpha=0.65$)</i>						
I stamp my feet and slam or bang doors			0.74			
I get angry and throw or hit something			0.73			
I swear (use bad words) out loud			0.66			
I yell or shout to let off steam			0.55			
<i>Internalising: ($\alpha=0.76$)</i>						
I worry that others will think badly of me				0.79		
I keep feeling afraid it will happen again				0.77		
I worry about it				0.65		
I think about it so much that I can't sleep				0.63		
I just feel sorry for myself				0.52		
<i>Distraction: ($\alpha=0.71$)</i>						
I watch TV or read a book so I can think about something else					0.64	
I keep myself busy with other things so I don't worry about the problem					0.61	
I do something else to help me forget about it					0.60	
I find lots of other things to think about					0.50	0.45
<i>Trivialising: ($\alpha=0.78$)</i>						
I tell myself that the problem is not very important						0.73
I tell myself it doesn't matter						0.72
I will think it is no big deal						0.62
I would say I don't care						0.61
I ignore the problem						0.58
I think it is not such a big problem						0.57
I forget the whole thing						0.54

Factor loadings <0.40 are not displayed

distraction, and externalising, but not with the *less observable* dimensions of internalising and trivialising. Next, we evaluated our main hypotheses regarding distinctive associations of social anxiety and depression with the various coping strategies, and reciprocal longitudinal relations between the coping scores and the emotional adjustment scores.

Method

Participants A total of 270 8- to 11-year-old children (134 girls and 136 boys), from 9 local primary schools in Warwickshire, UK, participated in this study. We do not have pupil-level data on demographic features, but the schools in the sample were mainly located in rural areas,

with pupils of primarily white ethnicity (>90%) and from a range of socio-economic backgrounds, though generally higher than the national average (e.g., 1 school with above average numbers of pupils eligible for free school meals, 1 school with average numbers, and 7 schools with below average numbers). Pupils were seen on two occasions, at the beginning and end of the school year (approximately 9 months apart). Data on 257 of the 270 pupils (95% of the original sample) were collected at the second timepoint, with complete data at both timepoints for 222 pupils (82%). Children for whom no data were available at the second timepoint did not significantly differ from the other children on any of the measures at the first timepoint (all p s>0.05). The children were involved in an ongoing study into mental health and peer relations commissioned by the local educational authority, whereby whole classes in each school were selected to participate in the research. Schools provided informed consent for data collection in the participating classes, and parents were provided with full information regarding the project and were able to refuse to allow participation. We obtained participation rates of greater than 95% at each timepoint. At every data collection session, the children themselves were advised verbally that they did not have to take part in the study and that they could withdraw at any time.

Measures Five measures were used in the present study, completed at both timepoints.

The *coping scale* was the 31-item modified SRCS developed in Study 1.

The Children’s *Depression Inventory*-short form (CDI-S) (Kovacs 2003) included 10 items, for each of which participants were asked to select one of three statements varying in the degree of symptom severity. The scale has been found in previous research to have excellent reliability and validity (Storch et al. 2007). In the present sample, the items were scored from 1 (least depressive) to 3 (most depressive), and children received a mean score across all

items, $\alpha=0.83$. The proportion of children scoring above the 85th percentile cutoff recommended in the manual was approximately 15% at the two timepoints, showing a close match to the CDI standardisation sample (Kovacs 2003).

The *Social Anxiety Scale* for Children—Revised (La Greca and Stone 1993) included 18 statements describing social fears and worries, along with four filler items. The items related to fear of negative evaluation, social avoidance and distress in novel situations, and social avoidance and distress in general. Children were asked to indicate how often each statement was true for them, on a scale from 1 (‘not at all’) to 5 (‘all the time’). The scale has been found in previous research to have excellent reliability and validity (Findlay et al. 2009). In the present study, children received a mean score across all items, $\alpha=0.92$. The proportion of children scoring above the SASC-R manual’s recommended cutoff for ‘high social anxiety’ (La Greca 1999) was approximately 15–20% at the two timepoints, just under the 23% identified in the unselected sample described in the manual.

Peer acceptance and rejection were assessed using a sociometric survey (Coie and Dodge 1983). Children were given a class roster and asked to nominate ‘the three children they would most like to play with’ and ‘the three children they would least like to play with’ in their class. The numbers of nominations received were standardised within each class to create peer acceptance (most-liked) and peer rejection (least-liked) scores for each participant.

Finally, we used the 33 social behaviour items from the Walker-McConnell *Social Competence Scale* (Walker and McConnell 1995). The items have a broad focus and relate to a range of teacher-preferred and peer-preferred social behaviours (although it should be noted that two of the 33 items related to ‘appropriate’ or ‘constructive’ responses to aggression from others). Class teachers completed ratings for each child on a 5-point scale, and each child received a mean social competence score across all items, $\alpha=0.97$.

Table 2 Descriptive Statistics and Intercorrelations of Coping Strategies ($n=404$)

	Mean (SD)						
	Boys	Girls	2	3	4	5	6
1. Problem Solving	3.13 (0.86)	3.40 (0.78) ^a	0.42***	0.05	-0.32***	0.26***	0.36***
2. Seeking Social Support	2.75 (1.02)	3.28 (1.00) ^a		-0.15**	-0.15**	0.33***	0.27***
3. Trivialising	2.55 (0.81)	2.22 (0.75) ^a			-0.06	-0.29***	0.40***
4. Externalising	1.82 (0.74)	1.55 (0.69) ^a				0.07	-0.18***
5. Internalising	2.06 (0.84)	2.60 (0.89) ^a					0.08
6. Distraction	2.87 (1.00)	3.00 (0.80)					

^a t-test comparing boys and girls, $p \leq 0.001$

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Proportions of missing data were low. At least 94% of the questions were answered in all of the measures across both timepoints, with 93.30% of children answering at least 28 out of 31 coping questions, 94.80% answering at least 16 out of 18 social anxiety questions and 96.36% answering at least 9 out of 10 depression questions. Also, 98.50% of teachers answered at least 31 out of 33 questions on the social competence scale at the first timepoint, although it should be noted that one teacher was unable to return data for one class of 32 children at the second timepoint. Some questionnaires were administered on different days at each timepoint, resulting in between 1 and 13 children being unavailable to complete data for a given measure. The sample size for each analysis reported below varied depending on the numbers of children with data available for all measures involved in the given analysis.

Procedure At each timepoint, children completed the social anxiety and coping measures in a whole-class setting with all instructions and questions read aloud by their class teachers. The remaining measures were completed in groups of around 6 pupils, with all instructions and questions read aloud by psychologists.

Results and Discussion

Confirmatory factor analysis (CFA) on the Time 1 data was used to evaluate the six-factor model from Study 1, with blank item scores replaced with the sample mean. The analysis indicated that two items (“I just feel sorry for myself” and “I would say I don’t care”) had low loadings, and these were removed from the analysis. CFA on the remaining 29 items suggested that the six-factor model provided a satisfactory fit to the data (Fig. 1), $\chi^2(358)=533.45$, $p<0.001$; CFI=0.90; RMSEA=0.04, with acceptable internal consistency (α ranged from 0.67 to 0.76), and significant standardised coefficients for each item (ranging from 0.23 to 0.77, all $ps<0.05$).

We next compared the relative plausibility of several factor structures against the current 6-factor model, using chi-square change tests and Akaike’s Information Criterion (AIC). We evaluated a 2-factor model of approach coping (collapsing problem-solving and social support seeking) and avoidance coping (collapsing internalising, externalising, distraction and trivialising); a 3-factor model of problem-solving, social support seeking, and avoidance coping (collapsed as above); a 5-factor model of approach coping (collapsed as above), internalising, externalising, distraction, and trivialising; and a second 5-factor model of problem-solving, social support seeking, internalising, externalising, and a combined distraction/trivialising factor (this last model resembling the factor structure of

Kochenderfer-Ladd and Skinner’s (2002) paper). As shown in Table 3, our 6-factor model provided the best fit to the data.

Finally, we also evaluated the measurement invariance of our six-factor solution across the two timepoints, comparing a model where factor loadings were constrained to be equal at both timepoints with a model where factor loadings were allowed to vary across timepoints. In a demonstration of measurement invariance, the former did not have a significantly poorer fit than the latter, $\Delta\chi^2(23)=20.45$, $p>0.10$.

Associations of Coping Subscale with Teacher-Rated Social Competence In line with expectations, social competence ratings were positively correlated with the more observable coping dimensions of problem-solving, $r(256)=0.15$, $p<0.05$, seeking social support, $r(255)=0.12$, $p=0.05$, and distraction, $r(254)=0.18$, $p<0.01$, and negatively correlated with externalising, $r(256)=-0.13$, $p<0.05$. No significant associations were found for the two purely cognitive subscales, internalising and trivialising, $rs<0.02$.

Associations Between Social Anxiety, Depression, and Coping Subscales Table 4 shows descriptive statistics and intercorrelations for the key variables at both time points. Social anxiety and depression were related to each other, and also to lower peer acceptance. However, they showed distinctive patterns of associations with coping. The Time 1 correlations show that, as predicted, depression and social anxiety were both positively associated with internalising coping. However, depression was negatively related to problem-solving and seeking social support, whereas social anxiety was positively associated with these variables as well as with distraction. Finally, depression but not social anxiety was positively correlated with externalising. Overall, this tendency for a much more consistently negative coping profile in the case of depression seems consistent with the fact that our teacher-rated assessment of social competence was negatively associated with depression, $r(261)=-0.18$, $p<0.01$, but not with social anxiety, $r(255)=-0.06$, $p>0.10$.

Longitudinal Predictions of Adjustment and Coping Table 5 shows significant stability in individual differences for each variable over time, as well as correlations over time between the different variables. In our main analysis, we examined the longitudinal associations between social anxiety, depression, peer acceptance and rejection, and the six coping subscale scores using cross-lagged panel analyses. First, we examined social anxiety and depression at Time 1 as unique predictors of coping scores at Time 2, after controlling for the corresponding Time 1 coping scores and including peer acceptance and rejection as moderators, with all variables mean-centered. As shown in

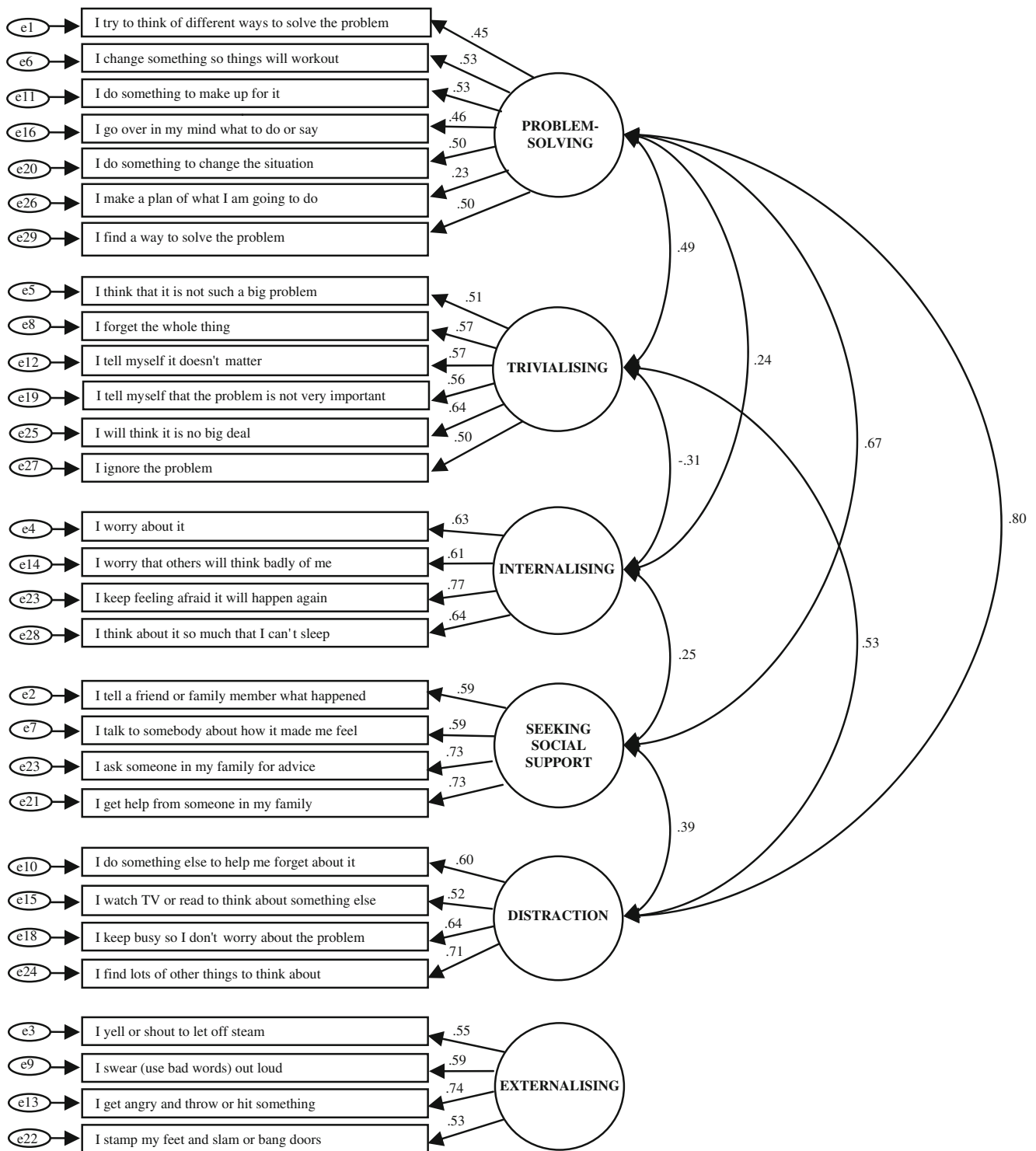


Fig. 1 Confirmatory factor analysis of the SRCs-R testing model fit (error terms and non-significant factor co-variances omitted). *Note.* Four pairs of error terms associated with problem-solving items were allowed to co-vary: items 20 and 1, 6 and 11, 16 and 26, and 26 and

29. The pairs of questions had distinctive foci on *targeting the problem, consequences of the problem, cognitive activity, and decision making, respectively*

Table 3 Summary Statistics for Nested Factor Models of the SRCS-R

Model	χ^2	df	$\Delta\chi^2$	AIC ^a
Preferred 6-factor model	533.45	358	–	687.45
2-factor (approach vs. avoidance)	1177.17	372	643.72***	1303.17
3-factor (problem-solving, social support seeking vs. avoidance)	1087.04	370	553.59***	1217.04
5-factor (approach vs. externalising, internalising, trivialising and distraction)	627.98	363	94.53***	771.98
5-factor problem-solving, social support seeking vs. externalising, internalizing and distraction/ trivializing	662.90	363	129.45***	806.90

^a Relatively lower AIC indicates the better-fitting model

*** $p < 0.001$

Table 6, results revealed the following links between initial emotional adjustment and subsequent coping strategies, over and above stability in the coping strategies: 1) Social support seeking was positively predicted by social anxiety and negatively predicted by depression; 2) Externalising was negatively predicted by social anxiety and positively predicted by depression; 3) Internalising was positively predicted by social anxiety only; 4) Distraction was negatively predicted by depression but also predicted by the social anxiety by peer rejection interaction; and 5) Problem-solving was predicted by the depression by peer acceptance interaction.

Follow-up analysis of the two interaction effects was conducted using an online computational tool designed for probing two-way interactions (Preacher et al. 2006). We calculated simple slopes for the relationship between the independent variable (depression or social anxiety) and the

dependent variable (problem-solving or distraction), with our moderators (peer acceptance or peer rejection) specified at values of the mean and 1 *SD* above and below the mean. Results regarding the first interaction showed that when peer acceptance is low, (i.e. 1 *SD* below the mean) the slope relating Time 1 depression to Time 2 problem-solving is significantly negative, $b = -0.46$, $p = 0.05$. As peer acceptance rises, the simple slope becomes less negative and non-significant (at mean level of peer acceptance, $b = -0.07$, $p > 0.10$; at peer acceptance of 1 *SD* above mean, $b = 0.33$, $p > 0.10$). The second interaction probed showed that when peer rejection is low, the slope relating Time 1 social anxiety to Time 2 distraction is significantly positive, $b = 0.28$, $p < 0.05$. As peer rejection rises, the simple slope becomes less positive and non-significant (at mean level of peer rejection, $b = 0.11$, $p > 0.10$; at peer rejection of 1 *SD* above mean, $b = -0.07$, $p > 0.10$).

Table 4 Intercorrelations Between Social Anxiety, Depression, Peer Acceptance, Peer Rejection, and Coping Subscales Within Time 1 (lowest $n = 251$) and Within Time 2 (lowest $n = 255$)

		Mean (<i>SD</i>)	Depression	Social anxiety	Peer acceptance	Peer rejection
Time 1	Depression	1.29 (0.32)		0.45***	-0.20**	0.09
	Social Anxiety	2.43 (0.83)	0.45***		-0.21**	0.04
	Problem Solving	3.10 (0.74)	-0.13*	0.13*	0.02	-0.04
	Social Support	3.53 (0.96)	-0.15*	0.17**	0.00	-0.07
	Trivialising	2.61 (0.88)	-0.06	-0.08	0.00	0.12 ⁺
	Externalising	2.05 (0.92)	0.19**	0.01	-0.07	0.21**
	Internalising	2.53 (1.02)	0.39***	0.63***	-0.18**	0.05
	Distraction	3.16 (0.95)	-0.01	0.16*	0.08	-0.06
Time 2	Depression	1.28 (0.35)		0.41***	-0.13*	0.17**
	Social Anxiety	2.33 (0.77)	0.41***		-0.14*	0.13*
	Problem Solving	3.01 (0.71)	-0.02	0.12 ⁺	0.05	-0.05
	Social Support	3.48 (0.99)	-0.19**	0.08	0.08	-0.01
	Trivialising	2.69 (0.87)	-0.06	-0.01	0.01	0.05
	Externalising	2.13 (0.94)	0.21***	-0.03	-0.01	0.09
	Internalising	2.44 (0.99)	0.35***	0.62***	-0.07	0.06
	Distraction	3.07 (0.92)	-0.09	0.04	0.02	-0.13*

⁺ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 5 Correlations Between Social Anxiety, Depression and Coping Subscales from Time 1 to Time 2 (lowest $n=234$)

Time 1 variables	Time 2 variables							
	1	2	3	4	5	6	7	8
1. Depression	0.46***	0.28***	-0.07	-0.18**	-0.03	0.23***	0.18**	-0.19**
2. Social Anxiety	0.26***	0.48***	0.00	0.10	-0.01	-0.02	0.32***	-0.01
3. Problem Solving	-0.05	0.08	0.23***	0.21***	0.11	-0.03	0.08	0.11 ⁺
4. Social Support	-0.04	0.11 ⁺	0.15*	0.42***	-0.13 ⁺	-0.11 ⁺	0.18**	0.16*
5. Trivialising	-0.06	-0.08	0.11 ⁺	0.03	0.31***	0.01	-0.06	0.01
6. Externalising	0.18**	0.01	-0.08	-0.23***	0.02	0.56***	-0.01	-0.15*
7. Internalising	0.22***	0.41***	0.09	0.10	-0.10	0.02	0.38***	0.04
8. Distraction	-0.05	0.03	0.21***	0.11 ⁺	0.15*	-0.02	0.05	0.14*

⁺ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Finally, we examined coping scores at Time 1 as predictors of social anxiety and depression at Time 2, after controlling for the corresponding Time 1 adjustment scores and including peer acceptance and rejection as moderators. However, this analysis showed no significant effects beyond the stability of adjustment scores (all other main and interaction effects, $p > 0.05$).

General Discussion

These results shed new light on the links between emotional adjustment and coping in school children. In Study 1, we identified six internally consistent coping

factors: four of the five subscales from Kochenderfer-Ladd and Skinner (2002) and additional subscales measuring distraction and trivialising. In Study 2, social anxiety and depression were found to predict differentiated strategies for coping with a peer problem stressor, but there was no evidence for effects in the reverse direction.

We suggest that the present findings can be understood within conceptual frameworks proposing both convergence and divergence with regard to depression and social anxiety. Ingram et al’s. (2001) discussion of declarative statements about past failure and loss in depressed individuals, in contrast to the more future-oriented, questioning cognition of anxious individuals, offers a cognitive basis for differentiating depression and anxiety, and

Table 6 Hierarchical Regression Analyses Predicting Coping Strategies at Time 2 from Depression and Social Anxiety at Time 1 (lowest $n=226$)

Time 1 Predictors	Time 2 coping strategies											
	Problem-solving		Seeking social support		Trivialising		Externalising		Internalising		Distraction	
	R^2	β	R^2	β	R^2	β	R^2	β	R^2	β	R^2	β
Step 1												
Corresponding Time 1 coping strategy	0.04	0.21**	0.16	0.40**	0.08	0.28**	0.34	0.58**	0.12	0.35**	0.02	0.13
Step 2												
Peer acceptance (PA)	0.06	0.11	0.17	0.08	0.09	-0.06	0.34	-0.09	0.12	-0.00	0.03	0.05
Peer rejection (PR)		-0.03		0.01		-0.08		-0.06		0.04		-0.07
Step 3												
Depression (DEP)	0.06	-0.07	0.21	-0.21**	0.09	-0.05	0.37	0.17**	0.14	-0.04	0.06	-0.22**
Social anxiety (SA)		0.02		0.16*		0.03		-0.13*		0.18*		0.08
Step 4												
DEP * PA	0.10	0.17*	0.22		0.11		0.38		0.16		0.10	
SA * PR												-0.19*

Only significant interaction terms are shown in step 4

* $p < 0.05$ (two-tailed), ** $p < 0.01$ (two-tailed)

ongoing analyses of the tripartite model (see Anderson and Hope 2008) provides an affective foundation for understanding patterns of similarity and differentiation between anxiety and depression.

First, the cognitive and affective distinctions described above can help to explain the divergence between social anxiety and depression with respect to both problem-solving and social support-seeking. Depression at Time 1 predicted significantly lower problem-solving at Time 2, though this pattern became apparent only when peer acceptance was low. In contrast, this pattern was not observed for social anxiety. This supports previous findings that depression is associated with lower skills in problem-solving (see Goodman et al. 1995; Sacco and Graves 1984), although the moderating effect of peer acceptance suggests that having at least some positive social relations to draw upon could facilitate the use of problem-solving strategies. As outlined earlier, conceptual and empirical work on specificity of thought in anxiety and depression suggests that the cognition of children higher in depressive symptoms is rooted in a greater sense of hopelessness and degradation (see Kendall and Ingram 1989), rendering them less likely to adopt proactive coping strategies. Furthermore, although those with depressive symptoms and those with social anxiety symptoms both tend to have social skills deficits, these are more commonly allied with greatly reduced social motivation in children with depressive symptoms (Segrin 2000), making them particularly less likely to use problem-solving strategies to cope.

With regard to the role of peer acceptance as a moderator, Dodge and Pettit's theoretical analysis (2003) indicates that peer relations may play a key role in increasing or decreasing the impact of risk factors on behavioral outcomes. It seems probable therefore, that positive peer relations may diminish the impact of depression on lower problem-solving, indicating that attention to depressed children's peer relations may be an important element of intervention approaches to help them cope with stressors more effectively. Such arguments are consistent with other evidence that friendships may play an important buffering role in protecting against negative cycles that connect internalising problems with negative social experiences (e.g., Hodges et al. 1999).

In a similar way, depression and social anxiety differentially predicted subsequent social support seeking, with a negative association for the former and a positive association for the latter. This is consistent with evidence regarding support 'erosion' for depression in adolescents (e.g., Stice et al. 2004) with the present study showing that this may also be the case in middle childhood. In contrast, the fact that socially anxious children seek more social support points to a higher dependence on others for resolving problems as has been proposed previously (see

Deisinger et al 1996; Rubin et al. 1984). With reference to the tripartite model, it seems plausible that the higher arousal experienced by socially anxious children—and the questioning cognition about harm and danger (Ingram et al. 2001)—could drive them to seek social support as a response to problematic peer interactions, whereas the low social motivation and positivity experienced by depressed children may mean they are likely to seek less social support.

We obtained partial support for our hypotheses regarding internalising and externalising coping. First, depression positively predicted subsequent externalising coping, in line with past research showing links between depressive symptoms and aggressive coping (e.g., Asarnow et al. 1987; Dize-Lewis 1988). This finding is consistent with our expectation that greater hopelessness could give rise to greater aggressive responding. In contrast, we found that social anxiety predicted lower levels of subsequent externalising. Although we had not predicted an independent association with externalising coping, the more withdrawn behavioural profile of socially anxious children (see Rubin et al. 1984) seems consistent with a lower tendency to respond by acting out and being aggressive.

With respect to internalising coping, we found that although social anxiety and depression did seem to converge in their association with concurrent internalising coping, consistent with the high levels of negative affect common to both disorders (Clark and Watson 1991), only social anxiety was uniquely associated with increased internalising coping over time. We must recognise that there is a degree of potential measurement overlap related to the concept of 'worry', which is both a response to stressors in our measure of internalising coping, and a key indicator of social anxiety in standard social anxiety scales. Nonetheless, our finding does support Garnefski et al.'s (2006) observation that rumination was uniquely associated with worry and fearfulness, features more related to social anxiety rather than depression. It is somewhat surprising that depression did not independently predict an increase in the use of internalising coping given past research (Hong 2007; Reijntjes et al. 2006; Nolen-Hoeksema 1991), but one interpretation of these findings is that internalising responses to stressors may be critical for depressed youths particularly where the depressed symptoms are co-morbid with social anxiety.

One final pattern of results that falls in line with theoretical models about differentiated cognition in depression and social anxiety concerns coping through distraction. We found that depression predicted subsequently lower distraction, whereas social anxiety predicted increased distraction when peer rejection was low. This supports previous findings that children higher in depressive symptoms are less likely to endorse distraction as a method

of cognitive coping (Garnefski et al. 2006; Reijntjes et al. 2006). Conceptually, it seems plausible that depressed children's enduring negative self-schemas and past-oriented focus on failure and degradation (Kyte and Goodyer 2008) make it far harder for them to distract themselves from an immediate problem. In contrast, socially anxious children may well be able to engage in distraction from a particular social stressor if their general social experience is not highly negative. The moderating role of peer rejection implies that the capacity for socially anxious children to engage in distraction about a particular stressful incident may be thwarted by interfering patterns of worry about more chronic peer problems. This interpretation needs to be evaluated in future empirical work that directly examines children's coping responses to chronic stress as well as specific stressful incidents. In addition, it is not at present clear whether these moderating effects of peer relations would extend to situations involving non-social as well as social stressors. It seems plausible that such effects—and their potential consequences for emotional adjustment—would be significantly stronger in the context of stressful social interactions.

Implications

Our evidence of differentiation between social anxiety and depression in terms of coping with a social stressor may have important clinical implications, insofar as current interventions often focus on the same or similar coping strategies when treating both conditions (e.g., Spence et al. 2002; Horowitz and Garber 2006), when attention to distinct coping characteristics may in fact be more appropriate. Furthermore, the temporal sequence observed in the associations between adjustment and coping suggests that social anxiety and depression could play a causal role in encouraging or inhibiting specific coping strategies. A crucial challenge for clinical practice, and for future research, is to identify and then target the specific features of the disorders—such as information-processing biases (see Banerjee 2008; Kyte and Goodyer 2008)—which are responsible for their effects on coping.

Associations in the reverse direction—from coping strategies at Time 1 to emotional adjustment at Time 2—were not observed in the present study. This was surprising given preliminary indications from the existing literature that coping *can* predict adjustment (e.g., Herman-Stahl et al. 1995), and that work on effective coping with stressors is a key part of many cognitive-behavioural interventions (e.g., Kendall 1993). However, the extent to which a given coping strategy is emotionally adaptive may depend on the context in which it is adopted, differences between children in their social relations, and the different goals for using the strategy. For example, one could anticipate that different

approaches to social support seeking (e.g., seeking comfort vs. seeking instrumental assistance; see Greenglass et al. 1999) may be adaptive or maladaptive depending on the age of the child, the specific situation at hand, and the wider interpersonal context. Thus, primary school children's reported use of coping strategies may not always map onto the effective *employment* of those strategies in specific stressful situations. In this regard, our study was limited by the fact that the coping measure was based on self-report; although our teacher ratings provided some external validation of the self-reported behavioural coping responses, further research gathering specific coping data from multiple informants and direct observation will be of great importance. Accurately measuring children's adaptive use of complex cognitive strategies, such as positive restructuring, will be a particular challenge in samples of young children because the understanding of these strategies changes with age (Fields and Prinz 1997), and because the strategies may not appear as a distinct construct until later in development.

The present findings provide a strong foundation for future empirical work with clinical samples. The patterns described here need to be replicated in diagnosed anxious and depressed participants, in order to evaluate the differentiated links with coping in children most in need of intervention. Having detailed assessment data on the preferred coping strategies of youths in clinical care would provide an excellent starting point for behavioural and cognitive-behavioural approaches to treatment. Most notably, social information-processing patterns—interpretation and attribution, construction of goals, evaluations and enactment of responses—have been recognised as relevant to the treatment of both anxiety and depression (Fonagy and Goodyer 2008), and these patterns are clearly part of the coping process. Thus, evaluations of children's coping strategies could play a key role in informing the way that clinicians could target the core features of social anxiety and depression. Indeed, if the creation or modification of a child's 'coping template' (Kendall 1993) is recognised as a goal of therapy, then we need a richly detailed understanding not just of *what* coping strategies to use, but also *when*, *why*, and *how* to use them. This metacognitive reasoning about coping strategies is likely to become more sophisticated with age (Compas et al. 2001), but this has not yet been adequately explored.

Conclusions

Primary school children systematically and reliably reported using a wide range of coping strategies in response to a social stressor. Moreover, social anxiety and depression were found to be associated with distinctive patterns of coping, with longitudinal analyses showing that the

conditions encourage or inhibit tendencies to cope in different ways. In peer conflict situations, symptoms of depression appeared to reduce the likelihood of accessing social support and dealing with the problem, as well as the use of distraction to ease negative emotions. Social anxiety, on the other hand, increased worrying thoughts, but also predicted greater willingness to approach others for support. These findings provide clear entrances for practitioners working with socially anxious and depressed children. However, the absence of reciprocal links—predicting adjustment from earlier coping—raises new challenges. Further research, examining possible developmental changes through adolescence, is needed to develop targeted work on coping that can be effective in interventions for clinical conditions.

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