

Development and Preliminary Validation of a Self-Report Coping Response Measure in
a Community Sample of Children in Middle Childhood

Abstract

Coping plays a key role in psychological adjustment. However, while coping in adulthood has been extensively studied, coping in childhood remains relatively sparsely researched. This may be in part due to the fact that measures of coping have yet to be developed that are suitable for use with young children. This paper describes the development and preliminary validation of the Profile of Coping Dimensions in Children (PCDC), a new, theory-driven measure of coping suitable for use in middle childhood, designed to assess coping as a multidimensional construct across eleven dimensions linked with wellbeing. Patterns of coping across age and gender were also examined. Participants were 2566 children aged 7-11 years, attending 15 primary (elementary) schools in the South East of England. The measure was administered along with other questionnaires designed to measure anxiety, somatization and perceived stress and happiness. The measure was found to be easy to use, and suitable for use in this age group. Coping response styles assessed using the measure were found to vary by age and gender, and were differentially associated with measures of anxiety, somatization and perceived stress and happiness. Results provide preliminary support for the utility of the measure as a multidimensional assessment of coping in middle childhood.

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Coping skills, or, more precisely, the different ways in which we negotiate threat and respond to challenging or stressful circumstances, appear to play a key role in personality development, and shape an individual's adaptation and functioning across the life course (Folkman & Lazarus, 1980; Garmezy, 1987). Variations in coping can have significant implications for our psychological and physical health (Zeidner & Endler, 1996) and may be a powerful predictor of adaptation, or the ability to deal with new experiences and change (Braun-Lewensohn et al., 2009; Lengua & Long, 2002). Understanding coping is particularly relevant in terms of intervention: unlike less malleable variables, such as poverty or temperament, coping responses are potentially modifiable, and thus amenable to interventions (Compas, Connor-Smith, Saltzman, Thomsen, & Wadsworth, 2001). For example, Allen et al. (2016) have shown that an intervention designed to help children identify thoughts, feelings, and coping strategies related to psychological, behavioral, and interpersonal issues following trauma can enhance coping and increase feelings of hope. Others have demonstrated that interventions can enhance interpersonal problem-solving skills (Shure & Spivack, 1980), verbal coping responses (Kanfer, Karoly, & Newman, 1975), and emotion- (Pincus & Friedman, 2004) and problem-focused coping skills (Dubow, Schmidt, McBride, Edwards, & Merk, 1993). Despite this evidence, coping in childhood remains relatively sparsely researched in comparison with the adult literature (Compas et al., 2001). Nonetheless, reviews of the nature of coping in middle childhood (usually considered to span roughly 6-12 years, Magnuson, 2007) suggest that this is a period where coping style develops rapidly, both as young people move from reliance on support from caregivers to greater self-reliance, and as they are faced with a broader range of potential stressors (Skinner & Zimmer-Gembeck, 2007; Valiente, Eisenberg, Fabes, Spinrad, & Sulik, 2015). Assessing coping in this potentially critical period is therefore of considerable importance.

Although a large number of coping measures exist, these are mostly designed for adults or older children, and are inappropriate for use with children in a community setting (for example, the Coping Inventory for Stressful Situations [Endler & Parker, 1990], the Adolescent Coping Orientation for Problem Experiences Inventory [A-Cope: Patterson & McCubbin, 1987], the Coping Styles

Questionnaire [Roger, Jarvis, & Najarian, 1993], and the Children's Coping Strategies Checklist [CCSC-HICUPS: Ayers, Sandler, West, & Roosa, 1996; Sandler, Tein, Mehta, Wolchik, & Ayers, 2000]). In addition, few measures are designed to capture multiple dimensions of coping style; dimensions are often defined in relatively broad terms, such as "active" or "avoidant," which limits the assessment of more fine-grained differences. Measures which do tap into a wider range of coping dimensions, such as the Kidcope (Spirito, Stark, & Williams, 1988) and the School-agers' Coping Strategies Inventory (Ryan-Wenger, 1990), are usually long, or complex in structure (for example, employing conditional clauses which may be confusing) which may limit their suitability for use with younger children. The limitations noted here suggest a need for a new and brief measure of coping style, suitable for use with children in middle childhood, which may offer an alternative route to understanding coping in childhood.

A first step in developing such a measure is to consider the theoretical underpinnings of coping. Most coping measures have focused on either an *intra*-individual or *inter*-individual approach (for a discussion, see for example Cohen, 1987; Folkman, 1992; Stone & Kennedy-Moore, 1992). These draw on two divergent theoretical perspectives put forward to explain variations in coping, process and dispositional, each of which offers a valuable contribution to understanding the construct (Heszen-Niejodek, 1997; Shirkey, Smith, & Walker, 2010).

The *intra*-individual approach to coping draws on the first of these, the process-oriented perspective (Folkman & Lazarus, 1985; Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986a; Folkman, Lazarus, Gruen, & DeLongis, 1986b). There are two key features in this perspective. Firstly, coping is conceptualized as a person's constantly changing cognitive and behavioral responses to situations or events perceived to be challenging (Folkman et al., 1986a; Lazarus & Folkman, 1984). Coping responses are considered to be wholly situation-specific and driven by individual stressors. As a result, measures within this theoretical paradigm are usually designed to assess coping with a particular stressor (for example, in chronically ill children), and are not intended to capture a "style" of coping or allow extrapolation across contexts. Examples of measures taking this approach are the Ways of Coping Questionnaire (Folkman & Lazarus, 1980;

Folkman & Lazarus, 1988), the Child-Adult Medical Procedure Interaction Scale-Revised (CAMPIS-R: Blount et al., 1997) and the Self-report Coping Survey (Causey & Dubow, 1992).

Secondly, the process-oriented approach focuses on what a person thinks and does in the face of a stressful encounter, regardless of how successful the response might be. For example, an individual may respond to adversity in a manner which increases rather than reduces negative psychological consequences. This perspective thus emphasizes that coping thoughts and actions under stress (for example, use of cognitive avoidance) must be measured separately from their outcomes (for example, levels of depression; Folkman, 2009; Folkman & Lazarus, 1985). This approach is useful in exploring variability in coping from an idiographic perspective, focusing on the role of context in determining within-individual variations in coping behavior (e.g. Braxton & Bergeman, 2017; Charles, Piazza, J., Sliwinski, & Almeida, 2013). However, it is more limited in what it can tell us about coping at a global level, which may be significant in developing interventions (Beutler, Harwood, Kimpara, Verdirame, & Blau, 2011; Beutler, Moos, & Lane, 2003). Nonetheless, the conceptualization of coping as a process, distinct and separate from potential consequences of the behavior, allows us to capture a broad spectrum of potential coping behavior distinct from consideration of adaptiveness.

The *inter*-individual approach to coping measurement, conversely, draws on a dispositional theoretical perspective. In this approach, coping is considered primarily a characteristic of the *person* rather than the specific context (Folkman et al., 1986a). Coping responses are determined by an individual's disposition or style, in which particular types of responses are habitually employed by an individual across multiple situations (Parker & Endler, 1996). This approach allows for a conceptualization of coping in which individuals are not merely unfixated and transitory beings, subject solely to moment-to-moment influences. Instead, they and their responses are shaped throughout development, enabling them to amass, based on experiences, a relatively stable set of strategies for use in encounters with the world (Ben-Porath & Tellegen, 1990). A well-validated adult measure based on this perspective is the Coping Inventory for Stressful Situations (Endler & Parker, 1990).

Features of each of these perspectives underpin the theoretical framework of coping in the current study. Drawing on dispositional theories of coping, coping is characterized as a relatively

stable style, comprising a profile or set of responses belonging to the individual. From the perspective of process theories of coping, this style reflects how an individual responds to difficult or challenging situations, regardless of the outcome or consequences of that response. In addition, coping is conceptualized as a multidimensional construct. A multidimensional coping style refers to an individual's response to adversity measured across numerous aspects of coping. The aim of the study was to determine how such multidimensional coping styles might manifest in middle childhood.

This paper describes the development and preliminary validation of the Profile of Coping Dimensions in Children (PCDC), a new, theory-driven measure of coping suitable for children aged 7-11 years. The measure is designed to take into account potential barriers to measurement in this age group such as limited experience of stressors, and restrictions in control over situations, which may uniquely affect children's coping, as well as taking account of the more practical limitations of children's ability to complete self-report measures reliably. The aim is to assess coping as a multidimensional construct and produce a profile of coping dimensions for each child, rather than a coping score. As part of the validation process, patterns of coping across age and gender, and the stability of responses over time are examined. Relationships between different coping strategies and measures of wellbeing, such as somatization, anxiety, perceived happiness and worries are also examined.

Methodology

Development of the new measure followed three key stages identified in the scale development theory literature: item generation, content validity and psychometric analysis (Clark & Watson, 1995; DeVellis, 2003).

Stage 1: Item Generation and Response Format

Items were generated using a deductive development process (Hinkin, 1995). The reliance on single items to represent each coping dimension was intended to balance breadth of dimensionality with brevity and suitability for children in this age group. In order to try to address the risks in this approach, items were drawn from the existing literature to increase the likelihood that they would be valid and reliable measures of coping.

As a first stage, key domains of coping were identified through a review of available literature on dimensions of coping shown to be associated with current and future wellbeing, and then a pool of items to assess these dimensions was created or adapted from existing measures¹. Where available, the review focused on studies of children but, where appropriate, also drew on relevant examples from the adult literature.

Eleven dimensions of coping which have been implicated in wellbeing were identified.

1. *Active or engagement coping*, characterized by constructive problem-solving has been demonstrated to be associated with emotional well-being in adults (Bouchard, Guillemette, & Landry-Léger, 2004; Carver, Scheier, & Weintraub, 1989; Compas et al., 2001) and children (Ayers et al., 1996; Eisenberg et al., 1996; Thomsen et al., 2002).

2. *Positive reinterpretation and reappraisal*, demonstrated by trying to see the positive has been shown to be associated with positive psychological adjustment in both adults (Carver et al., 1989) and children (Garnefski, Legerstee, Kraaij, Van den Kommer, & Teerds, 2002; Garnefski, Rieffe, Jellesma, Terwogt, & Kraaij, 2007; Thomsen et al., 2002).

3. *Preoccupation*, typified by ruminative coping has also been found to be important in wellbeing: rumination has been shown to be a strong predictor of anxiety and somatization in both children and adults (Garnefski et al., 2002; 2007; Matud, 2004), and has been associated with social anxiety and depression in children (Thomsen et al., 2002; Wright, Banerjee, Hoek, Rieffe, & Novin, 2010).

4. *Refocus on planning*, cognitive coping characterized by thinking about how to proceed and handling negative events, has been found to be associated with lower levels of anxiety in children (Legerstee, Garnefski, Jellesma, Verhulst, & Utens, 2010) and decreases in negative emotion in adults (Troy, Shallcross, Brunner, Friedman, & Jones, 2018).

¹ Further support for the validity of identified dimensions was provided by additional interviews conducted with a sample of children and their caregivers in which coping was discussed (Quy et al, in preparation).

5 – 8. Indicators of emotion regulation focused coping such as *anger*, *effortful control*, *self-soothing* and *perseveration* have also been demonstrated to be important in internalizing symptoms (D’Avanzato, Joormann, Siemer, & Gotlib, 2013). For example, Eisenberg et al. (1996) found that anger and negative emotionality were negatively associated with children’s social functioning, while *effortful control* has been positively associated with socio-emotional wellbeing (Eisenberg, Hofer, Sulik, & Spinrad, 2014). *Perseveration* has been shown to be strongly associated with psychological distress (Boyes, Carmody, Clarke, & Hasking, 2017).

9. *Emotional awareness* has been found to play a key role in adaptive emotion regulation, and the ability to differentiate between, and correctly identify, emotions has been associated with children’s wellbeing (Gilleland, Suveg, Jacob, & Thomassin, 2009; Rieffe, Oosterveld, Miers, Meerum Terwogt, & Ly, 2008).

10. *Behavioral (dis)engagement and catastrophizing*, typified by failure to respond, have also been found to be associated with adjustment, including higher levels of somatic symptoms and anxiety, and depressive symptoms in children (Kaminsky, Robertson, & Dewey, 2006; Thomsen et al., 2002), and with higher levels of somatic symptoms in adults (Matud, 2004).

11. *Denial and cognitive avoidance*, characterized by ignoring stress or refusing to think about it has been found to be associated with depressive symptoms in children at risk for depression (Dunbar et al., 2013).

Response format.

The response format of the measure was designed to be simple and suitable for self-completion by 7-11 year olds. The measure was prefaced with the statement, “Everyone feels different when they are worried or upset. Please look at the sentences below, and tell us if they are true for you”, with possible response options of “yes” or “no”, a format demonstrated to be appropriate for children in this age range (Fritzley, Lindsay, & Lee, 2013). To help children frame their responses, statements were then prefaced with “When I am worried or upset, I...”

Stage 2: Content Validity

In order to ensure the item pool was a reflection of the intended construct (Crocker & Algina, 2006), items were then reviewed for age appropriateness and content validity by a team of four researchers with relevant knowledge of the topic. In order to ensure the measure was as simple as possible, items judged to best capture the dimensions of coping highlighted in the literature were selected for piloting.

Stage 3: Psychometric Analysis

Piloting to assess face validity and accessibility for children aged 7 to 11 years.

A pilot measure, comprising 11 items, was tested with 228 children aged between 7 and 11 years, in a school in the London area. After administration, children were asked whether they had experienced any difficulties completing the measure, whether the items had made sense to them, and whether the measure included the kinds of things they did when they felt worried or upset. Feedback confirmed face validity and suggested that it was acceptable for use with this age group. Frequency distributions and the pattern of responses indicated sufficient variability within the sample and the level of missing data was very low (<1.3%).

For the purposes of comparison, the most suitable of the measures identified in the review of measures, the Kidcope (Spirito et al., 1988), was also piloted with 196 children in another school in the London area. As with other measures, in the younger class groups (children aged 7-8) a researcher read each item aloud to the class as a group. Children in the older class groups (ages 9-11) were asked to complete the measure independently, but additional help was provided where necessary. The Kidcope is a ten-item process-oriented measure designed to assess frequency and perceived effectiveness of strategies in children aged 7-12 years. Each item is designed to measure a different coping strategy: Distraction, Social withdrawal, Cognitive restructuring, Self-criticism, Blaming others, Problem solving, Emotional regulation, Wishful thinking, Social support, and Resignation. Children were asked to state whether or not they employed each strategy, and, if so, how helpful they had found it to be. Moderate to high ($r=0.41-0.83$) test-retest correlations have been reported for this measure obtained over short periods (3 to 7 days); correlations were considerably lower over longer periods. In terms of validity, correlations between strategies measured in the

Coping Strategies Inventory (Ryan-Wenger, 1990) and Kidcope items range from $r=0.33-0.77$). The pilot demonstrated that the Kidcope measure was too complex in structure and format for use with younger children. While levels of missing data were relatively small (1.5-4.1% by item), item by item analysis indicated that children were not able to manage the complex conditional structure of the questions, and often (in 17.6 – 38.8% of cases) provided a response to the effectiveness of a coping strategy (the degree to which they had found a strategy useful), even if they had reported not using that strategy. In post-administration discussions children reported finding the Kidcope complicated and difficult to complete. By contrast, children who completed the PCDC reported finding it easy to manage.

Based on piloting, a few minor wording changes were made to the PCDC to increase clarity of items and instructions. The final version comprised eleven items representing coping responses tapping into particular coping dimensions. These, and the dimensions being assessed, are listed in Table 1.

After piloting, the new measure was used to assess the prevalence and patterning of coping response styles in a large community sample of children aged 7-11 years. Follow-up data were collected in a subsample ($n=189$) at two subsequent time points, once 12 months after initial data collection, and again 3 months later).

Measures of Wellbeing

In order to assess concurrent validity of the measure, relationships were assessed between dimensions of coping and measures of wellbeing, specifically anxiety and somatic symptoms and perceived stress and happiness.

Children's anxiety symptoms were assessed using the Spence Children's Anxiety Scale (SCAS: Spence, 1998), a 44-item Australian scale designed to measure the severity of anxiety symptoms in children. The scale assesses anxiety across six dimensions: generalized anxiety, panic/agoraphobia, social phobia, separation anxiety, obsessive compulsive disorder and physical injury fears, selected to reflect the dimensions of anxiety disorder as set out in the Diagnostic and Statistical Manual (DSM-IV). Children were asked to rate how much they had experienced each

symptom over the previous two weeks. Responses were scored on a four-point scale from 0-3 (not at all, a little, quite a bit, a lot). Possible scores range from 0-114, with higher scores indicating greater anxiety. Internal consistency and test-retest reliability of the scale was demonstrated to be high ($\alpha = 0.9$). Convergent validity was investigated between the SCAS and the Revised Children's Manifest Anxiety Scale (RCMAS: Reynolds and Richmond, 1978), and results indicated a strong, positive correlation ($r = 0.7$, $N = 218$, $p < 0.001$). Discriminant validity was assessed by investigating correlations between scores for the SCAS and child-report on the Children's Depression Inventory (CDI: Kovacs, 1981). The relationship between the SCAS and the CDI was found to be significantly weaker than the relationship between the SCAS and the RCMAS ($Z = 4.77$, $N = 218$, $p < 0.001$).

Children's somatic symptoms were assessed using the Children's Somatization Inventory (CSI). The CSI (Walker, Beck, Garber, & Lambert, 2009) is a 24-item measure designed to assess children's physical symptomatology. It is a shortened version of the original 35-item measure (Garber, Walker, & Zeman, 1991; Walker, Garber, & Greene, 1991), and was highly correlated with the longer version ($r = .99$, Walker et al., 2009). Items were drawn from the DSM III-R criteria for somatization disorder and the Hopkins Symptom Checklist (Derogatis *et al.*, 1974). Symptoms were included from the following DSM-III categories: conversion or pseudo neurological (e.g., fainting, difficulty swallowing); gastrointestinal (e.g., abdominal pain, nausea); pain (e.g., back pain), and cardiopulmonary (e.g., dizziness, shortness of breath). Children rate how much they were bothered by each symptom on a five point scale, from 0 ('not at all') to 4 ('a whole lot'). The CSI does not assess perceived impairment or relationship between physical symptoms and stress. Psychometric analysis has demonstrated good internal consistency of the scale ($\alpha = 0.88$, Walker et al., 2009). The current sample demonstrated similarly good internal consistency ($\alpha = .90$). Data presented by Walker, Garber and Greene (1991) showed that children's scores on the original CSI-35 were moderately correlated ($r = 0.42$, $p < 0.001$) with the somatic subscale of the CBCL (Achenbach, 1991) providing support for the instrument's construct validity. There was no relationship between the CSI and the CBCL externalizing scale, indicating discriminant validity.

Children's perceived stress and happiness were assessed using short, self-report scales, constructed for use in this study. These new scales were developed to assess in a context-sensitive

and age appropriate way the likely common sources of stress and happiness that might be experienced by children. These measures were developed for use in this study based on sources of stress / worries and happiness reported by children in pilot schools. While there are a number of life event scales available, no suitable or appropriate measures of everyday stressors likely to be experienced by children in middle childhood were identified, and these tools allowed us to collect data on the prevalence of commonly cited sources of stress in this sample. The happiness scale was originally developed at least partly to counterbalance the number of negative items in the composite questionnaire completed by children, but from an early stage its utility as an independent validator was recognised.

These measures asked children to report the frequency (never, sometimes or often) with which potential stressors (10 items), or sources of happiness (9 items), such as “my friends,” “my family,” or “schoolwork” made them feel worried or happy. The measures had good internal reliability (Stress: Cronbach’s $\alpha = .75$, Happiness: $\alpha = .61$) and adequate test-retest reliability ($r = .5$). Possible scores ranged from zero to 20 (stressors) or 18 (happiness). Higher scores indicated higher levels of worry or happiness.

Participants

Participants were 2566 children aged seven to eleven years attending 15 primary (elementary) schools across three different Local Education Authorities (LEAs) in the South East of England (two in London and one north of London). In order to ensure a reasonably diverse and representative sample, schools were selected to be broadly reflective of the wider population. To facilitate this, schools were assessed using Local Authority-level data relating to eligibility for Free School Meals, proportion of non-English speakers, and demographic information. Table 2 presents comparative demographic data on each of the areas and the schools selected within them:

Ethics

Ethical consent for this work, as part of the larger research study, was sought and obtained from the Faculty Research Ethics Committee.

Procedure

Within the selected schools, all children in the relevant age group (7-11 years) were invited to take part. All parents / caregivers had previously been sent a letter informing them of the research and allowing them to opt their children out if they wished. The measure was administered in each class in the presence of the class teacher. Where available, and particularly in younger groups, classroom assistants were also engaged to facilitate the process. At the beginning of the session a researcher explained the research, and what was required of the children, and asked them if they would be willing to participate. It was explained to the children that their names would not be used in the research, and that answers would be confidential. The researcher then explained the administration process and demonstrated examples to ensure children understood how to complete the measure correctly. In the younger groups (children aged 7 and 8 years) a researcher read each item aloud to the class as a group. Older children (those aged 9-11 years) were asked to complete the measure independently, but additional help was provided where necessary. At the end of the session children were thanked for their help, and invited to comment and ask questions, and each class was awarded a certificate of achievement in recognition of their contribution to the research.

Data Analysis

Chi-square statistics were used to determine gender and age differences in coping. T tests were used to assess the concurrent validity of measure items with measures of wellbeing.

In order to assess the temporal stability of individual item responses, a Cohen's *kappa* statistic (Cohen, 1960) was calculated for each item in the measure. This is a commonly used measure of agreement between two binary variables. While conservative, a Cohen's *kappa* is more robust than some alternatives as it takes into account the possibility of results occurring by chance.

Results

Prevalence and Patterning of Children's Coping Strategies

The number of strategies endorsed by children ranged from 0 (n = 21 children, 0.8%) to 11 (n = 19 children, 0.7%), with children reporting an average of 6.47 of the 11 possible strategies (SD = 1.82).

Table 3 shows the endorsement of different coping responses in order of frequency. The most frequently endorsed responses, each of which were reported by about three quarters of children, were trying not to think about it, trying to think about ways to solve the problem, feeling able to do something to make things better, being able to see the good side of things, and being able to calm oneself down. The least commonly endorsed responses were staying upset for several days, and getting angry – less than a quarter of children said these were true for them. Overall, the level of missing data was small ($< 0.4\%$).

Gender differences.

There were significant differences in both the number and nature of responses endorsed by girls and boys, with girls endorsing a slightly greater number of responses overall. On average girls endorsed 6.7 strategies and boys 6.3, $t(2513.1) = 5.95, p < .001, d = .24$. There were also gender differences in relation to the most commonly endorsed responses (see Table 3). The most frequently reported responses by girls were “I try not to think about it” and “I try to think of ways to solve the problem,” while for boys the most frequently reported responses were, “I can see the good side of things,” and “I can usually do something to make things better.” The least frequently reported responses were the same for both boys and girls.

Girls and boys also differed in terms of the frequency with which they endorsed individual responses, although generally these differences were quite small with effect sizes ranging between .04 and .13 (see Table 3). Boys were more likely to report seeing the good side of things, and being able to change how they felt when upset. Girls were more likely to report trying not to think about things, trying to think of solutions, and feeling there is nothing that they can do about the problem. More notable differences were found relating to preoccupation, being upset without knowing why and perseverative responses (staying upset for several days), all of which were reported significantly more frequently by girls.

Age differences.

Coping style patterns were found to vary by age group. While there was no difference in the total number of strategies endorsed at different ages, $F(3, 2556) = 1.68, p = .17$, suggesting that older children did not use a greater (or smaller) repertoire of coping responses, *Chi-square* tests did reveal

significant age-associated differences in relation to the use of some specific strategies. Trying not to think about problems, $\chi^2(1, n = 2557) = 13.33, p < .01$, being unable to identify sources of upset, $\chi^2(1, n = 2557) = 19.38, p < .001$, and being able to calm down, $\chi^2(1, n = 2557) = 8.42, p = .04$ were each more commonly reported by older children (those aged 9 – 11 years), while feeling there was nothing they could do to solve a problem was more commonly reported by children aged 7 or 8 years, $\chi^2(1, n = 2557) = 18.79, p < .001$. Effect sizes were small, indicating relatively slight differences ($\phi = .01 - .09$).

Internal Consistency of the Measure

Since the intention was to develop a profile assessing the different dimensions of coping, it was not anticipated that the internal consistency of the measure would be high. Nevertheless, consistency was assessed by Cronbach's alpha and as expected was relatively low ($\alpha = .37$), reflecting the intended multidimensionality. Inter-item correlations were also relatively low ($r = .01 - .31$, please see Table 4), indicating that dimensions were assessing different aspects of coping.

Test-Retest Reliability

In order to assess the stability of individual item responses, a reliability trial was conducted by administering measures to children in one of the participating schools ($n = 189$) at three time points (during initial data collection, after an interval of 12 months and again 3 months later). A Cohen's *kappa* statistic (Cohen, 1960) was calculated for each item in the measure (see Table 3). Over the three month interval, values ranged from $\kappa = .17 - .55$. The most stable responses were those relating to emotion regulation, such as "I stay upset for several days," "I can calm myself down," "Sometimes I don't know why I'm upset" and "Getting angry helps me to feel better," while "I can see the good side of things" and "There is nothing I can do about it" showed little stability. While results indicated fair to moderate agreement for the majority of items (Landis & Koch, 1977), stability was lower than might be considered ideal. Cohen's *kappa* is, however, a highly conservative statistic and may underestimate agreement (Strijbos, Martens, Prins, & Jochems, 2006). Agreement over time was found to be considerably higher for older children (reaching $\kappa = .7$). For coping responses assessed 12 and 15 months after the initial data collection, the value of *kappa* for items ranged from $\kappa = .06 - .36$,

suggesting that some coping responses were fairly stable even over considerably longer periods.

Again, agreement over time was found to be higher for older children (reaching $\kappa = .5$).

Concurrent Validity with the SCAS and CSI

Use of different coping responses was found to be associated with children's somatization (see Table 5). Feeling able to do something about the situation, seeing the good side of things, feeling able to change how one felt and calm oneself down were all associated with significantly lower levels of somatization. Rumination (finding it hard to stop thinking about it), perseveration (staying upset for several days), feeling helpless (feeling there was nothing they could do), getting angry in response to stress and being unable to identify sources of upset were all significantly associated with higher levels of somatization. Effect sizes were moderate to large ($d = .35 - .99$), indicating substantial practical significance.

Concurrent validity with an established measure of anxiety, the Spence Children's Anxiety Scale (SCAS: Spence, 1998) was also demonstrated. Patterns of association were found to be similar to those observed with somatization. The items most strongly associated with higher levels of anxiety were "I find it hard to stop thinking about it," $t(2399) = -17.71, p < .001, d = -.72$, and "I stay upset for several days," $t(859.1) = 15.78, p < .001, d = 1.08$. The items most strongly associated with lower levels of anxiety were "I can change how I feel," $t(1552.1) = 8.33, p < .001, d = .42$, "I can see the good side of things," $t(916.1) = 6.41, p < .001, d = .42$, and "I can calm myself down," $t(923.5) = 7.03, p < .001, d = .46$. Concurrent validity with this measure is reported in greater detail elsewhere (Quy, Gibb, Neil, & Smith, 2018).

Concurrent Validity with Measures of Stress and Sources of Happiness

Use of different coping responses was also found to be associated with sources of stress and happiness, including family, school and friendships. Feeling able to do something about the situation, seeing the good side of things, feeling able to change how one felt and calm oneself down were all associated with significantly lower levels of perceived stress (see Table 6) and significantly higher levels of perceived happiness (see Table 7). Rumination, perseveration, and feeling helpless were all significantly associated with higher levels of perceived stressors and lower levels of perceived

happiness. Trying to think of solutions was significantly associated with higher levels of perceived happiness, but was not related to levels of perceived stressors. Being unable to identify sources of upset and getting angry in response to stress were significantly associated with higher levels of perceived stressors, but were unrelated to self-reported happiness. Trying not to think about problems was significantly related both to higher levels of stress and higher levels of happiness. Effect sizes ranged from small to large ($d = .16 - 1.04$).

Discussion

Previous research has been limited by the paucity of measures designed to assess coping across a range of dimensions and suitable for use with children. The Profile of Coping Dimensions in Children is a new self-report instrument specifically designed to assess coping responses in children. Unlike previous studies (e.g. Billings & Moos, 1981; Ebata & Moos, 1991; Howerton & Van Gundy, 2009; Shirkey et al., 2010; Uebersax, 1987), coping was assessed as a multi-dimensional profile of responses rather than as a broad style (e.g. active vs. passive, problem-focused vs. emotion-focused), allowing more detailed and specific response styles to be assessed. Items were derived from a review of existing measures and research findings, which increased the likelihood that they would be valid and reliable measures of coping. Based on feedback from piloting and the low volume of missing data, the measure was also found to be easy to use, and suitable for use with children aged 7-11 years. This evaluation provides preliminary evidence that the PCDC is a reliable and valid measure of children's coping, measuring distinguishable dimensions of behavior which are differentially associated with symptoms of anxiety and somatization and the measures of perceived stress and happiness constructed for use in this study.

There was also some evidence to suggest that at least some aspects of coping as assessed using this instrument were relatively reliable and moderately stable, providing some support for the concept of coping profiles. It was notable that stability was higher in older children, suggesting that coping responses are in development during middle childhood and may be becoming increasingly stable with age.

Preliminary findings provide additional support for the validity and utility of the measure. Coping responses as measured by the new instrument were found to vary by gender to some extent.

These differences indicated that girls were more prone to responses reflecting difficulties in managing emotions, such as preoccupation and perseverative responses, and feeling behavioral (dis)engagement and catastrophizing. Boys meanwhile expressed greater optimism and confidence than girls in their ability to manage their problems. For both girls and boys, perseveration and anger were relatively rare. These findings indicate that emotion and thought regulation, and particularly rumination, is a particular issue for girls. This may be particularly significant in light of the evidence for gender differences in anxiety, in which females have consistently been found to be more vulnerable to anxiety and depression than males across the life course (McLean & Anderson, 2009; Nolen-Hoeksema & Girgus, 1994). While cognitive avoidance may not on the surface appear to “fit” with issues of preoccupation, it may be that while girls *attempt* to avoid thinking about stressors, intrusive thoughts nonetheless interfere. This finding echoes those of Wegner and colleagues (1987) who demonstrated that thought suppression may, paradoxically, lead to increased awareness of the suppressed idea. It is also interesting to consider whether the confident, capable style reported by boys is indicative of more effective management of stressors, or is rather a function of a gendered “macho” presentation. Such self-presentations are in line with findings from the masculinity literature (e.g. Oransky & Marecek, 2009), which suggest that boys are unwilling to reveal perceived weakness or vulnerability. This is contrasted with girls’ more negative perceptions of their own coping capacity.

The results based on this measure parallel findings from the self-esteem literature, which suggests that girls tend to rate their performance more negatively than boys, regardless of actual achievement (Birndorf, Ryan, Auinger, & Aten, 2005; Maccoby & Jacklin, 1974). These findings are also generally in line with those of previous research on coping in adult samples. For example, Matud (2004) found that women scored significantly higher on self-reported emotion-focused and avoidance coping, while men scored significantly higher on problem-focused and detachment coping. In addition, Compas, Orosan and Grant (1993) proposed that women engaged in thoughts and behaviors which focused primarily on depressive emotions and symptoms, while men were protected by use of distractive (as opposed to emotionally attentive) responses. Similarly, a meta-analytic review by Tamres, Janicki and Helgeson (2002) found that women were more likely than men to seek emotional support, ruminate about problems, and endorse more strategies overall. Gender differences in

children's coping styles are, however, less consistently established, particularly in community samples (Hampel & Petermann, 2005; Lynch, Kashikar-Zuck, Goldschneider, & Jones, 2007). The findings presented here are particularly significant in that they provide evidence that gender differences in coping responses emerge relatively early in development, and because they are comparable with those noted in adult samples, suggest that the nature of these differences remains relatively stable across the life span.

Patterning of strategies reported most commonly changed with age. Older children did not appear to use fewer ways of coping, but rather different ones. There were suggestions that older children were more self-reliant and better able to manage distress and their emotions. It is plausible that while children begin to acquire and adopt different coping strategies with age, they do so selectively, shifting their repertoire of favored coping responses on the basis of experience rather than simply accumulating an expanding armory of strategies. At the same time, older children also reported greater uncertainty and confusion in the face of problems, and more avoidant thinking. While it might be expected that older children would be better able to identify their emotions than younger children (Lane & Schwartz, 1987), the approach of adolescence brings with it a more complex and labile emotional experience (Larson, Moneta, Richards, & Wilson, 2002), together with a more nuanced view of the world. It is not unreasonable to conclude that this could mean greater emotional confusion for those in later childhood who may be beginning to experience the period of adolescent "storm and stress" proposed by Hall (1904) but who may yet lack the cognitive tools to navigate the new emotional landscape. Also, when faced with distress that one cannot yet manage or identify, trying not to dwell on it may be a quite sensible and reasonable approach.

Most significantly, children's favored coping responses were strongly associated with measures of wellbeing, such as somatization and anxiety. While the design of this study does not permit us to draw conclusions on the causal direction of this relationship (e.g., whether a perceived high stress environment serves to elicit particular coping responses, whether a particular coping style influences perceptions of stress and sources of worry, or whether both coping style and perceptions of stress and worry are functions of a third variable, such as, for example, parenting style), these findings provide some evidence of the utility of this measure in assessing coping style in a manner which relates to

measures of adjustment. Some items, however, demonstrated weaker associations with wellbeing, for example, “I try not to think about it,” “There is nothing I can do about it” and “I try to think about how I can solve the problem.” A number of factors may explain these weaker relationships. For example, children may have interpreted items in different ways. When considering ways to solve problems, some children might be more concerned than others about how successful they were in generating potential strategies. Secondly, while responses relating to avoidance and behavioral disengagement have been found to be associated with wellbeing in older children and adults (Kaminsky et al., 2006), they may be less relevant for this age group. For example “There is nothing I can do about it” could be a symptom of lack of agency in childhood generally, rather than individual self-efficacy. Additional work is needed to determine whether these items may benefit from further refinement to reduce potential ambiguity and ensure validity, or whether, in fact, they lack utility for assessing coping in this age group.

Limitations and Future Directions

Although the preliminary steps taken to validate the measure against measures of wellbeing indicated a good level of concurrent validity, some of these measures, while apparently psychometrically sound, were developed specifically for use in this study. Nonetheless, concurrent validity with established measures of wellbeing (the SCAS and CSI) provided weight to these findings. Similarly, test-retest data indicated that the reliability of a few of the coping items was quite low. Further examination of these items is necessary to determine their reliability and validity and to enable us to improve or eliminate any potentially problematical items.

This preliminary study offers scope for development in several areas. Firstly, while the authors consider that this study offers evidence for the utility of this measure as a brief instrument to assess coping in childhood, findings suggest scope for refinement. As described above, a few of the items may have been interpreted differentially by children, and could be clarified to reduce potential ambiguity in relation to identifying particular coping styles more specifically. Additional qualitative work to explore potential strategies and refine ambiguities and conceptual weaknesses in some items would serve to strengthen this process. Such work might include carrying out interviews with children to explore the kinds of coping strategies they adopt, and their understanding of these. This

approach could help to ensure items are meaningful to children, and are reflective of their coping behavior.

A second, and related, area is the potential for expansion of the measure. While the authors believe that there are compelling arguments for brevity, particularly in a measure designed for use with young children, an expanded measure in which each dimension is assessed with multiple items, might offer enhanced reliability and validity, and minimize random error. Development work such as that described above could yield additional items to capture each dimension in greater depth, and allow researchers to employ factor analytic techniques to determine underlying constructs.

Thirdly, the authors consider that a refined tool could offer important insights into the nature and development of coping in middle childhood. Preliminary analyses of age differences in use of strategies and response stability provide interesting indications that the stability of coping style may increase across childhood. Future work tracking changes in coping responses over time could provide rich insights into the development of coping response styles.

Findings also suggest that aspects of coping may vary substantially in terms of stability. One explanation for this may be that some strategies, such as preoccupation and perseveration, are more person-specific, while others, such as avoidant thinking, are more situation-dependent. Future studies exploring the context of coping, and the frequency with which particular strategies are adopted could further understanding of these processes.

Finally, the associations found between aspects of coping and indicators of wellbeing merit further examination with a view to informing intervention. These findings offer promising opportunities to identify and target coping skills that may be less adaptive, and employ targeted interventions to support the development of more adaptive strategies. Potential applications include use in community settings, such as schools, to screen children at risk of developing maladaptive coping response sets who may benefit from support. In clinical contexts, the measure could be used to identify coping skills deficits in children experiencing significant emotional distress. The PCDC redresses a number of shortcomings in existing coping measures which make it particularly useful for use in these contexts. Firstly, it has been demonstrated to be brief and simple to complete, and suitable for use with children as young as seven. Secondly, it is not limited to assessment of coping with a

specific stressor, but rather is it is suitable for use in a range of contexts. Finally, unlike other measures of coping style, which focus on broad styles of coping, (active, avoidant) it can be used to capture coping across multiple, distinct dimensions.

Conclusion

This paper describes the development of a new coping instrument, the PCDC, to assess coping in middle childhood. This research represents one of the few studies to examine in detail the coping styles demonstrated by children in this age group, using a new measure developed for the purpose. It focuses on children in the wider community, providing an insight into the ordinary experience of children in everyday life. The new instrument provided a measure of coping which set out to redress some of the limitations of existing measures and enabled the collection of rich and informative data on coping styles in children in this age group. The resulting data provide preliminary evidence which could be used to inform targeted interventions to support the development of adaptive coping and address maladaptive coping. The measure was deductively developed, designed to capture a wide range of coping dimensions and, importantly, designed to be easy for even children as young as seven to understand and use. Data presented here provide preliminary support for the utility of the measure as a multidimensional assessment of coping, and suggest that at least some aspects of coping demonstrate a degree of stability, even in middle childhood. It has also been demonstrated that coping style varies between children, and across age and gender. Furthermore, coping responses as assessed by the measure have been found to be differentially associated with self-reported stressors and sources of happiness. Together, these preliminary findings represent an important step in the field of coping measurement, and this new instrument has the potential to make a significant contribution to the sphere of coping research.

References

- Allen, S. F., Pfefferbaum, B., Nitiéma, P., Pfefferbaum, R. L., Houston, J. B., McCarter, G. S., & Gray, S. R. (2016). Resilience and Coping Intervention with Children and Adolescents in At-Risk Neighborhoods. *Journal of Loss and Trauma, 21*(2), 85-98.
doi:10.1080/15325024.2015.1072014
- Ayers, T. S., Sandler, I. N., West, S. G., & Roosa, M. W. (1996). A dispositional and situational assessment of children's coping: Testing alternative models of coping. *Journal of Personality, 64*(4), 923-958.
- Ben-Porath, Y. S., & Tellegen, A. (1990). A Place for Traits in Stress Research. *Psychological Inquiry, 1*(1), 14-17.
- Beutler, L. E., Harwood, T. M., Kimpara, S., Verdirame, D., & Blau, K. (2011). Coping Style. In J. C. Norcross (Ed.), *Psychotherapy Relationships That Work* (2nd ed.). New York: Oxford University Press.
- Beutler, L. E., Moos, R. H., & Lane, G. (2003). Coping, treatment planning, and treatment outcome: discussion. *Journal of Clinical Psychology, 59*, 1151–1167.
- Billings, A. G., & Moos, R. H. (1981). The role of coping responses in attenuating the impact of stressful life events. *Journal of Behavioral Medicine, 4*, 139-157.
- Birndorf, S., Ryan, S., Auinger, P., & Aten, N. (2005). High self-esteem among adolescents: Longitudinal trends, sex differences, and protective factors. *Journal of Adolescent Health, 37*(3), 194-201.
- Blount, R. L., Cohen, L. L., Frank, N. C., Bachanas, P. J., Smith, A. J., Manimala, M. R., & Pate, J. T. (1997). The Child-Adult Medical Procedure Interaction Scale-Revised: An assessment of validity. *Journal of Pediatric Psychology, 22*, 73-88.
- Bouchard, G., Guillemette, A., & Landry-Léger, N. (2004). Situational and dispositional coping: an examination of their relation to personality, cognitive appraisals, and psychological distress. *European Journal of Personality, 18*(3), 221-238.

- Boyes, M., Carmody, T., Clarke, P., & Hasking, P. (2017). Emotional reactivity and perseveration: Independent dimensions of trait positive and negative affectivity and differential associations with psychological distress. *Personality and Individual Differences, 105*(15), 70-77.
doi:10.1016/j.paid.2016.09.025
- Braun-Lewensohn, O., Celestin-Westreich, S., Celestin, L.-P., Verleye, G., Verté, D., & Ponjaert-Kristoffersen, I. (2009). Coping styles as moderating the relationships between terrorist attacks and well-being outcomes. *Journal of Adolescence, 32*(3), 585-599.
- Braxton, J., & Bergeman, C. S. (2017). A process-oriented perspective examining the relationships among daily coping, stress, and affect. *Personality and Individual Differences, 104*(1), 357-361.
- Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology, 56*(2), 267-283.
- Causey, D. L., & Dubow, E. F. (1992). Development of a self-report measure for elementary school children. *Journal of Clinical Child Psychology, 21*, 47-59.
- Charles, S. T., Piazza, J. R., J., M., Sliwinski, M. J., & Almeida, D. M. (2013). The wear and tear of daily stressors on mental health. *Psychological Science, 24*(5), 733-741.
- Clark, L. A., & Watson, D. (1995). Constructing validity: Basic issues in objective scale development. *Psychological Assessment, 7*(3), 309-319. doi:10.1037/1040-3590.7.3.309
- Cohen, F. (1987). Measurement of coping. In S. V. Kasl & C. L. Cooper (Eds.), *Stress and Health: Issues in research methodology* (pp. 283-305). New York: Wiley.
- Cohen, J. (1960). A coefficient of agreement for nominal scales. *Educational and Psychological Measurement, 20*(1), 37-46.
- Compas, B. E., Connor-Smith, J. K., Saltzman, H., Thomsen, A. H., & Wadsworth, M. E. (2001). Coping With Stress During Childhood and Adolescence: Problems, Progress, and Potential in Theory and Research. *Psychological Bulletin, 127*(1), 87-127.
- Compas, B. E., Orosan, P. G., & Grant, K. E. (1993). Adolescent stress and coping: Implications for psychopathology during adolescence. *Journal of Adolescence, 16*(3), 331-349.

- Crocker, L. M., & Algina, J. (2006). *Introduction to classical and modern test theory*. New York: Holt, Rinehart & Winston.
- D'Avanzato, C., Joormann, J., Siemer, M., & Gotlib, I. H. (2013). Emotion regulation in depression and anxiety: Examining diagnostic specificity and stability of strategy use. *Cognitive Therapy and Research, 37*(5), 968-980. doi:10.1007/s10608-013-9537-0
- DeVellis, R. F. (2003). *Scale development: Theory and applications* (2nd ed.). Newbury Park: Sage Publications.
- Dubow, E. F., Schmidt, D., McBride, J., Edwards, S., & Merk, F. L. (1993). Teaching children to cope with stressful experiences: Initial implementation and evaluation of a primary prevention program. *Journal of Clinical Child Psychology, 22*(4), 428-440.
- Dunbar, J. P., McKee, L., Rakow, A., Watson, K. H., Forehand, R., & Compas, B. E. (2013). Coping, negative cognitive style and depressive symptoms in children of depressed parents. *Cognitive Therapy and Research, 37*(1), 18-28. doi:10.1007/s10608-012-9437-8
- Ebata, A. T., & Moos, R. H. (1991). Coping and adjustment in distressed and healthy adolescents. *Journal of Applied Developmental Psychology, 12*, 33-54.
- Eisenberg, N., Fabes, R. A., Karbon, M., Murphy, B. C., Wosinski, M., Polazzi, L., . . . Juhnke, C. (1996). The relations of children's dispositional prosocial behavior to emotionality, regulation, and social functioning. *Child Development, 67*(3), 974-992.
- Eisenberg, N., Hofer, C., Sulik, M. J., & Spinrad, T. L. (2014). Self-regulation, effortful control, and their socioemotional correlates. In J. J. Gross (Ed.), *Handbook of emotion regulation* (2nd ed.). New York: Guilford.
- Endler, N. S., & Parker, J. D. A. (1990). *Coping Inventory for Stressful Situations (CISS): Manual*. Toronto: Multi-Health Systems.
- Folkman, S. (1992). Improving coping assessment: Reply to Stone and Kennedy-Moore. In H. S. Friedman (Ed.), *Hostility, coping, and health* (pp. 215-223). Washington, DC: APA.
- Folkman, S. (2009). Questions, answers, issues, and next steps in stress and coping research. *European Psychologist, 14*(1), 72-77.

Folkman, S., & Lazarus, R. S. (1980). An analysis of coping in a middle-aged community sample.

Journal of Health and Social Behavior, 21(3), 219-239.

Folkman, S., & Lazarus, R. S. (1985). If it changes it must be a process: Study of emotion and coping during three stages of a college examination. *Journal of Personality and Social Psychology*,

48(1), 150-170. doi:10.1037/0022-3514.48.1.150

Folkman, S., & Lazarus, R. S. (1988). *Manual for the Ways of Coping Questionnaire*. Palo Alto, California: Consulting Psychologist Press.

Folkman, S., Lazarus, R. S., Dunkel-Schetter, C., DeLongis, A., & Gruen, R. J. (1986a). Dynamics of a stressful encounter: Cognitive appraisal, coping, and encounter outcomes. *Journal of Personality and Social Psychology*, 50(5), 992-1003.

Folkman, S., Lazarus, R. S., Gruen, R. J., & DeLongis, A. (1986b). Appraisal, coping, health status, and psychological symptoms. *Journal of Personality and Social Psychology*, 50(3), 571-579.

Fritzley, V. H., Lindsay, R. C. L., & Lee, K. Y. (2013). Young children's response tendencies toward yes-no questions concerning actions. *Child Development*, 84(2), 711-725.

Garber, J., Walker, L. S., & Zeman, J. (1991). Somatization symptoms in a community sample of children and adolescents: Further validation of the Children's Somatization Inventory.

Psychological Assessment, 3(4), 588-595.

Garnezy, N. (1987). Stress, competence, and development: Continuities in the study of schizophrenic adults, children vulnerable to psychopathology, and the search for stress-resistant children.

American Journal of Orthopsychiatry, 57(2), 159-174.

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., Terwogt, M., & Kraaij, V. (2007). Cognitive emotion regulation strategies and emotional problems in 9-11-year-old children. *European Child & Adolescent Psychiatry*, 16(1), 1-9.

- Gilleland, J., Suveg, C., Jacob, M. L., & Thomassin, K. (2009). Understanding the medically unexplained: Emotional and familial influences on children's somatic functioning. *Child: Care, Health and Development*, 35(3), 383-390.
- Hall, G. S. (1904). *Adolescence*. Englewood Cliffs, New Jersey: Prentice-Hall.
- Hampel, P., & Petermann, F. (2005). Age and gender effects on coping in children and adolescents. *Journal of Youth and Adolescence*, 34(2), 73-83.
- Heszen-Niejodek, I. (1997). Coping style and its role in coping with stressful encounters. *European Psychologist*, 2(4), 342-351.
- Hinkin, T. R. (1995). A review of scale development practices in the study of organizations. *Journal of Management*, 21(5), 967-988. doi:1177/014920639502100509
- Howerton, A., & Van Gundy, K. (2009). Sex differences in coping styles and implications for depressed mood. *International Journal of Stress Management*, 16(4), 333-350.
- Kaminsky, L., Robertson, M., & Dewey, D. (2006). Psychological correlates of depression in children with recurrent abdominal pain. *Journal of Pediatric Psychology*, 31(9), 956.
- Kanfer, F. H., Karoly, P., & Newman, A. (1975). Reduction of children's fear of the dark by competence-related and situational threat-related verbal cues. *Journal of Consulting and Clinical Psychology*, 43(2), 251-258.
- Kovacs, M. (1981). Rating scales to assess depression in school-aged children. *Acta Paedopsychiatrica*, 46, 305-315.
- Landis, J. R., & Koch, G. G. (1977). The measurement of observer agreement for categorical data. *Biometrics Bulletin*, 33(1), 159-174.
- Lane, R. D., & Schwartz, G. (1987). Levels of emotional awareness: A cognitive-developmental theory and its application to psychopathology. *American Journal of Psychiatry*, 144, 133-143.
- Larson, R. W., Moneta, G., Richards, M. H., & Wilson, S. (2002). Continuity, stability, and change in daily emotional experience across adolescence. *Child Development*, 73(4), 1151-1165.
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal and coping*. New York: Springer.

- Legerstee, J. S., Garnefski, N., Jellesma, F. C., Verhulst, F. C., & Utens, E. M. (2010). Cognitive coping and childhood anxiety disorders. *Journal of European Child & Adolescent Psychiatry*, *19*(2), 143-150.
- Lengua, L. J., & Long, A. C. (2002). The role of emotionality and self-regulation in the appraisal-coping process: Tests of direct and moderating effects. *Journal of Applied Developmental Psychology*, *23*(4), 471-493.
- Lynch, A. M., Kashikar-Zuck, S., Goldschneider, K. R., & Jones, B. A. (2007). Sex and age differences in coping styles among children with chronic pain. *Journal of Pain and Symptom Management*, *33*(2), 208-216.
- Maccoby, E. E., & Jacklin, C. N. (1974). *The psychology of sex differences*. Stanford, CA: Stanford University Press.
- Magnuson, K. (2007). Maternal education and children's academic achievement during middle childhood. *Developmental Psychology*, *43*(6), 1497-1512. doi:10.1037/0012-1649.43.6.1497
- Matud, M. P. (2004). Gender differences in stress and coping styles. *Personality and Individual Differences*, *37*(7), 1401-1415.
- McLean, C. P., & Anderson, E. R. (2009). Brave men and timid women? A review of the gender differences in fear and anxiety. *Clinical Psychology Review*, *29*(6), 496-505.
- Nolen-Hoeksema, S., & Girgus, J. S. (1994). The emergence of gender differences in depression in adolescence. *Psychological Bulletin*(115), 424-443.
- Oransky, M., & Marecek, J. (2009). "I'm Not Going to Be a Girl" : Masculinity and Emotions in Boys. *Journal of Adolescent Research*, *24*(2), 218-241.
- Parker, J. D. A., & Endler, N. S. (1996). Coping and defense: A historical overview. In M. Zeidner & N. S. Endler (Eds.), *Handbook of coping: Theory research, applications*. New York: Wiley.
- Patterson, J. M., & McCubbin, H. I. (1987). Adolescent coping style and behaviors - conceptualization and measurement. *Journal of Adolescence*, *10*(2), 163-186.
- Pincus, D. B., & Friedman, A. G. (2004). Improving children's coping with everyday stress: Transporting treatment interventions to the school setting. *Clinical Child and Family Psychology Review*, *7*(4), 223-240. doi:10.1007/s10567-004-6087-8

- Quy, K., Gibb, J., Neil, L., & Smith, M. (2018). Dimensions of coping and anxiety symptoms in a community sample of young children. *Emotional and Behavioural Difficulties*, 23(3), 230-244.
- Rieffe, C., Oosterveld, P., Miers, A. C., Meerum Terwogt, M., & Ly, V. (2008). Emotion awareness and internalising symptoms in children and adolescents: The Emotion Awareness Questionnaire revised. *Personality and Individual Differences*, 45(8), 756-761.
- Roger, D., Jarvis, G., & Najarian, B. (1993). Detachment and coping: The construction and validation of a new scale for measuring coping strategies. *Personality and Individual Differences*, 15(6), 619-626.
- Ryan-Wenger, N. M. (1990). Development and psychometric properties of the Schoolagers' Coping Strategies Inventory. *Nursing Research*, 39, 344-349.
- Sandler, I. N., Tein, J.-Y., Mehta, P., Wolchik, S., & Ayers, T. (2000). Coping efficacy and psychological problems of children of divorce. *Child Development*, 71(4), 1099-1118.
- Shirkey, K. C., Smith, C. A., & Walker, L. S. (2010). Dispositional versus episode-specific assessment of children's coping with pain. *Journal of Pediatric Psychology*, 36(1), 74-83.
doi:10.1093/jpepsy/jsq058
- Shure, M. B., & Spivack, G. (1980). Interpersonal problem solving as a mediator of behavioral adjustment in preschool and kindergarten children. *Journal of Applied Developmental Psychology*, 1, 29-43.
- Skinner, E. A., & Zimmer-Gembeck, M. J. (2007). The development of coping. *Annual Review of Psychology*, 58(1), 119-144.
- Spence, S. H. (1998). A measure of anxiety symptoms among children. *Behaviour Research and Therapy*, 36(5), 545-566.
- Spirito, A., Stark, L. J., & Williams, C. (1988). Development of a brief coping checklist for use with pediatric populations. *Journal of Pediatric Psychology*, 13(4), 555-574.
doi:10.1093/jpepsy/13.4.555

- Stone, A. A., & Kennedy-Moore, E. (1992). Assessing situational coping: Conceptual and methodological considerations. In H. S. Friedman (Ed.), *Hostility, coping, and health* (pp. 203-214). Washington, DC: American Psychological Association.
- Strijbos, J., Martens, R., Prins, F., & Jochems, W. (2006). Content analysis: What are they talking about? *Computers & Education, 46*, 29-48.
- Tamres, L. K., Janicki, D., & Helgeson, V. S. (2002). Sex differences in coping behavior: A meta-analytic review and an examination of relative coping. *Personality and Social Psychology Review, 6*(1), 2-30. doi:10.1207/s15327957pspr0601_1
- Thomsen, A. H., Compas, B. E., Colletti, R. B., Stanger, C., Boyer, M. C., & Konik, B. S. (2002). Parent reports of coping and stress responses in children with recurrent abdominal pain. *Journal of Pediatric Psychology, 27*, 215-226.
- Troy, A. S., Shallcross, A. J., Brunner, A., Friedman, R., & Jones, M. C. (2018). Cognitive reappraisal and acceptance: Effects on emotion, physiology, and perceived cognitive costs. *Emotion, 18*(1), 58-74.
- Uebersax, J. S. (1987). Diversity of decision-making models and the measurement of interrater agreement. *Psychological Bulletin, 101*, 140-146.
- Valiente, C., Eisenberg, N., Fabes, R. A., Spinrad, T. L., & Sulik, M. J. (2015). Coping across the transition to adolescence: evidence of interindividual consistency and mean-level change. *The Journal of Early Adolescence, 35*(7), 947-965.
- Walker, L. S., Beck, J. E., Garber, J., & Lambert, W. (2009). Children's Somatization Inventory: Psychometric properties of the revised form CSI-24. *Journal of Pediatric Psychology, jsn093*. doi:10.1093/jpepsy/jsn093
- Walker, L. S., Garber, J., & Greene, J. W. (1991). Somatization symptoms in pediatric abdominal pain patients: relation to chronicity of abdominal pain and parent somatization. *Journal of Abnormal Child Psychology, 19*(4), 379-394.
- Wegner, D. M., Schneider, D. J., Carter, S., & White, T. (1987). Paradoxical Effects of Thought Suppression. *Journal of Personality and Social Psychology, 53*(1), 5-13.

Wright, M., Banerjee, R., Hoek, W., Rieffe, C., & Novin, S. (2010). Depression and social anxiety in children: Differential links with coping strategies. *Journal of Abnormal Child Psychology*, 38(3), 405-419.

Zeidner, M., & Endler, N. S. (1996). *Handbook of coping: Theory, research, applications*. New York: Wiley.

Table 1

Items of the Profile of Coping Dimensions in Children (PCDC) and the dimensions assessed by each

Item
1 I try to think about how I can solve the problem (active and constructive coping).
2 I can usually do something to make the situation better (cognitive coping and refocus on planning)
3 I can see the good side of things (positive reappraisal).
4 I find it hard to stop thinking about it (rumination and preoccupation)
5 I can change how I feel (emotion regulation)
6 I can calm myself down (self-soothing and the ability to manage negative emotions)
7 I stay upset for several days (perseveration of negative emotion)
8 Getting angry helps me to feel better (proneness to responding with anger)
9 Sometimes I don't know why I'm upset (emotional awareness)
10 I try not to think about it (denial and cognitive avoidance)
11 There is nothing I can do about it (behavioral (dis)engagement and catastrophizing)

Table 2

Demographic data relating to areas and schools

	Deprivation Index rank ²	% Black and minority ethnic (BME) ³
England & Wales (2005)		11.3%
London (2005)		31.0%
Area 1	19	35.2%
Area 2	128	20.3%
Area 3	171-336 ⁴	10.3%

² Taken from ONS indices of deprivation - ranked from 1 (most deprived), to 354 (least deprived)
<http://www.communities.gov.uk/communities/neighbourhoodrenewal/deprivation/deprivation07/>

³ Derived from ONS population estimates for mid 2007:
<http://www.statistics.gov.uk/statbase/product.asp?vlnk=14238>

⁴ Area 3 comprised a larger county outside of London and selected schools spanned a range of areas with different Deprivation Index ranks

Table 3

Prevalence, gender differences in, and stability of coping responses assessed by the Profile of Coping Dimensions in Children (PCDC, n = 2566)

	All		Girls		Boys		χ^2 (df = 1)	ϕ	κ^a
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%			
I can usually do something to make the situation better	1973	77.2	986	77.8	987	76.5	0.62	.02	.32
I can see the good side of things	1946	76.1	932	73.6	1014	78.6	8.95	.06	.18
I find it hard to stop thinking about it	1538	60.2	839	66.2	699	54.2	28.34	-.12	.28
I can change how I feel	1710	66.9	825	65.1	885	68.7	3.62	.04	.27
I stay upset for several days	599	23.4	362	28.5	237	18.4	36.93	.12	.42
Getting angry helps me to feel better	586	22.9	274	21.6	312	24.2	2.41	.03	.55
I try not to think about it	2014	78.8	1050	82.8	964	74.8	24.59	.10	.25
There is nothing I can do about it	976	38.2	506	39.9	470	36.5	3.27	.04	.17
I can calm myself down	1945	76.1	967	76.3	978	75.9	.05	.01	.37
I try to think about how I can solve the problem	1983	77.5	1014	80.0	969	75.1	8.64	.06	.27
Sometimes I don't know why I'm upset	1272	49.8	716	56.5	556	43.1	45.74	-.13	.35

Note: all values of *phi* exceeding .03 are significant at $p = .05$

^a – 3 month interval

Table 4

Inter-item correlations of the Profile of Coping Dimensions in Children (PCDC)

	1	2	3	4	5	6	7	8	9	10
1 I can usually do something to make the situation better	-									
2 I can see the good side of things	0.30	-								
3 I find it hard to stop thinking about it	-0.04	-0.14	-							
4 I can change how I feel	0.31	0.30	-0.19	-						
5 I stay upset for several days	-0.11	-0.15	0.22	-0.21	-					
6 Getting angry helps me to feel better	-0.06	-0.08	0.05	-0.03	0.10	-				
7 I try not to think about it	0.22	0.18	0.13	0.17	-0.05	-0.13	-			
8 There is nothing I can do about it	-0.16	-0.08	0.15	-0.11	0.16	0.06	-0.06	-		
9 I can calm myself down	0.28	0.31	-0.11	0.31	-0.20	-0.11	0.19	-0.19	-	
10 I try to think about how I can solve the problem	0.28	0.26	0.02	0.23	-0.05	-0.09	0.24	-0.06	0.27	-
11 Sometimes I don't know why I'm upset	0.03	0.01	0.18	-0.03	0.14	0.08	0.10	0.05	-0.01	0.03

Table 5

Relationship between somatization scores measured by the CSI and coping responses assessed by the Profile of Coping Dimensions in Children (PCDC)

		M	SD	t	df	d
Coping response						
I can usually do something to make the situation better	no	21.25	15.12	5.18	859.20	.35
	yes	17.66	13.10			
I can see the good side of things	no	21.59	14.96	6.05	918.51	.40
	yes	17.51	13.10			
I find it hard to stop thinking about it	no	14.32	11.73	-13.43	2427.45	-.55
	yes	21.25	14.17			
I can change how I feel	no	21.54	14.40	7.78	1542.78	.40
	yes	16.97	13.04			
I stay upset for several days	no	16.19	12.32	-14.38	852.39	-.99
	yes	25.95	15.15			
Getting angry helps me to feel better	no	17.67	13.31	-5.27	892.63	-.35
	yes	21.21	14.53			

I try not to think about it	no	18.90	14.54	.78	807.52	.05
	yes	18.36	13.44			
There is nothing I can do about it	no	16.44	12.49	-9.39	1798.73	-.44
	yes	21.79	14.83			
I can calm myself down	no	22.49	15.33	7.70	896.26	.51
	yes	17.21	12.86			
I try to think about how I can solve the problem	no	18.37	14.38	-.20	887.13	.01
	yes	18.51	13.47			
Sometimes I don't know why I'm upset	no	15.77	12.92	-10.28	2532.20	-.41
	yes	21.23	13.87			

Note: all *d* values exceeding .34 are significant at $p = .05$

Table 6

Relationship between mean perceived stress scores and coping responses assessed by the Profile of Coping Dimensions in Children (PCDC)

		M	SD	t	df	d
Coping response						
I can usually do something to make the situation better	no	7.28	4.32	4.37	851.76	.30
	yes	6.41	3.72			
I can see the good side of things	no	7.43	4.18	5.66	934.41	.37
	yes	6.36	3.75			
I find it hard to stop thinking about it	no	5.17	3.59	-16.17	2246.68	-.68
	yes	7.56	3.78			
I can change how I feel	no	7.49	3.94	8.14	2549	.32
	yes	6.17	3.79			
I stay upset for several days	no	5.94	3.59	-15.74	912.33	-1.04
	yes	8.81	3.99			
Getting angry helps me to feel better	no	6.35	3.73	-5.87	868.31	-.40
	yes	7.49	4.25			
I try not to think about it	no	6.26	4.23	-2.20	792.12	-.16

	yes	6.70	3.78			
There is nothing I can do about it	no	5.99	3.62	-10.06	1875.59	-.46
	yes	7.60	4.08			
I can calm myself down	no	7.66	4.23	7.24	925.19	.48
	yes	6.28	3.71			
I try to think about how I can solve the problem	no	6.36	4.09	-1.67	880.63	-.11
	yes	6.68	3.82			
Sometimes I don't know why I'm upset	no	5.71	3.73	-12.07	2549	-.48
	yes	7.52	3.83			

Note: all *d* values exceeding .15 are significant at $p = .05$

Table 7

Relationship between mean perceived happiness scores and coping responses assessed by the Profile of Coping Dimensions in Children (PCDC)

		M	SD	t	df	d
Coping response						
I can usually do something to make the situation better	no	10.52	3.42	-9.01	831.05	-.63
	yes	11.92	2.84			
I can see the good side of things	no	10.49	3.34	-9.7	902.19	-.65
	yes	11.95	2.85			
I find it hard to stop thinking about it	no	11.92	3.08	4.28	2533	.17
	yes	11.39	2.99			
I can change how I feel	no	10.70	3.17	-10.32	1526.32	-.53
	yes	12.04	2.87			
I stay upset for several days	no	11.80	2.97	5.83	944.66	.38
	yes	10.95	3.16			
Getting angry helps me to feel better	no	11.66	2.96	1.74	883.22	.12
	yes	11.40	3.27			
I try not to think about it	no	11.14	3.59	-3.44	720.88	-.26

	yes	11.72	2.87			
There is nothing I can do about it	no	11.77	2.96	3.44	1960.19	.16
	yes	11.33	3.15			
I can calm myself down	no	10.61	3.53	-8.30	848.49	-.57
	yes	11.91	2.80			
I try to think about how I can solve the problem	no	10.82	3.47	-6.35	802.38	.45
	yes	11.83	2.86			
Sometimes I don't know why I'm upset	no	11.63	3.14	.56	2533	.02
	yes	11.57	2.94			

Note: all *d* values exceeding .15 are significant at $p = .05$