DOI 10.1007/s10578-008-0121-x

ARTICLE

Common and Specific Emotion-related Predictors of Anxious and Depressive Symptoms in Youth

Cynthia Suveg Æ Brian Hoffman Æ Janice L. Zeman Æ Kristel Thomassin

Published online: 28 November 2008

Springer Science+Business Media, LLC 2008

Abstract This study examined whether specific emotion-related constructs may be uniquely related to anxious or depressive symptoms in youth. Although anxiety and depression are comorbid in both youth and adult populations, delineation of these disorders is a worthwhile endeavor given that such differentiation may lead to a clearer conceptu- alization of the disorders that in turn may facilitate more efficient diagnosis and effective treatment. Children in the 4th and 5th grades (N = 187; M age = 10 years, 3 months) completed measures to assess symptoms of anxiety and depression and emotion-related functioning. Using structural equation modeling, emotion-related variables were identified that were common to both anxiety and depression (poor emotion awareness, emotion dysregulation, poor emotion regulation coping, high frequency of negative affect), most strongly related to depression (low frequency of positive affect), and most distinctly associated with anxiety (frequency of emotion experience, somatic response to emotion activation). The findings suggest that comprehensive theoretical formulations of anxiety and depression in youth should consider emotion-related variables. The results also suggest potential avenues that may facilitate more efficient assessment and treatment of such youth.

Keywords Anxiety Depression Emotion Predictors

Introduction

Research has attempted to differentiate anxiety and depression in both child and adult samples [1, 2]. Although the disorders are highly comorbid in both age groups [3, 4], this seems a worthwhile endeavor given that such differentiation may lead to a clearer con- ceptualization of the disorders that in turn may facilitate more efficient diagnosis and

C. Suveg (*&*) B. Hoffman K. Thomassin University of Georgia, Athens, Georgia, USA e-mail: [csuveg@uga.edu](mailto:csuveg@uga.edu)

J. L. Zeman

The College of William and Mary, Williamsburg, VA, USA

effective treatment. One line of research has attempted delineation of the disorders using global emotion constructs (i.e., negative and positive affect) and physiological hyper- arousal [1]. Given the recent affect revolution in the literature [5], the increasing acknowledgment of the importance of affect processes to psychopathology [6, 7], and the resultant improvement in emotion-related assessment tools [8], the goal of this study is to provide greater specification of the anxiety and depression syndromes than previously attempted by identifying specific emotion-related constructs that may be most distinctly related to each.

The nature of our research question assumes that anxiety and depression in youth can be differentiated (at least at some level and to some degree) and that doing so would be valuable to both researchers and clinicians. It is acknowledged, however, that there are many areas of overlap among anxious and depressive symptomatology, but that the rates of comorbidity vary widely across studies ranging from 28 to 62% in one study [3] to 30–75% in another study [9] suggesting considerable uncertainty in the underlying dimensions. Several theories have been put forth to account for these equivocal findings concerning comorbidity generally and anxiety and depression specifically [10]. For example, high comorbidity rates between anxiety and depression could be due to method covariance, shared etiological factors, or because having one of the disorders places youth at risk for the development of the other. With respect to the latter, some research findings support a temporal relationship between anxiety and depression such that the former may precede the latter [11–13]. Nonetheless, all anxious youth do not go on to develop depression so this explanation seems applicable to just some cases of comorbidity. Other research suggests that perhaps symptoms of anxiety and depression become more differentiated with age [4].

Expanding upon an earlier model put forth by Ingram and Kendall [14], Weiss et al. [15] proposed a general model that helps to explain the potential overlap and uniqueness of various types of psychopathology. In their model, common features are used to differentiate psychopathology from normality, broadband features differentiate the major categories of psychopathology (i.e., externalizing from internalizing), and narrowband specific features differentiate the narrowband syndromes from each other (e.g., anxiety and depression within the broadband category of internalizing disorders). Weiss et al.’s [15] model provides a framework for this study in that it is expected that there will be common emotion-related factors among anxious and depressive symptomatology; however, it is also anticipated that narrowband emotion-specific variables will be identified. Collectively, identification of both types of variables has great potential to contribute to theoretical formulations of the syn- dromes as well as assessment and treatment efforts.

There is theoretical and empirical justification for examining whether particular emotion- related variables may serve as common and/or narrowband factors in child anxiety and depression. Several theorists suggest that difficulties with emotion regulation and other poorly developed emotion competence skills are at the core of most forms of psychopa- thology [7, 16, 17]. Emotion regulation generally refers to the ability to modify one’s emotion experiences and expressions in an adaptive manner in response to environmental demands [18, 19]. Embedded within this definition is the notion that the intensive and temporal features of emotion activation are important dynamics to consider particularly as they relate to psychosocial adaptation [19]. The focus of this research is to examine the role of specific emotion constructs (i.e., emotion awareness, emotion dysregulation, emotion regulation coping, frequency of negative versus positive emotion experiences, overall frequency of emotion experience, and somatic response to emotion activation) thought to be implicated in broad or specific ways to the differentiation of anxious and depressive symptomatology in elementary school-age children. Specific investigation of emotion-related variables relevant

to each syndrome will contribute to the theoretical conceptualization of affective symp- tomatology in youth.

Common Emotion-related Factors

Emotion Awareness

Emotion awareness is considered to be one of the basic building blocks of emotion competence and affective social competence [20]. Emotion awareness is a critical skill as it is directly implicated in emotion regulation efforts. Without an accurate awareness of one’s emotion experience, it is likely that an individual will not be effective in determining which coping method to enact to modify the emotion experience in an adaptive way. Only a few studies have examined the role of emotion awareness in community and clinical samples of anxiety-disordered (AD) children and those with depressive disorders. Zeman, Shipman, and Suveg [21] found that the self-reported inability to identify one’s emotion states predicted internalizing symptoms in a sample of 4th and 5th grade children. Penza- Clyve and Zeman [22] reported significant associations between poor emotion awareness and self-reports of depressive (r = 0.48) and anxious (r = 0.61) symptomatology in an elementary school-age community sample. Using a clinical sample, adolescent girls with a diagnosis of major depressive disorder were found to report higher levels of poor emotion awareness compared to girls with no psychiatric diagnosis [23]. The robust relations between poor emotion awareness and anxious and depressive symptomatology suggest that this basic emotion skill is a deficit common to both types of psychopathology.

Emotion Dysregulation

Children who are emotionally dysregulated or who have poor control of their emotion expressivity appear to be at risk for both internalizing and externalizing psychopathology [19, 21, 24]. Research has examined emotion dysregulation (i.e., culturally inappropriate emotion expression) and emotion regulation coping (i.e., culturally appropriate methods of managing emotion experiences) in both anxious and depressed samples [22, 25]. For example, Suveg and Zeman [25] compared emotion regulation strategies in children with ADs to non-clinical counterparts. Results indicated that AD children exhibited more dysregulated management and less adaptive emotion regulation coping across anger, sadness, and worry than did non-clinical youth. Mothers of AD children also perceived their children as significantly more emotionally labile and dysregulated than did mothers of non-AD children. Studies using community samples indicated that self-reported dysregu- lated expression of both sadness and anger were related to symptoms of anxiety and depression in elementary school-age children [21, 22].

Emotion Regulation Coping

Research also finds deficits in emotion regulation coping with youth experiencing depressive symptoms and disorders. Garber, Braafladt, and Zeman [26] interviewed chil- dren 8–17 years of age with a diagnosis of depression about their emotion regulation strategies. In response to negative emotions, depressed children were more likely to choose active avoidance or negative behaviors (e.g., aggression) to manage the experience than nondepressed youth, whereas the latter were more likely to choose problem-focused and

active distraction strategies than the former. These general findings have been replicated in subsequent studies [27–29]. Taken together, findings suggest that both anxious and depressed youth experience emotion dysregulation and deficits in emotion regulation coping.

The Bridge from Common to Specific Emotion-related Factors

Frequency of Negative and Positive Affect

Negative emotions tend to produce greater levels of arousal than positive emotions [7, 30] and in this way, the former are more central to the development of psychopathology than the latter [7]. The preponderance of negative emotional experience, which is a central compo- nent of childhood anxious and depressive symptomatology [31, 32], may further contribute to the difficulties that such youth exhibit in the ability to regulate emotions in adaptive ways. Given current conceptualizations of the disorders, Clark and Watson [1] proposed that negative affect would be common to both anxiety and depression but that low positive affective experience would be distinctly related to depression whereas physiological hyperarousal would be uniquely correlated with anxiety. Clark and Watson found strong support for their model with adults, and later research found mixed support for the general model with children [2, 32–35]. For example, in a group of psychiatric inpatient youth, negative affect was related to both anxiety and depression whereas lack of positive affect was related to depression. Ongoing research on the tripartite model has raised some issues concerning the clustering of symptoms and uniformity of anxiety disorders [36–38]. In a more recent study, however, Cannon and Weems [33] used cluster analysis to examine the application of the tripartite model to a community sample of 228 youths (ages 6–17). Not only did they find that positive affect and physiological hyperarousal significantly differ- entiated children experiencing depressive and anxious symptoms, but the pattern of results generally held for both genders and for older (12–17 years) and younger (6–11 years) children. Based on this research, anxiety and depression can also be differentiated based on the frequency with which positive and negative emotions are experienced. A preponderance of negative emotion characterizes depression whereas a range of emotion, both negative and positive, typifies anxiety.

Narrowband Emotion-related Variables

Somatic Response to Emotion Activation

Somatic response to emotion activation is another variable important to emotionally com- petent functioning. In particular, experiencing somatic symptoms in reaction to emotionally arousing events has been linked to emotion dysregulation [39]. The increased somatic symptoms could be a result of the overall increase in physiological arousal that naturally ensues from prolonged, unrestrained emotion expression that is characteristic of dysregu- lation [39]. Alternatively, somatic symptoms may result from the youth’s interpretation of the emotion experience as negative. Regardless, children who are emotionally dysregulated may become agitated and consequently experience somatic effects. Given the empirical documentation of increased somatic complaints in children with anxiety disorders [40–42], this variable seems to be a differentiating factor between anxious and depressive symp- tomatology but has not been examined directly as an outcome of emotional arousal.

Previous research provides support for the differentiation of anxiety and depression in youth primarily based on the tripartite model. The goal of this study is to contribute a unique set of findings to this research base by identifying specific types of common and narrowband emotion-related variables based on emotion theory and research that might not only differentiate youth experiencing anxious and depressive symptoms but also contribute to the theoretical formulations of these syndromes. Based on theory and the empirical literature, we hypothesized that: (a) poor awareness of emotion, dysregulated emotion regulation, poor emotion regulation coping, and frequency of negative affect would be common to both symptoms of anxiety and depression, (b) low frequency of positive affect would be uniquely associated with depressive symptomatology, and (c) frequency of overall emotion experiences and somatic response to emotion activation would be spe- cifically related to symptoms of anxiety. These variables were examined in a community sample of fourth and fifth grade children because this age group is able to reflect on their own internal emotion and psychological experiences in valid and reliable ways [8]. We included a community sample of youth specifically because of the lack of research on this particular area with any groups of youth and because subclinical experiences of anxiety and depression are common in this population but understudied. Therefore our goal was to establish an initial base of information from which we could then expand upon using clinical samples of youth.

Method

Participants

A total of 240 youths in the 4th and 5th grades (12 classrooms total) in public schools in a small urban area in the northeast were invited to participate in the study. From this sample, 187 youths (52% girls) received parental consent to participate and provided verbal assent. Children were Caucasian and ranged in age from 104 to 144 months (M age = 10 years, 3 months, SD = 8.85 months). Based on the demographics of the region, children were primarily from middle socioeconomic backgrounds (e.g., parents were skilled craftsmen, clerical, or sales workers). All participants were in regular education classrooms.

Measures

Psychopathology Symptomatology

Anxious Symptomatology

The revised children’s manifest anxiety scale (RCMAS) [43] is a widely used 37-item questionnaire designed to assess symptoms of anxiety in children and adolescents. Chil- dren respond to yes/no items that comprise a total score and four subscales. A total of 30 children obtained scores that were considered of potential clinical concern (i.e., T score C 60). The total raw score was used for analyses in this study (M = 10.16, SD = 6.66). Psychometric evaluations of the RCMAS reveal adequate internal reliability and convergent validity [2]; reliability was strong for this study (a = 0.93).

Depressive Symptomatology

The children’s depression inventory (CDI) [44] is a 26-item questionnaire utilized to assess depressive symptoms in children. Items are scored on a 3-point scale and summed to yield a total depression score and five subscales. A total of 21 children obtained scores that were of potential clinical concern (i.e., T score C 60). Note that a total of 14 youths had scores that were of potential clinical concern on both the RCMAS and CDI (i.e., T score C 60). The total raw score was used for analyses in this study (M = 10.32, SD = 10.49). The psychometric properties of the CDI are acceptable [45]. The internal consistency of the CDI total scale for this study was acceptable (a = 0.73).

Emotion Constructs

Emotion Awareness

The emotion expression scale for children (EESC) [22] is a 16-item scale that uses a

5-point Likert scale (1 = not at all true; 5 = extremely true) designed to assess emotion awareness and lack of motivation to express negative emotion in school-age children. This study utilized the emotion awareness subscale. A psychometric evaluation of the EESC reveals high internal consistency, moderate test–retest reliability and concurrent validity [23, 46]. Alpha was strong for this study (a = 0.86).

Emotion Dysregulation and Emotion Regulation Coping

The children’s emotion management scales: sadness and anger (CEMS) [47] were administered to assess children’s self-report of sadness and anger emotion management. Using a 3-point scale, children respond to a 12-item sadness and 11-item anger scale that each are comprised of two subscales, (a) dysregulated expression, children’s culturally inappropriate emotion expression (e.g., ‘‘I cry and carry on when I am sad’’); and (b) emotion regulation coping, children’s adaptive methods of emotion management (‘‘I try to calmly deal with what is making me feel mad’’). A fear management scale that has a similar 3-factor structure was also used for this study. Mean scores were computed by averaging items across each emotion. Examination of the psychometric properties of the CEMS indicates acceptable reliability and validity [47]. For this study, both the dysreg- ulation and coping scales yielded adequate reliability coefficients (0.68 and 0.64, respectively).

Frequency of Negative and Positive Affect

The differential emotions scale (DES) [48] a 36-item questionnaire, was administered to examine the frequency with which children experienced positive (interest, enjoyment, surprise) and negative (sadness, anger, disgust, contempt, fear, guilt, shame, shyness) emotions on a 5-point scale. Global negative and positive affect frequency scores were computed as well as a frequency of all emotions score. Adequate reliability and validity are reported [48] and for this study were 0.99, 0.97, and 0.98 for the negative, positive, and frequency of all emotions scales, respectively.

Somatic Response to Emotion Activation

The emotion regulation interview (ERI) was designed for use in a larger study to assess various aspects of children’s emotion understanding and regulation [25, 49]. Children were read vignettes that were designed through pilot testing to elicit fear, sadness, and anger in a protagonist child similar to the participant in age and gender. For example, in the sadness- inducing situation, the protagonist tries out for and does not make the soccer team, but his or her friends do make the team. Following each vignette, children were asked to imagine that they were the protagonist and answered a series of questions. For this study, the question that assessed the degree to which children reported that the protagonist would experience somatic symptoms (i.e., stomach aches) as a result of the emotionally evocative situation using a 4-point Likert scale was used.

Procedure

Consent forms were sent home with children through their primary classrooms. Children who had parental consent and provided verbal assent completed the questionnaires with the assistance of the 1st and 3rd authors in a 30-min session during school. Children were thanked for their time and given a small token of appreciation. Parents of children whose scores were of potential clinical concern (i.e., T score C 60) were contacted and given a list of potential resources when appropriate.

Analytic Strategy

We fit a model consisting of anxiety and depression using LISREL 8.7 [50]. Analysis of the structure of the anxiety and depression scales was based on item parcels. In this study, the 28 items (the nine lie items were removed) comprising the RCMAS were randomly combined into seven parcels of four items. For the CDI, the 27 items were combined into six parcels with four items each and one parcel with three items. These parcels served as manifest indicators for subsequent model tests. In essence, under the assumptions of the domain sampling model, this approach combines multiple items into a single parcel prior to fitting factor analytic models. This procedure is appropriate in the present study for a variety of reasons. First, there are computing limitations when attempting to fit models with more than 30 manifest indicators. Specifically, the number of parameters estimated relative to sample size impacts model convergence and model fit, such that with a larger number of parameters, a larger sample size is needed [51, 52]. Between the RCMAS and the CDI, there were 55 manifest indicators in the present study. Consequently, in studies with moderate sample sizes, as with the present research, parsimonious estimation strat- egies are needed [53]. Finally, Bagozzi and Edwards [54] recommend the parceling approach to construct modeling when the purpose of the study is to examine broadly defined constructs as opposed to the nuances of particular items. Because the focus of this study is on broad factor constructs as opposed to the operation of specific items, the aggregation approach used here is the appropriate methodology. The evaluation of the appropriateness of the model focused on an evaluation of relevant fit indices. Specifically, model evaluation incorporated five overall fit indices including: v2 test, Steiger’s root mean square error of approximation (RMSEA) [55], the Tucker Lewis nonnormed fit index (TLI) [56], the comparative fit index (CFI) [51], and the standardized root mean square residual (SRMSR) [55]. Hu and Bentler [57] have suggested that RMSEA values below 0.06

Table 1 Mean scores and ranges for emotion variables (standard deviations in parentheses)

Mean Range

|  |  |  |
| --- | --- | --- |
| EESC emotion awareness | 18.87 (6.82) | 8–37 |
| CEMS emotion dysregulation | 13.24 (2.83) | 9–22 |
| CEMS emotion regulation coping | 27.05 (4.38) | 15–36 |
| DES frequency of negative affect | 63.71 (17.45) | 27–123 |
| DES frequency of positive affect | 33.70 (5.45) | 13–44 |
| DES frequency of emotion experience | 97.58 (17.48) | 57–148 |
| ERI somatic response to emotion activation | 8.35 (2.44) | 3–12 |

EESC emotion expression scale for children, CEMS children’s emotion management scale, DES differential emotional scale, ERI emotion regulation interview

represent adequate fit, while CFI and TLI values in excess of 0.95 indicate acceptable model fit. Because each of the models was tested in a parameter nested sequence, a difference in v2 test (i.e., likelihood ratio test) using a P = 0.05 alpha level was used to compare models. In such analyses, it is preferable to accept the most restricted model (the model with the largest degrees of freedom) that does not result in a significant reduction in fit over less restricted models [58].

We first fit a baseline model that included anxiety and depression latent factors and each of the seven nomological network variables (emotion awareness, emotion dysregulation, emotion regulation coping, the frequency of negative versus positive emotion experiences, overall frequency of emotion experience, somatic response to emotion activation). See Table 1 for means and standard deviations for all emotion variables. For the seven nomological network variables, each served as a single manifest indicator of a latent factor in this model. This step was taken because it would have been impractical to model the individual items for each of the seven constructs and psychometric soundness of the measures of these seven constructs has previously been demonstrated. The baseline model including anxious and depressive symptoms and the seven correlates provided an acceptable fit to the data (v2 (160) = 317.15, RMSEA = 0.07, SRMSR = 0.05 TLI = 0.97, CFI = 0.98). The anxiety and depression latent factors were strongly correlated (r = 0.82); however, a model that parameterized a single anxiety/depression factor resulted in a sig- nificant decrement in model fit relative to the full model that hypothesized separate anxiety and depression factors (Dv2 (8) = 137.11, P \ 0.01), supporting the discriminant validity of anxiety and depression factors.

The differential relationships between anxiety and depression and each of the seven additional constructs were examined using the latent factor correlations among constructs. To do so, the latent factor correlations between a single nomological network construct (e.g., negative affect) and anxiety and depression were set to be equivalent (e.g., the latent factor correlation between negative affect and anxiety and depression was set to be equivalent). To determine whether the relations between the seven nomological network variables and anxiety and depression differed significantly, a difference in v2 test (i.e., likelihood ratio test) was conducted for each of the seven variables. This test compares the fit of a model that allows differential correlations among anxiety and depression and a given emotion variable to a model that hypothesizes that the emotion variable correlates equally with anxiety and depression. Thus, a significant difference in v2 indicates a sig- nificant decrement in model fit when the correlations are set to equality, suggesting that the emotion construct is differentially related to anxiety and depression

Results

We hypothesized that the relationships between poor emotional awareness, emotion dys- regulation, emotion regulation coping, and negative affective experience and anxiety and depression would not differ significantly. As indicated in Table 2, each of the four con- structs (poor awareness, dysregulation, regulation coping, and negative affect) hypothesized to relate equally did not differ significantly with respect to their correlations with anxiety and depression. Together, strong support was provided for the variables that were hypothesized to be common correlates of both anxiety and depression.

Next, we hypothesized that frequency of emotions and somatic symptom reactivity would be significantly more strongly related to anxiety than to depression. The results suggested this to be the case. In particular, frequency of emotions was significantly more strongly related to anxiety (r = 0.77) than to depression (r = 0.64; Dv2 = 12.41; P \ 0.01; Ddf = 1), and somatic symptoms were significantly more strongly related to anxiety (r = 0.20) than to depression (r = 0.08; Dv2 = 4.49; P \ 0.05; Ddf = 1). Finally, we hypothesized that frequency of positive affect would be significantly more strongly related to depression (r = -0.41) than to anxiety (r = -0.15). This hypothesis was also supported (Dv2 = 25.26; P \ 0.01; Ddf = 1).

Table 2 Model fit statistics, latent factor correlations, and significant differences in correlations with anxiety and depression

Model fit statistics

df v2 RMSEA SRMSR TLI CFI

Full model 160 317.15

0.07

0.05

0.97 0.98

Single anxiety and depression factor

168 454.26

0.11

0.07

0.95 0.96

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

Correlations among latent factors and Dv2 valuesa for significant differences in correlations with anxiety and depression

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. Anxiety | 1.0 |  |  |  |  |  | | | |
| 2. Depression | 0.82 | 1.0 |  |  |  |
| 3. Negative affect | 0.82 | 0.76 | 3.55 |  |  |
| 4. Negative coping | -0.34 | -0.43 | -0.30 | 3.22 |  |
| 5. Poor awareness | 0.68 | 0.61 | 0.69 | -0.21 | 2.80 |
| 6. Somatic symptoms | 0.20 | 0.08 | 0.13 | -0.04 | 0.10 | 4.49\* |  |  |  |
| 7. Frequency of emotion | 0.77 | 0.64 | 0.94 | -0.17 | 0.66 | 0.14 | 12.41\*\* |  |  |
| 8. Positive affect | -0.15 | -0.41 | -0.17 | 0.41 | -0.11 | 0.07 | 0.15 | 25.26\*\* |  |
| 9. Dysregulation | 0.53 | 0.46 | 0.42 | -0.50 | 0.32 | 0.02 | 0.42 | -0.07 | 1.79 |

n = 187

SRMSR standardized root mean square residual, RMSEA root mean square error of approximation, TLI

Tucker Lewis nonnormed fit index, CFI comparative fit index

For latent factor correlations C 0.15, P \ 0.05

a Dv2 are presented in the diagonal of the latent factor correlation matrix; Dv2 value presented represents the difference between the full model v2 and the v2 of a model where the correlation between anxiety and depression and that latent factor was set to equality; for Dv2 tests, Ddf = 1 and baseline v2 = 317.15

\* P B .05; \*\* P B .01

Discussion

Efforts to identify variables that may differentiate anxiety and depression in youth are warranted given the potential for improved theoretical models as well as diagnostic and treatment efficiency. Previous research attempted to differentiate the two disorders in adults based on global negative and positive emotion constructs [1]. Using the model put forth by Weiss and colleagues [15] as a guiding framework, the goal of this study was to build upon this base of information and attempt to delineate anxiety and depression by further specifying emotion-related constructs that may be common or unique to each type of symptomatology. Using an elementary school-age sample, several emotion variables were identified that were common to both disorders and that satisfactorily discriminated between anxious and depressive symptomatology.

Given the comorbidity among the anxiety and depressive disorders, it was hypothesized that several variables would be common elements of both types of symptomatology. Specifically, core competencies associated with poor emotion regulation (i.e., poor emo- tion awareness, dysregulated emotion, poor emotion regulation coping) in conjunction with a high frequency of negative affective experience were hypothesized and found to be related to both anxious and depressive symptoms. The finding that poor awareness of emotion experience was related to both anxiety and depression provides a potential con- tributing explanation for the emotion regulation deficits that anxious and depressed youth experience. Specifically, without an awareness of one’s specific type of emotional expe- rience, regulation is likely to be difficult, resulting in a mismatch to environmental demands. Poor awareness may also be related to the preponderance of negative affect that both anxious and depressed youth experience. That is, general negative emotion arousal may be challenging to allocate into its individual emotion constituents (e.g., frustration, grief, and disappointment). It could be that poor awareness of emotion experience and negative affect operate in a bidirectional manner and collectively contribute to the psy- chosocial impairment associated with anxiety and depression in youth.

As predicted, dysregulation of emotion was related equally to both anxiety and depression. Dysregulation encompasses externalizing types of emotion regulation strate- gies and is likely to result in maladaptive outcomes in most instances. Although it may seem surprising that youth with internalizing difficulties would engage in dysregulated types of emotion management, it could be that such youth initially inhibit their emotion experiences [25]. However, as has been found in the adult literature [59], chronic sup- pression of emotion in children is also likely to become very uncomfortable and tax their behavioral, cognitive, and physiological resources. Once the discomfort becomes too great, the youth eventually express their emotions, but in dysregulated ways [25]. Externalizing symptomatology and disorders frequently co-occur with internalizing problems (e.g., [60,

61]) and it could be that one mechanism responsible for the counterintuitive overlap is a basic deficit in emotion regulation.

Finally, a deficit in emotion regulation coping was also significantly related to both anxious and depressive symptomatology. This is commensurate with the finding that youth experiencing anxious and depressive symptomatology engage in dysregulated methods of emotion regulation. This suggests that such youth may have a knowledge and/or enactment deficit of adaptive emotion regulation methods that manifests itself in both maladaptive expression (i.e., dysregulation) as well as a lack of adaptive coping strategies. The deficits found here were expected given previous research that found deficits in emotion regulation coping in both depressed and anxious samples (e.g., [21, 25, 27]) as well as research that finds that anxious youth do not believe that they will be successful in managing

emotionally evocative experiences [25]. That is, when youth do not believe that they can successfully manage emotionally evocative experiences, they may be less likely to try alternative strategies and to give up prematurely.

Perhaps of most interest, however, are the emotion variables that demonstrated different strengths of relationship between the two symptomatologies given that the overlap between anxiety and depression symptoms is not complete and many children do present with one or the other discrete disorder [4]. Thus, it is important to delineate the factors that may demonstrate stronger relationships to one type of symptomatology than the other. Con- sistent with our hypothesis regarding specific relationships to anxious symptoms, the results indicated that the presence of somatic complaints in response to emotion activation demonstrated a stronger relationship to anxiety than depression. Further, although fre- quency of emotion demonstrated a strong relationship to both types of symptoms, this emotion variable demonstrated a significantly stronger association with anxious versus depressive symptoms. Given that somatic complaints are associated with anxiety it is not surprising that when faced with an emotionally-provocative situation, anxious youth would report experiencing stomach aches. When negative emotions are experienced frequently and are accompanied by unpleasant somatic symptoms, they may be more difficult to manage in adaptive ways. This is consistent with research that found that children’s report of sadness and anger dysregulation is predictive of somatic symptoms [62] (Sadock and Zeman 2007). Although some depressed youth experience somatic symptoms, they are not necessarily considered a defining feature of the disorder. Further, depressed youth are not likely to be as hyper-aroused as are anxious youth, and thus, may be at less risk for experiencing somatic symptoms during an emotionally provocative situation. Regardless, if youth regularly experience uncomfortable somatic symptoms in response to emotion activation, they may come to associate negative bodily symptoms with emotion, that may lead anxious youth to avoid emotion experiences altogether or to manage them in dys- regulated ways. In turn, this may contribute to the development of negative schema regarding emotion experiences that is not likely to facilitate further emotion learning and development.

Another emotion variable to differentiate children with depressive from anxious symptoms was a lack of positive affect that was more strongly related to depressive versus anxious symptoms. This finding nicely dovetails recent research that found that the inhi- bition of happiness and the decreased experience of interest and joy were predictive of depressive but not anxious symptomatology in children from the 4th to 7th grades [63] The potential implications of experiencing a lack of positive affect can be quite considerable in the context of Fredrickson’s work the Broaden-and-Build theory of positive emotions [64], which speculates that positive emotions broaden a person’s thought-action repertoire and build individual’s enduring personal resources. In particular, if positive emotions are believed to broaden a person’s thought-action repertoire and build individual’s enduring personal resources, then depressed youth may be at a particular disadvantage relative to their peers. Within the context of emotion regulation, depressed youth clearly show deficits in emotion regulation, both in terms of strategy generation and enactment [39]. These deficits, in part, may stem from a lack of positive affect that generally serves to facilitate related cognitive functions. The findings also suggest that conceptualizations of depression not only consider the dysregulation of sadness, but also of positive emotions.

Although both anxious and depressed youth experience a preponderance of negative affect, the former do report experiencing positive emotions. It could be that the presence of positive emotion serves a protective factor for those anxious youth who do not develop a co-morbid depressive disorder. Future research needs to examine this hypothesis carefully

and to determine whether positive emotional elicitation occurs within specific contexts (e.g., peer, family, sibling, academic) or whether it represents a more biologically based response to environmental events. Further, it should also be noted that youth were asked about how frequently they experienced positive emotions. Using observational and mul- tiple informant methodologies, future research should not only examine whether depressed youth actually experience as many pleasant, positive events as do anxious youth but also whether their perceptions and cognitive interpretations of these events alter their construal of the positive valence of these events.

Nevertheless, it appears that both anxious and depressed youth suffer significant impairment in functioning, and that emotion-related deficits, specific to each disorder, contribute to and/or exacerbate the difficulties. For example, it could be that the lack of positive affect that is strongly associated with depression contributes to depressed chil- dren’s lack of effective emotion regulation coping skills whereas the sheer frequency with which anxious children experience emotional arousal, along with their tendency to expe- rience somatic symptoms in response to emotion activation contributes to their emotion regulation difficulties. Thus, although emotion regulation difficulties are common to both types of disorders, they may stem from very distinct (i.e., narrowband) sources.

In summary, Weiss et al.’s [15] model that explains the unique and overlapping features of childhood psychopathology provides a helpful framework from which to interpret the current set of findings. As hypothesized, core sets of emotion regulation skills were found to be common to both depressive and anxious symptomatology whereas other emotion- related variables demonstrated stronger relationships to one type of symptomatology versus the other. This research adds to the literature in a number of theoretically and clinically significant ways. Current theoretical formulations suggest that these syndromes can be characterized by biased processing of emotion-relevant information and automatic behavioral responses to emotionally arousing situations. Although the literature on these processes is well-developed, the inclusion of a separate component of emotion-related variables has generally been disregarded. In fact, current conceptualizations of anxiety and depression in youth are only just beginning to consider specific emotion-related constructs. The current study therefore addresses this void by investigating a wider range of specific emotion-related variables relevant to each syndrome that would in turn contribute to a reformulation of the current cognitive and behavioral conceptualizations of affective symptomatology in youth.

The current findings not only fit nicely within current theoretical formulations, but they also promote the inclusion of an emotion component, comprised of various domains of emotional functioning, in the conceptualization of anxious and depressive symptomatology in youth. In addition to the behavioral and cognitive correlates that are currently consid- ered, models of anxiety and depression could also consider specific domains of emotional functioning. In particular, poor awareness of emotion experiences, a common factor, could be considered a contributing or maintaining factor in both youth anxiety and depression. Alternatively, conceptualizations of depression could consider a lack of positive affect whereas models of anxiety could consider somatic responses to emotion activation. By integrating these variables into current conceptualizations of youth depression and anxiety, more complete models can be formulated. Further, the role of age and gender in the ways in which these emotion regulation variables influence the emergence, maintenance, and exacerbation of depression and anxiety symptoms should be considered in future research. That is, with increasing age, the gap between normally and atypically developing emotion regulation skills may widen producing a more clearly demarcated pattern of emotion regulation deficits uniquely related to depressive versus anxious symptomatology.

The findings have potential clinical implications as well. For example, clinicians could consider specific domains of emotion functioning when conducting an assessment of youth experiencing internalizing difficulties. During treatment, protocols could include components to build youths’ emotion-related skills, including emotion awareness and a developmentally appropriate coping repertoire of regulation strategies. The particular therapeutic strategies could be matched to the deficits that are most germane to each disorder. For example, prior to implementing problem-solving with depressed individu- als, clinicians could attempt to increase positive affect in the individuals that could then theoretically facilitate therapeutic gains. With anxious individuals, therapists could assist youth to identify their emotions and assist them in implementing coping strategies early before the arousal becomes too great to successfully manage and somatic symptoms ensue. Importantly, this study not only included the emotions typically thought of as particular to each disorder (e.g., sadness as it related to depression) but incorporated other emotions as well (e.g., anger). Thus, more comprehensive assessment and treatment paradigms might consider additional emotion experiences including a variety of positive valence emotions (e.g., [65]).

Although the findings reported here have important theoretical and clinical implications, there are limitations. The sample was comprised of Caucasian children and therefore, it is not known whether the findings would generalize to other ethnically and racially diverse populations. The method relied solely on children’s self-report of their symptoms and emotion functioning. The literature supports the use of self-report when assessing inter- nalizing symptoms (e.g., [66]) and for emotion research because access to emotional experience and internalizing symptomatology is typically gained through introspection [67]. However, gaining multiple reports of the child’s psychological and emotional functioning would provide a broader picture of their functioning and add validity to the findings. Although our measures of anxiety and depression symptoms were correlated, this was expected given the nature of the disorders and because previous research documented significant associations (e.g., Muris et al. [68] report a correlation of 0.74 between the RCMAS and CDI total scores). Importantly, however, is that the correlation reported in this study was corrected for attenuation by LISREL meaning that the observed correlation is lower (i.e., using the current sample and SPSS a simple bivariate correlational analysis yielded r = 0.59 between the CDI and RCMAS total scores). Further, the use of the CDI and RCMAS as measures of psychopathological symptoms are frequently and currently used in tandem in various types of child clinical research with meaningful outcomes (e.g., [33, 69–71]). Another limitation is that just a few key components of emotion functioning were assessed, although several other areas (e.g., emotional understanding, emotional contagion, emotion vocabulary, access to emotional knowledge) could also be evaluated that may further contribute to the differentiation of anxiety and depression in youth. Relatedly, the assessment of emotion-related constructs is still a relatively new endeavor with very few validated assessment tools available. We used emotion assessment instru- ments that have acceptable psychometric properties though inspection of the reliability coefficients in this study suggests there is room for improvement. It is noteworthy that such a clear pattern of results was found using a community sample of children; future research should determine whether these patterns generalize to diverse community and clinical samples of youth. With respect to clinical populations, this might be a particularly fruitful research endeavor given that so few youth in this study had clinical levels of symptoms. Longitudinal research will help clarify the direction of effects—do emotion regulation difficulties contribute to anxious and depressive difficulties or do such types of psycho- pathology result in emotion-related functioning deficits?

Summary

Although anxiety and depression are comorbid in both youth and adult populations, delineation of the disorders is a worthwhile endeavor given that such differentiation may lead to a clearer conceptualization of the disorders that in turn may facilitate more efficient diagnosis and effective treatment. Using structural equation modeling, this study examined whether specific emotion-related constructs may be uniquely related to anxious or depressive symptoms in youth. Children in the 4th and 5th grades (N = 191; M age = 10 years, 3 months) reported on their anxious and depression symptoms and emotion-related functioning. Results indicated that poor emotion awareness, emotion dysregulation, poor emotion regulation coping, and high frequency of negative affect were equally related to both anxious and depressive symptoms. However, low frequency of positive affect was most strongly related to depression whereas the frequency of emotion experience and somatic response to emotion activation were most distinctly related to anxiety. The findings suggest that comprehensive theoretical formulations of anxiety and depression in youth should consider specific aspects of emotional functioning. The assessment and treatment of internalizing difficulties in youth may benefit from the inclusion of the specific emotion-related variables identified in this study.

References

1. Clark LA, Watson D (1991) Tripartite model of anxiety and depression: psychometric evidence and taxonomic implications. J Abnorm Psychol 100:316–336. doi:[10.1037/0021-843X.100.3.316](http://dx.doi.org/10.1037/0021-843X.100.3.316)

2. Lonigan CJ, Carey MP, Finch AJ (1994) Anxiety and depression in children and adolescents: negative affectivity and the utility of self-reports. J Consult Clin Psychol 62:1000–1008. doi:[10.1037/0022-](http://dx.doi.org/10.1037/0022-006X.62.5.1000)

[006X.62.5.1000](http://dx.doi.org/10.1037/0022-006X.62.5.1000)

3. Brady EU, Kendall PC (1992) Comorbidity of anxiety and depression in children and adolescents. Psychol Bull 111:244–255. doi:[10.1037/0033-2909.111.2.244](http://dx.doi.org/10.1037/0033-2909.111.2.244)

4. Compas BE, Oppedisano G (2000) Mixed anxiety/depression in childhood and adolescence. In: Sa- meroff AJ, Lewis M, Miller SM (eds) Handbook of developmental psychopathology, 2nd edn. Kluwer,

Dordrecht, pp 531–548

5. Fischer KW, Tangney JP (1995) Self-conscious emotions and the affect revolution: framework and overview. In: Tangney JP, Fischer KW (eds) Self-conscious emotions: the psychology of shame guilt embarrassment, and pride. Guildford Press, New York, pp 3–22

6. Suveg C, Southam-Gerow MA, Goodman KL, Kendall PC (2007) The role of emotion theory and

research in child therapy development. Clin Psychol Sci Pract 14:358–371. doi:[10.1111/j.1468-2850.](http://dx.doi.org/10.1111/j.1468-2850.2007.00096.x)

[2007.00096.x](http://dx.doi.org/10.1111/j.1468-2850.2007.00096.x)

7. Bradley SJ (2001) Affect regulation and the development of psychopathology. Depress Anxiety 13:158–

159. doi:[10.1002/da.1031](http://dx.doi.org/10.1002/da.1031)

8. Zeman J, Klimes-Dougan B, Cassano M, Adrian M (2007) Measurement issues in emotion research with children and adolescents. Clin Psychol Sci Pract 14:377–401. doi:[10.1111/j.1468-2850.2007.00098.x](http://dx.doi.org/10.1111/j.1468-2850.2007.00098.x)

9. Angold A, Costello EJ (1993) Depressive comorbidity in children and adolescents: empirical, theo- retical, and methodological issues. Am J Psychiatry 150:1779–1791

10. Lilienfeld SO (2003) Comorbidity between and within childhood externalizing and internalizing dis-

orders: reflections and directions. J Abnorm Child Psychol 31:285–291. doi:[10.1023/A:1023229529866](http://dx.doi.org/10.1023/A:1023229529866)

11. Kovacs M, Gatsonis C, Paulauskas SL, Richards C (1989) Depressive disorders in childhood: IV. A

longitudinal study of comorbidity with and risk for anxiety disorders. Arch Gen Psychiatry 46:776–782

12. Cole DA, Peeke LG, Martin JM, Truglio R, Seroczynski AD (1998) A longitudinal look at the relation between depression and anxiety in children and adolescents. J Consult Clin Psychol 66:451–460. doi:

[10.1037/0022-006X.66.3.451](http://dx.doi.org/10.1037/0022-006X.66.3.451)

13. Orvaschel H, Lewinsohn PM, Seeley JR (1995) Continuity of psychopathology in a community sample of adolescents. J Am Acad Child Adolesc Psychiatry 34:1525–1535. doi:[10.1097/00004583-1995](http://dx.doi.org/10.1097/00004583-199511000-00020)

[11000-00020](http://dx.doi.org/10.1097/00004583-199511000-00020)

14. Ingram RE, Kendall PC (1987) The cognitive side of anxiety. Cogn Ther Res 11:523–536. doi:[10.1007/ BF01183856](http://dx.doi.org/10.1007/BF01183856)

15. Weiss B, Susser K, Catron T (1998) Common and specific features of childhood psychopathology.

J Abnorm Psychol 107:118–127 vol 42, pp 891–899

16. Cicchetti D, Ackerman BP, Izard CE (1995) Emotions and emotion regulation in developmental psy- chopathology. Dev Psychopathol 7:1–10

17. Cole PM, Michel MK, Teti LOD (1994) The development of emotion regulation and dysregulation: a clinical perspective. Monogr Soc Res Child Dev 59:73. doi:[10.2307/1166139](http://dx.doi.org/10.2307/1166139)

18. Campos JJ, Mumme DL, Kermoian R, Campos RG (1994) A functionalist perspective on the nature of emotion. Monogr Soc Res Child Dev 59:284–303. doi:[10.2307/1166150](http://dx.doi.org/10.2307/1166150)

19. Thompson RA, Calkins SD (1996) The double-edged sword: emotional regulation for children at risk.

Dev Psychopathol 8:163–182

20. Halberstadt AG, Denham SA, Dunsmore JC (2001) Affective social competence. Soc Dev 10:79–119. doi:[10.1111/1467-9507.00150](http://dx.doi.org/10.1111/1467-9507.00150)

21. Zeman J, Shipman K, Suveg C (2002) Anger and sadness regulation: predictions to internalizing and

externalizing symptoms in children. J Clin Child Adolesc Psychol 31:393–398

22. Penza-Clyve S, Zeman J (2002) Initial validation of the emotion expression scale for children (EESC).

J Clin Child Adolesc Psychol 31:540–547

23. Sim L, Zeman J (2004) Emotion awareness and identification skills in adolescent girls with bulimia nervosa. J Clin Child Adolesc Psychol 33:760–771. doi:[10.1207/s15374424jccp3304\_11](http://dx.doi.org/10.1207/s15374424jccp3304_11)

24. Casey RJ, Schlosser S (1994) Emotional responses to peer praise in children with and without a diagnosed externalizing disorder. Merrill-Palmer Q 40:60–81

25. Suveg C, Zeman J (2004) Emotion regulation in children with anxiety disorders. J Clin Child Adolesc

Psychol 33:750–759. doi:[10.1207/s15374424jccp3304\_10](http://dx.doi.org/10.1207/s15374424jccp3304_10)

26. Garber J, Braafladt N, Zeman J, Dodge KA (1991) The regulation of sad affect: an information- processing perspective. The development of emotion regulation and dysregulation. Cambridge University Press, New York, pp 208–240

27. Garber J, Braafladt N, Weiss B (1995) Affect regulation in depressed and nondepressed children and young adolescents. Dev Psychopathol 7:93–115

28. Quiggle NL, Garber J, Panak WF, Dodge KA (1992) Social information processing in aggressive and depressed children. Child Dev 63:1305–1320. doi:[10.2307/1131557](http://dx.doi.org/10.2307/1131557)

29. Reijntjes A, Stegge H, Terwogt MM, Hurkens E (2007) Children’s depressive symptoms and their regulation of negative affect in response to vignette depicted emotion-eliciting events. Int J Behav Dev

31:49–58. doi:[10.1177/0165025407073541](http://dx.doi.org/10.1177/0165025407073541)

30. Cacioppo JT, Klein DJ, Berntson GG, Hatfield E (1993) The psychophysiology of emotion. In: Lewis

M, Haviland JM (eds) Handbook of emotions. Guilford Press, New York, pp 119–142

31. Blumberg SH, Izard CE (1986) Discriminating patterns of emotions in 10- and 11-year-old children’s anxiety and depression. J Pers Soc Psychol 51:852–857. doi:[10.1037/0022-3514.51.4.852](http://dx.doi.org/10.1037/0022-3514.51.4.852)

32. Laurent J, Catanzaro SJ, Joiner TE (1999) A measure of positive and negative affect for children: scale

development and preliminary validation. Psychol Assess 11:326–338. doi:[10.1037/1040-3590.11.3.326](http://dx.doi.org/10.1037/1040-3590.11.3.326)

33. Cannon MF, Weems CF (2006) Do anxiety and depression cluster into distinct groups? A test of tripartite model predictions in a community sample of youth. Depress Anxiety 23:453–460. doi:

[10.1002/da.20215](http://dx.doi.org/10.1002/da.20215)

34. Jacques HAK, Mash EJ (2004) A test of the tripartite model of anxiety and depression in elementary and high school boys and girls. J Abnorm Child Psychol 32:13–25. doi:[10.1023/B:JACP.0000007577.](http://dx.doi.org/10.1023/B:JACP.0000007577.38802.18)

[38802.18](http://dx.doi.org/10.1023/B:JACP.0000007577.38802.18)

35. Joiner TE Jr, Catanzaro SJ, Laurent J (1996) Tripartite structure of positive and negative affect, depression, and anxiety in child and adolescent psychiatric inpatients. J Abnorm Psychol 105:401–409. doi:[10.1037/0021-843X.105.3.401](http://dx.doi.org/10.1037/0021-843X.105.3.401)

36. Brown TA, Chorpita BF, Barlow DH (1998) Structural relationships among dimensions of the DSM-IV anxiety and mood disorders and dimensions of negative affect, positive affect, and autonomic arousal. J Abnorm Psychol 107:179–192. doi:[10.1037/0021-843X.107.2.179](http://dx.doi.org/10.1037/0021-843X.107.2.179)

37. Chorpita BF (2002) The tripartite model and dimensions of anxiety and depression: an examination of structure in a large school sample. J Abnorm Child Psychol 30:177–190. doi:[10.1023/A:1014709](http://dx.doi.org/10.1023/A:1014709417132)

[417132](http://dx.doi.org/10.1023/A:1014709417132)

38. Mineka S, Watson D, Clark LA (1998) Comorbidity of anxiety and unipolar mood disorders. Annu Rev

Psychol 49:377–412. doi:[10.1146/annurev.psych.49.1.377](http://dx.doi.org/10.1146/annurev.psych.49.1.377)

39. Walker LS, Garber J, Smith CA, Van Slyke DA, Claar RL (2001) The relation of daily stressors to somatic and emotional symptoms in children with and without recurrent abdominal pain. J Consult Clin Psychol 69:85–91. doi:[10.1037/0022-006X.69.1.85](http://dx.doi.org/10.1037/0022-006X.69.1.85)

40. Ginsburg GS, Riddle MA, Davies M (2006) Somatic symptoms in children and adolescents with anxiety disorders. J Am Acad Child Adolesc Psychiatry 45:1179–1187. doi:[10.1097/01.chi.0000231974.43966.6e](http://dx.doi.org/10.1097/01.chi.0000231974.43966.6e)

41. Hofflich SA, Hughes AA, Kendall PC (2006) Somatic complaints and childhood anxiety disorders. Int J Clin Health Psychol 6:229–242

42. Masi G, Favilla L, Millepiedi S, Mucci M (2000) Somatic symptoms in children and adolescents referred for emotional and behavioral disorders. Psychiatry Interpers Biol Process 63:140–149

43. Reynolds CR, Richmond BO (1997) What I think and feel: a revised measure of children’s manifest anxiety. J Abnorm Child Psychol 25:15–20. doi:[10.1023/A:1025751206600](http://dx.doi.org/10.1023/A:1025751206600)

44. Kovacs M (1992) The children’s depression inventory (CDI) manual. Multi-Health Systems, North

Tonawanda

45. Carey MP, Faulstich ME, Gresham FM, Ruggiero L, Enyart P (1987) Children’s depression inventory:

construct and discriminant validity across clinical and nonreferred (control) populations. J Consult Clin

Psychol 55:755–761. doi:[10.1037/0022-006X.55.5.755](http://dx.doi.org/10.1037/0022-006X.55.5.755)

46. Sim L, Adrian M, Zeman J, Cassano M, Friedrich W (2008) Adolescent deliberate self-harm: linkages to emotion regulation and family emotional climate. J Res Adolesc (in press)

47. Zeman J, Shipman K, Penza-Clyve S (2001) Development and initial validation of the children’s sadness management scale. J Nonverbal Behav 25:187–205. doi:[10.1023/A:1010623226626](http://dx.doi.org/10.1023/A:1010623226626)

48. Izard CE, Libero DZ, Putnam P, Haynes OM (1993) Stability of emotion experiences and their relations to traits of personality. J Pers Soc Psychol 64:847–860. doi:[10.1037/0022-3514.64.5.847](http://dx.doi.org/10.1037/0022-3514.64.5.847)

49. Suveg C, Zeman J, Flannery-Schroeder E, Cassano M (2005) Emotion socialization in families of children with an anxiety disorder. J Abnorm Child Psychol 33:145–155. doi:[10.1007/s10802-005-1823-1](http://dx.doi.org/10.1007/s10802-005-1823-1)

50. Joreskog K, Sorbom D (2005) LISREL 8.70 Scientific Software International Inc

51. Bentler PM (1990) Comparative fit indexes in structural models. Psychol Bull 107:238–246. doi:

[10.1037/0033-2909.107.2.238](http://dx.doi.org/10.1037/0033-2909.107.2.238)

52. Hayduk LA (1987) Structural equation modeling with LISREL: essentials and advances. Johns Hopkins

University Press, Maryland

53. Settoon RP, Bennett N, Liden RC (1996) Social exchange in organizations: perceived organizational support, leader-member exchange, and employee reciprocity. J Appl Psychol 81:219–227. doi:[10.1037/](http://dx.doi.org/10.1037/0021-9010.81.3.219)

[0021-9010.81.3.219](http://dx.doi.org/10.1037/0021-9010.81.3.219)

54. Bagozzi RP, Edwards EA (1998) Goal setting and goal pursuit in the regulation of body weight. Psychol

Health 13:593–621. doi:[10.1080/08870449808407421](http://dx.doi.org/10.1080/08870449808407421)

55. Steiger JH (1990) Structural model evaluation and modification: an interval estimation approach.

Multivar Behav Res 25:173–180. doi:[10.1207/s15327906mbr2502\_4](http://dx.doi.org/10.1207/s15327906mbr2502_4)

56. Tucker LR, Lewis C (1973) A reliability coefficient for maximum likelihood factor analysis. Psycho- metrika 38:1–10. doi:[10.1007/BF02291170](http://dx.doi.org/10.1007/BF02291170)

57. Hu L-t, Bentler PM (1998) Fit indices in covariance structure modeling: sensitivity to underparame- terized model misspecification. Psychol Methods 3:424–453. doi:[10.1037/1082-989X.3.4.424](http://dx.doi.org/10.1037/1082-989X.3.4.424)

58. Bollen KA (1989) Structural equations with latent variables. Wiley, Oxford, Wiley series in probability and mathematical statistics. Applied probability and statistics section

59. Gross JJ, Levenson RW (1997) Hiding feelings: the acute effects of inhibiting negative and positive emotion. J Abnorm Psychol 106:95–103. doi:[10.1037/0021-843X.106.1.95](http://dx.doi.org/10.1037/0021-843X.106.1.95)

60. Russo MF, Beidel DC (1994) Comorbidity of childhood anxiety and externalizing disorders: preva-

lence, associated characteristics, and validation issues. Clin Psychol Rev 4:199–221. doi:[10.1016/0272-](http://dx.doi.org/10.1016/0272-7358(94)90008-6)

[7358(94)90008-6](http://dx.doi.org/10.1016/0272-7358(94)90008-6)

61. Verduin TL, Kendall PC (2003) Differential occurrence of comorbidity within childhood anxiety dis- orders. J Clin Child Adolesc Psychol 2:290–295. doi:[10.1207/S15374424JCCP3202\_15](http://dx.doi.org/10.1207/S15374424JCCP3202_15)

62. Sadock L, Zeman J (2007) The relations between emotion regulation and children’s somatic symp- tomatology. Presented at the annual meeting of the American Psychological Association, San Francisco

63. Schlegelmilch A, Zeman J (2008) Experience and regulation of positive emotions as predictors of anxiety and depression in children. Presented at the American Psychological Association, Boston

64. Fredrickson BL (2001) The role of positive emotions in positive psychology: the broaden and-build

theory of positive emotions. Am Psychol 56:218–226. doi:[10.1037/0003-066X.56.3.218](http://dx.doi.org/10.1037/0003-066X.56.3.218)

65. Suveg C, Kendall PC, Comer JS, Robin J (2006) Emotion-focused cognitive-behavioral therapy for anxious youth: a multiple-baseline evaluation. J Contemp Psychother 36:77–85. doi:[10.1007/s10879-](http://dx.doi.org/10.1007/s10879-006-9010-4)

[006-9010-4](http://dx.doi.org/10.1007/s10879-006-9010-4)

66. Larsen RJ, Prizmic-Larsen Z, Eid M, Diener E (2006) Measuring emotions: implications of a multi- method perspective. Handbook of multimethod measurement in psychology. American Psychological Association, Washington, DC, pp 337–351

67. Holodynski M, Friedlmeier W (2006) Development of emotions and emotion regulation. Springer

Science ? Business Media, Kluwer, New York

68. Muris P, Merckelbach H, Ollendick T, King N, Bogie N (2002) Three traditional and three new childhood anxiety questionnaires: their reliability and validity in a normal adolescent sample. Behav Res Ther 40:753–772. doi:[10.1016/S0005-7967(01)00056-0](http://dx.doi.org/10.1016/S0005-7967(01)00056-0)

69. Turner CM, Barrett PM (2003) Does age play a role in structure of anxiety and depression in children and youths? An investigation of the tripartite model in three age cohorts. J Consult Clin Psychol

71:826–833. doi:[10.1037/0022-006X.71.4.826](http://dx.doi.org/10.1037/0022-006X.71.4.826)

70. Barrett PM, Duffy AL, Dadds MR, Rapee RM (2001) Cognitive-behavioral treatment of anxiety dis- orders in children: long-term (6-years) follow-up. J Consult Clin Psychol 71(69):135–141. doi:

[10.1037/0022-006X.69.1.135](http://dx.doi.org/10.1037/0022-006X.69.1.135)

71. Kendall PC, Safford S, Flannery-Schroeder E, Webb A (2004) Child anxiety treatment: outcomes in adolescence and impact on substance use and depression at 7.4-year follow up. J Consult Clin Psychol

72:276–287

