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Despite the recognized importance of emotion regulation (ER) for healthy psychological development, ER research has focused predominantly on the developmental periods of infancy, early childhood, and adulthood, while the middle childhood to adolescence years have been relatively neglected. An obstacle to ER research during these periods is the paucity of valid age-appropriate measures. This study reports on the psychometric evaluation of the Emotion Regulation Questionnaire for Children and Adolescents (ERQ–CA), a revision of the adult measure. The ERQ–CA was evaluated with a sample of 827 participants aged between 10 and 18 years. Results indicate sound internal consistency as well as stability over a 12-month period. Sound construct and convergent validity are also demonstrated. It is concluded that the ERQ–CA is a valid age-appropriate measure for investigating the use of 2 specific strategies of ER during the childhood and adolescence developmental periods.

Keywords: emotion regulation strategies, self-report assessment, children, adolescents, Gross emotion regulation model

Over the past few decades, there has been increased recognition of the importance, for children's healthy psychological development, of learning how to manage or regulate emotions in a socially appropriate and adaptive manner (Cole, Michel, & Teti, 1994; Morris, Silk, Steinberg, Myers, & Robinson, 2007; Southam-Gerow & Kendall, 2002). The importance of functional emotion regulation (ER) for the etiology, expression, and course of psychological disorders is also well recognized (Southam-Gerow & Kendall, 2002). Indeed, poor regulation of emotions is implicated in more than half of the Axis I disorders included in the *Diagnostic and Statistical Manual of Mental Disorders* and in all of the Axis II disorders (Gross & Levenson, 1997).

There is general consensus that ER involves intrinsic and extrinsic processes responsible for managing one's emotions toward goal accomplishment (Thompson, 1994). ER processes can be conscious or unconscious, automatic or effortful (Cole et al., 1994; Gross & Thompson, 2007; Thompson, 1994), and include skills and strategies for monitoring, evaluating, and modifying emotional reactions. ER involves not only reducing the intensity or frequency of emotional states but also developing the capacity to generate and sustain emotions (Calkins & Hill, 2007; Cole et al., 1994). Moreover, ER processes are not solely focused on negative emotions but also include positive ER (Gross & Thompson, 2007).

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Developmental research on ER has predominantly focused on the periods of infancy and early childhood (Eisenberg, Champion, & Ma, 2004; Thompson, 1994), a time when temperamental, maturational, and social forces unite in laying a foundation for individual differences observed later in life and for the development of ER. Although this research has provided valuable insight into the construct (see review by Adrian, Zeman, & Veits, 2011), it is limited by a focus on behavioral or extrinsic aspects of ER, and there remains a dearth of ER research examining the developmental periods of middle to late childhood and adolescence, with few exceptions (e.g., Carthy, Horesh, Apter, & Gross, 2010; Penza-Clyve & Zeman, 2002; Suveg & Zeman, 2004). This is a significant limitation of ER research given that these periods mark critical turning points in children's acquisition of cognitive, social, and emotional skills, and in their development of autonomy (Cole et al., 1994; Gross & Munoz, 1995; Lewis, Zinbarg, & Durbin, 2010; Weinberg & Klonsky, 2009). In particular, adolescents experience more frequent and intense emotions than younger or older individuals, and the prevalence of a range of disorders increases markedly during the adolescent years (Silk, Steinberg, & Morris, 2003). Further, it has been argued that the middle childhood years constitute a time of profound transformation related to ER (Gottman & Mettetal, 1986).

A major obstacle to conducting ER research into these developmental periods is the lack of a validated age-appropriate measure (Shields & Cicchetti, 1997; Walden, Harris, & Catron, 2003). Given increased cognitive maturity and the largely internal and subjective nature of ER processes, self-report seems an appropriate assessment method during these developmental periods (Rohrbeck, Azar, & Wagner, 1991; Soto, John, Gosling, & Potter, 2008; Walden et al., 2003). An additional limitation of ER research relates to the predominant absence of a comprehensive theoretical framework.

An exception, albeit relating to adult research, is the work relating to Gross's (1998) process-oriented approach. This model, which has received much empirical attention in the adult years,

includes five sets of emotion regulatory strategies: (a) situation selection, (b) situation modification, (c) attention deployment, (d) cognitive change, and (e) response modulation. Specific ER strategies have been differentiated as *antecedent focused* or *response focused,* along timelines consistent with an unfolding emotional response. The former refers to strategies adopted before the emotion-response tendencies have become fully activated and the latter to those adopted once an emotion is already being experienced.

Within this model, to date, two ER strategies have been operationalized. These are (a) *cognitive reappraisal* (CR), a cognitive change strategy that involves redefining a potentially emotion-eliciting situation in such a way that its emotional impact is changed; and (b) *expressive suppression* (ES), a form of response modulation involving the inhibition of ongoing emotion-expressive behavior. The rationale for the focus on these particular strategies is that each is a good exemplar of antecedent-focused and response-focused strategies, respectively, and both are strategies that are commonly used in everyday life (John & Gross, 2004).

Research with young adults has shown that there are individual differences in the use of these strategies and that each relates in predictable ways to psychological functioning (Gross & John, 2003; Hofmann, Heering, Sawyer, & Asnaani, 2009; Moore, Zoellner, & Mollenholt, 2008; Srivastava, Tamir, McGonigal, John, & Gross, 2009). Specifically, reappraisers are more likely to negotiate stressful events by interpreting them in a more optimistic way and to be more active in their attempts to repair negative moods. Consequently, they experience and express more positive affect and less negative affect more frequently than do people who use this strategy less often (John & Gross, 2004). In contrast, more frequent use of the suppression strategy is associated with considerable psychological cost. Suppressors express and experience less positive affect and are less successful than nonsuppressors at mood repair (Gross & John, 2003; John & Gross, 2004; Srivastava et al., 2009). Furthermore, whereas suppressing negative emotions has been shown to leave the experience of negative emotions intact, suppressing positive emotions decreases the experience of positive emotions (John & Gross, 2004). Research has also consistently shown that men use suppression to a greater degree than women do, but no gender difference has been found in the use of reappraisal (Gross & John, 2003).

Thus, there is a need for valid and theoretically based measures of ER for children and adolescents. Given the demonstrated utility of the Gross model of ER, this study reports on the psychometric evaluation of a revised version of the self-report Emotion Regulation Questionnaire (ERQ), a measure based on the Gross model (Gross & John, 2003). The ERQ was revised for use with children and adolescents (Emotion Regulation Questionnaire for Children and Adolescents; ERQ–CA) and, as with the adult version, assesses the two ER strategies of CR and ES.

In the present study, as a test of convergent validity, associations were investigated between scores on the CR and the ES scales of the ERQ–CA and self-reported depressive symptomatology, as well as the five personality traits of the five-factor model (FFM; cf. Gross & John, 2003). It was predicted that CR would be negatively correlated with the FFM trait of Neuroticism (cf. Gross & John, 2003) and that ES would be negatively correlated with Extraversion (cf. Gross & John, 2003; Balzarotti, John, & Gross, 2010). Further, given existing research reporting that CR is predictive of a healthier psychological profile while ES is predictive of psychological distress (Dennis, 2007; John & Gross, 2004; Werner & Gross, 2009), and given consistent evidence that Extraversion is positively related with positive affect while Neuroticism is positively related with negative affect (Costa & McCrae, 1980; Diener, Oishi, & Lucas, 2003; Watson & Clark, 1992), it was also expected that the CR and ES strategies would be positively correlated with Extraversion and Neuroticism, respectively. With regard to depression symptomatology, it was expected that CR would be negatively and ES positively related with depressive symptomatology (Gross & John, 2003).

Reliability was assessed using the alpha index of internal consistency and 12-month stability correlation analyses. Given demonstrated stability over extended periods (i.e., around .7 across 3 months: Gross & John, 2003; and across 2 months: Balzarotti et al., 2010, in young adults), moderate stability was expected in the current sample, particularly for the older participants. This latter prediction is based upon the proposal that, with increasing age, strategy use is likely to become more traitlike and therefore more stable within individuals (Cole et al., 1994).

Method

Participants

The sample for the current study comprised 842 children and adolescents who took part in the fifth wave of a larger longitudinal study examining the relationships among individual difference variables, parenting variables, and psychological well-being (N = 1,749). The initial cohort of participants was recruited from 15 primary schools and nine secondary schools in metropolitan Melbourne, Australia. Data collection followed approval from the University Ethics Committee, the Department of Education and Training, and the Catholic Education Office. Only schools with approval from the school principal were involved, and only children with parental consent and who gave their own written consent participated.

Of the 842 participants, 15 were outside of the 10- to 18-year age range selected for the current study and so were deleted. This resulted in a sample of 827 participants (age: M = 13.93, SD = 2.46), of whom 358 were male (age: M = 13.65, SD = 2.36) and 469 were female (age: M = 14.15, SD = 2.51). For analysis purposes, the sample was divided into three age groups, with 282 children aged between 10 to 12 years (age: M = 11.05, SD = .78; 134 male, 148 female), 285 aged between 13 and 15 years (age: M = 14.16, SD = .81; 124 male, 161 female), and 260 aged between 16 and 18 years (age: M = 16.80, SD = .79; 100 male, 160 female).

Fifty-seven percent of the overall sample was made up of participants who were recruited in the first wave of the longitudinal study from their regular school in metropolitan Melbourne, Australia. Over one third (35.3%) were recruited from new schools in subsequent waves of the study, and the remainder were recruited through the university e-mail bulletin or were children in families with older siblings who had previously participated in the longitudinal study.

Most participants were born in Australia (86.2%); 50.1% had mothers who were born in Australia while 45.2% had fathers who

were born in Australia. Parent countries of birth other than Australia included a wide range of countries. The largest proportion of parents born in a country other than Australia comprised those born in Vietnam (7.7% for mothers; 9.2% for fathers). The remainder of the parent population was spread across 61 different nations including, for example, India (2.9% for fathers), Scotland (2% for fathers), Sri Lanka (3.3% for mothers), and China (2.5% for mothers). The majority of participants (82.1%) lived with both of their biological parents. Demographic information also included parent occupation. Together, in addition to highlighting the predominant cultural mix of the sample, the demographic details supported the representativeness of the sample for the city of Melbourne, Australia (Australian Bureau of Statistics, 2008).

As part of the larger longitudinal study, all participants were readministered the questionnaires approximately 12 months later. Of these, 692 (84% of total sample) returned the questionnaire at this later time. Two-tailed *t* tests comparing fifth wave responses on the ERQ CR and ES scales for those who completed sixth-wave questionnaires and those who did not indicated no differences: reappraisal: $t(840) = -0.76$, $p > .05$, or suppression: $t(840) = -1.28$, $p > .05$. Convergent validity analyses are based on a reduced sample size of 763 participants (92% of total sample) who also completed the depressive symptomatology measure and 712 participants (86% of total sample) who also completed the personality measure (see next section for details of these two measures). These subsamples, although smaller than the total sample, remained comparable with regard to age group and sex breakdown.

Measures

Emotion Regulation Questionnaire for Children and Adolescents (ERQ–CA). The ERQ (Gross & John, 2003) comprises 10 items assessing the ER strategies of CR (6 items) and ES (4 items). Items are rated on a 7-point Likert-type response scale. Higher scores on each scale indicate greater use of the corresponding ER strategy. The ERQ has been reported to have high internal consistency ($\alpha = .79$ for Reappraisal, .73 for Suppression) and 3-month test–retest reliability ($r = .69$ for both scales), as well as sound convergent and discriminant validity with both younger and older adults (Gross & John, 2003; John & Gross, 2004).

A revised version of the ERQ (i.e., the ERQ–CA) was used in the current study to optimize completion by the nonadult sample. Revisions included simplification of the item wording (e.g., "I control my emotions by not expressing them" was reworded to "I control my feelings by not showing them") and reduction of the response scale length to five points (1 = *strongly disagree,* 2 = *disagree,* 3 = *half and half,* 4 = *agree,* 5 = *strongly agree*). The range of scores for each scale was 6 to 30 for the CR and 4 to 20 for the ES (see Figure 1 for revised item wording).

The Children's Depression Inventory (CDI; Kovacs, 1992). The CDI is a frequently used 27-item self-report instrument. It assesses depressive symptoms in children and adolescents aged 7 to 17 years (Kovacs, 1992). Each item consists of three statements reflecting differences in symptom severity. For each item, the respondent is required to select the statement that describes them

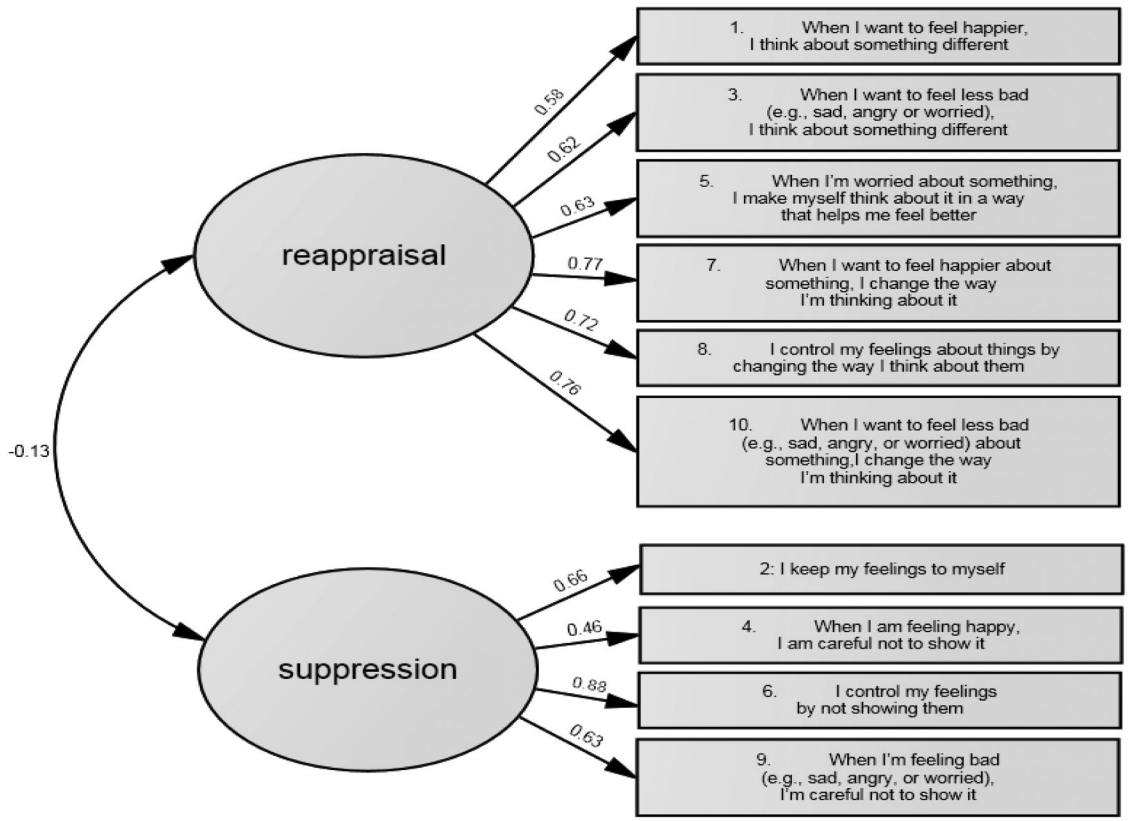

Figure 1. The two-factor confirmatory factor analysis model of the Emotion Regulation Questionnaire for Children and Adolescents, showing factor correlation and standardized regression coefficients.

best over the past 2 weeks. Items address, for example, feelings of competence and self-confidence, and liking the self. Items are scored from 0 to 2, and a total score is calculated by summing all items. In the current study, to satisfy the university's ethics requirements, the item assessing suicide ideation was not included. The 26-item total score was adjusted to conform to the 27-item total score: 26-item total + (26-item total /26) (Twenge & Nolen-Hoeksema, 2002).

Extensive research has demonstrated the reliability and validity of the CDI, including convergence with other self-report measures of depression and psychological well-being, and discrimination between groups of depressed and nondepressed children (see Sitarenios & Stein, 2004, for a comprehensive list of studies). In the current study, the internal consistency coefficient of the CDI was .92.

Big-Five Questionnaire for Children (BFQ–C; Barbaranelli, Caprara, Rabasca, & Pastorelli, 2003). The five personality traits of the FFM were assessed with the BFQ–C, a 65-item self-report measure for children. Each of the scales assessing the five traits includes 13 items. The scales are (a) Energy/Extraversion (cf. FFM Extraversion), characterized by activity, assertiveness, and self-confidence; (b) Agreeableness, characterized by concern and sensitivity toward others and their needs; (c) Conscientiousness, characterized by dependability, orderliness, and the fulfillment of commitments; (d) Emotional Instability (cf. FFM Neuroticism), characterized by feelings of anxiety, depression, and anger; and (e) Intellect/Openness scale (cf. FFM Openness to Experience), characterized by self-reported intellect, broadness of cultural interests, and self-reported fantasy/creativity.

Items are rated on a 5-point Likert-type scale (1 = *almost never* to 5 = *almost always*) with higher scores for each scale indicating a higher score for that particular personality trait. Example items include "I like to meet with other people" (Extraversion), "I get nervous about silly things" (Emotional Instability), "I behave correctly and honestly with others" (Agreeableness), "I enjoy hard work" (Conscientiousness), and "I like to learn new things" (Openness). Minor revisions in item wording were made to the BFQ–C for the current study. The changes were made to enhance comprehension by an Australian sample (e.g., "I have a great deal of fantasy" was changed to "I often daydream or fantasise"). A total of 31 items were modified.

A psychometric evaluation of the BFQ–C using a sample of 222 Dutch students aged 12 to 15 years indicated good internal consistency for each of the five scales, with Cronbach alpha coefficients ranging between .71 for Openness and .83 for Emotional Instability (Muris, Meesters, & Diederen, 2005). Comparable internal consistency coefficients were found in the current study, with Cronbach's alpha coefficients ranging between .77 for Openness and .88 for Conscientiousness. Convergent validity evidence with academic achievement, internalizing and externalizing behavior, as well as Eysenck's Junior Personality Questionnaire has also been reported for the BFQ–C (Barbaranelli et al., 2003).

Procedure

Explanatory statements and consent forms were distributed to children at their regular school by the researchers. The children were asked to take the forms home to their parents, to be completed and returned to school by the children. Of those parents who returned a consent form, 80% consented to their child's participation. All children with parental consent completed written questionnaires in small groups at school under the supervision of the researchers and a class teacher. Questionnaires were counterbalanced. Participation was voluntary, and students were free to cease their involvement at any time. It was emphasized that there were no right or wrong answers and that participants should answer according to what was most true for them. A first administrator read the instructions and each item in turn to the group, and a second addressed individual queries. The time required to complete the questionnaires varied from 30 to 45 min and depended largely on grade level.

Results and Discussion

First the data were analyzed to determine the internal consistency for each of the ERQ–CA scales. Reliability analyses also included examination of the stability of reports over a 12-month period for each of the ES and CR scales of the ERQ–CA. Confirmatory factor analyses (CFA) examined the fit of the two-factor model of ERQ developed by Gross and John (2003) to the ERQ–CA in our sample. CFA was conducted for the overall sample as well as for each of the age and sex subgroups to examine whether the two-factor structure could be replicated with these subgroups, thereby demonstrating factorial invariance. Age and sex differences were examined for each of the ERQ–CA scales with a 2 (sex) × 3 (age group) multivariate analysis of variance (MANOVA). Finally, convergent validity was examined by correlating scores for each of the ES and CR scales of the ERQ–CA with total scores on the CDI and on the five factors of the BFQ–C. In addition to bivariate correlations, given the significant correlations found between the ERQ–CA and the FFM factors, to determine whether significant relationships between the CDI and the ERQ–CA scales are unique to ER, partial correlations were calculated between the CDI and the ERQ–CA scales, in turn partialing out variance from the FFM factors of Extraversion and Neuroticism. The analyses are described and discussed below.

Reliability

For the 6-item CR scale, the alpha reliability coefficients were .82 for 10- to 12- and 13- to 15-year-olds; .83 for the total sample and girls; .85 for boys; and .86 for 16- to 18-year-olds. For the 4-item ES scale, the alpha coefficient was .75 for total sample and ranged from .69 (for the 10- to 12-year-olds) to .79 (for the 16- to 18-year-olds). Given the smaller number of items in the ES scale, it is not surprising that the reliability coefficients are smaller than those for the CR scale. These values are generally comparable with those reported for young adults in Gross and John's (2003) study, where the coefficients ranged between .75 and .82 for the CR scale and between .68 and .76 for the ES scale. They are also consistent with those reported by Balzarotti et al. (2010) for their Italian translation of the ERQ. Thus, as with the adult version, the present findings indicate that the ERQ–CA has sound internal consistency.

Stability (intraclass correlation) coefficients over a 12-month period were moderately sized for both of the ERQ scales, particularly the ES scale. For the CR scale, the intraclass correlation coefficients ranged in size from .37 (for 13- to 15-year-olds) to .47 (for 16- to 18-year-olds). For ES, the coefficients ranged in size

between .40 (for 10- to 12-year-olds) and .63 (for 16- to 18-year-olds). For boys the stability coefficients were .45 and .51, and for girls they were .40 and .57, for CR and ES, respectively. These coefficients are somewhat smaller than the retest coefficients reported by others for the ERQ (e.g., Balzarotti et al., 2010; Gross & John, 2003). It is noteworthy, however, that time difference between the assessments on which the coefficients are based differs markedly across studies. Specifically, although the time difference in this study was a 12-month period, for the Balzarotti et al. (2010) study, there was a 2-month test–retest period, and for Gross and John's (2003) study, the retest period was 3 months.

The study samples also differ developmentally, with both of the comparison studies (Balzarotti et al., 2010; Gross & John, 2003) involving young adult samples, compared with the child and adolescent sample involved in the present study. Related to this, a higher level of stability across testing periods would be expected for older participants as it is consistent with theoretical proposals that strategy use becomes more traitlike with increasing age (Cole et al., 1994). This latter point is supported through the age-group comparisons conducted in the current study, although higher stability at older ages was found only for the ES strategy. Specifically, the stability coefficients were significantly larger for the 16- to 18-year-olds ($z = -3.68$, $p = .0002$) and the 13- to 15-year-olds ($z = -2.91$, $p = .0018$) compared with the 10- to 12-year-olds.

However, there was no difference between the age groups with regard to the 12-month stability of the CR strategy. Moreover, stability was generally lower for the total sample and each of the sex and age groups for this strategy compared with ES. This pattern of findings suggests greater variability over time for the CR strategy compared with the ES strategy. Given the nature of the CR strategy, it is reasonable to assume that it is more likely to change in concert with age-related cognitive development, perhaps becoming more sophisticated and complex over the course of development from childhood to adolescence. Comparison of the stability coefficients for boys and girls indicated no significant difference.

Construct Validity

A single underlying factor in CFA proved a poor fit to the ERQ–CA data: comparative fit index (CFI) = .645, root-mean-square error of approximation (RMSEA) = .178. Figure 1 shows the two-factor model of the ERQ–CA based on the findings of Gross and John (2003) for the ERQ, and Table 1 gives fit statistics (CFI and RMSEA) for this model (designated the simple model) for the total sample and by sex and age subgroups. The fit for the total sample is moderately good (CFI .942, RMSEA .073), slightly better for boys (CFI = .943, RMSEA = .072) and for the 10- to12-year-old age group (CFI = .962, RMSEA = .052), but not as good for the 13- to 15-year-old age group (CFI = .871, RMSEA = .110). With the addition to the model of a correlation between the errors for Items 1 ("When I want to feel happier, I think about something different") and 3 ("When I want to feel less bad [e.g., sad, angry or worried], I think about something different"), suggested by their very similar formulation, the statistics indicate a generally satisfactory fit (total sample CFI = .972, RMSEA = .051; 13- to 15-year-old age group CFI = .948, RMSEA = .071). This study, therefore, provides support for the soundness of the ERQ–CA factor structure.

Table 1
Comparison of Confirmatory Factor Analysis (CFA) Models

	CFA model				
	Simple		With e1-e3 correlation		
Group	CFI	RMSEA	CFI	RMSEA	Sample size
Total sample	0.942	0.073	0.972	0.051	827
Sex					
Girls	0.924	0.084	0.959	0.063	470
Boys	0.943	0.072	0.958	0.055	357
Age group					
10- to 12-year-olds	0.962	0.052	0.967	0.049	281
13- to 15-year-olds	0.871	0.110	0.948	0.071	285
16- to 18-year-olds	0.938	0.089	0.967	0.049	261

Note. e1-e3 = model constraint specifying that responses to ERQ Item 1 and ERQ Item 3 are correlated; CFI = comparative fit index; RMSEA = root-mean-square error of approximation.

Figure 1 shows that the correlation between the two factors for the total sample under the simple model was estimated to be −.13 ($p = .002$). This is consistent with the idea of a weak negative association between the two strategies. When calculated for each of the sex and age groups separately, the correlation estimate was not significant for the 10- to 12-year-olds ($r = -.032$, $p = .655$) or for the 13- to 15-year-olds ($r = -.10$, $p = .173$), but was borderline for the boys ($r = -.129$, $p = .050$). However, a small but significant negative correlation was found for the 16- to 18-year-olds ($r = -.240$, $p = .001$) and for girls ($r = -.136$, $p = .014$).

In their analyses, others (i.e., Balzarotti et al., 2010; Gross & John, 2003) have reported nonsignificant intercorrelations between the ES and CR scales. It is noteworthy that the current findings are consistent with past research with regard to the younger participants in the sample (10- to 15-year-olds) but not to the 16- to 18-year-olds. This is a difficult finding to explain given the closeness in age of this subgroup to the young adults involved in the comparison studies. Future research is needed to determine whether this finding can be replicated.

Gender and Age Differences

The MANOVA conducted to examine age-group and gender differences yielded a multivariate gender main effect, $F(2, 820) = 6.50$, $p < .01$. There were no other significant multivariate effects. Univariate analyses indicated that there was a significant difference in ES scores between boys and girls, $F(1,827) = 11.88$, $p < .01$. As can be seen in Table 2, and as expected on the basis of past research (cf. Balzarotti et al., 2010; Gross & John, 2003), boys scored significantly higher on ES than did girls. Apart from the gender difference in ES, and as indicated by the descriptive statistics in Table 2, the scores on the two strategies were similar across the different age groups and there was no gender difference in CR scores (cf. Balzarotti et al., 2010; Gross & John, 2003). This is an interesting finding, but given the cross-sectional method used in the present study, longitudinal research is needed to confirm that use of the two ER strategies assessed is indeed stable over ex-

Table 2
Means (and Standard Deviations) for the Two Emotion Regulation Strategies (ES and CR) for the Overall Sample, by Age Group and Sex

Sample	Emotion regulation strategy	
	ES	CR
Overall sample	10.49 (2.91)	21.53 (3.86)
Boys	10.89 (2.79)	21.62 (3.92)
Girls	10.18 (2.97)	21.47 (3.81)
10- to 12-year-olds	10.39 (2.74)	21.71 (3.86)
13- to 15-year-olds	10.60 (2.97)	21.36 (3.75)
16- to 18-year-olds	10.45 (3.04)	21.53 (3.97)

Note. ES = expressive suppression; CR = cognitive reappraisal.

tended periods of time, particularly across different developmental periods (e.g., childhood, adolescence, early adulthood).

Convergent Validity

As expected, a significant positive association was found between scores on the CDI and the ES scale of the ERQ–CA (cf. Dennis, 2007; Gross & John, 2003). As is shown in Table 3, the positive moderate association was consistently found across gender and age groups. This finding is consistent with proposals that suppressors express and experience less positive affect and are less successful than nonsuppressors at mood repair (Gross & John, 2003; John & Gross, 2004; Srivastava et al., 2009).

CDI reports were also correlated in the expected direction with the CR factor. Specifically, significant inverse, albeit somewhat smaller, correlation coefficients of .2 magnitude were consistently found for the overall sample and across the age and gender subgroups (see Table 3). These findings are also consistent with theoretical proposals and empirical findings (e.g., Betts, Gullone, & Allen, 2009; Gross & John, 2003). As has been shown with adult samples, the present findings indicate that reports on the two scales of the ERQ–CA are correlated in the expected directions with self-reported depressive symptomatology, thereby providing convergent validity support for the ERQ–CA.

Validity of the ERQ–CA was also examined via correlations with the five factors of the BFQ–C. As has been proposed (Gross, 2008; John & Gross, 2004, 2007) and empirically demonstrated (Balzarotti et al., 2010; Gross & John, 2003), in the current study, CR was negatively associated with the Neuroticism/Emotional Instability factor of the BFQ–C, with highly consistent coefficients across groups ranging in size between −.20 and −.22. The present results also indicated that CR was positively associated with Extraversion, as expected, as well as with the remaining personality traits. The coefficients were all within the magnitude range from .2 to .3 (see Table 3). This is partly consistent with Gross and John's (2003) adult study in which significant, albeit weak, correlations were found between CR reports and the remaining four factors of the FFM of personality.

With regard to the ES scale of the ERQ–CA, as predicted, for the total sample and across all subsamples, significant positive correlations were found with the Neuroticism factor of the FFM. These correlations ranged in size between .23 for the 10- to

Table 3
Pearson Product Moment Correlation Coefficients Between the ES and CR Scales of the Emotion Regulation Questionnaire for Children and Adolescents and the Depression (CDI) and Personality Measures (BFQ-C)

Sample/scale	CDI	BFQ–C				
		Ext.	Agree.	Consc.	Neurot.	Open.
Overall sample						
ES	.37***	−.32***	−.28***	−.13**	.26***	−.07
CR	−.26***	.28***	.34***	.32***	−.21***	.32***
Boys						
ES	.36***	−.35***	−.33***	−.16**	.25***	−.19***
CR	−.27***	.28***	.39***	.39***	−.22***	.38***
Girls						
ES	.40***	−.31***	−.18***	−.07	.29***	.02
CR	−.27***	.27***	.26***	.26***	−.20***	.26***
10- to 12-year-olds						
ES	.24***	−.19**	−.26***	−.12*	.23***	−.13*
CR	−.25***	.29***	.37***	.31***	−.20***	.33***
13- to 15-year-olds						
ES	.42***	−.35***	−.21**	−.11*	.25***	−.06
CR	−.28***	.25***	.30***	.33***	−.20**	.26***
16- to 18-year-olds						
	.43***	−.44***	−.37***	−.16*	.33***	−.01
	−.26***	.28***	.20**	.31***	−.21**	.35***

Note. ES = expressive suppression; CR = cognitive reappraisal; CDI = Children's Depression Inventory total score; BFQ–C = Big-Five Questionnaire for Children; Ext. = Energy/Extraversion; Agree. = Agreeableness; Consc. = Conscientiousness; Neurot. = Neuroticism/Emotional Instability; Open. = Openness to Experience.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 4
Partial Correlation Coefficients Between the ES and CR Scales of the Emotion Regulation Questionnaire for Children and Adolescents and the Depression (CDI), Controlling, in Turn, for FFM Extraversion and Neuroticism

Scale	Total sample	Boys	Girls	10- to 12-year-olds	13- to 15-year-olds	16- to 18-year-olds
Bivariate correlations between ES and CR and the CDI						
ES scale	.37***	.36***	.40***	.24***	.42***	.43***
CR scale	−.26***	−.27***	−.27***	−.25***	−.28***	−.26***
Controlling for Extraversion						
ES scale	.28***	.29***	.31***	.20**	.34***	.26***
CR scale	−.17***	−.22***	−.16***	−.19**	−.20***	−.15*
Controlling for Neuroticism						
ES scale	.27***	.27***	.28***	.11	.34***	.32***
CR scale	−.18***	−.19**	−.20***	−.18**	−.21**	−.18*
Controlling for Neuroticism and Extraversion						
ES scale	.19***	.22***	.21***	.09	.27***	.18**
CR scale	−.12**	−.14**	−.13**	−.13*	−.16**	−.10

Note. ES = expressive suppression; CR = cognitive reappraisal; CDI = Children's Depression Inventory total score; FFM = five-factor model.
* $p < .05$. ** $p < .01$. *** $p < .001$.

12-year-olds and .33 for the 16- to 18-year-olds. Also, as predicted, higher scores on the ES scale were associated with lower scores on the Extraversion scale. In fact, all FFM traits, with the exception of the Openness factor, were found to be significantly inversely associated with ES strategy use (see Table 3). This is consistent with the findings reported by others (Balzarotti et al., 2010; Gross & John, 2003) with the exception that Gross and John (2003) found a negative association with the Openness factor.

Given the significant correlations between the FFM factors and the ERQ–CA scales, in order to determine whether the correlations between the CDI and the ERQ–CA scales were unique to ER, we conducted additional analyses whereby partial correlations were carried out between the CDI and the ERQ–CA scales, first partialing out variance for FFM Extraversion and Neuroticism in turn and then partialing out the variance for both personality factors simultaneously. As is shown in Table 4, the correlations between the CDI scores and the ERQ–CA scales, for the most part, retained their significance and direction but were smaller in magnitude. Thus, there continues to be evidence for convergent validity between the ERQ–CA scales and the CDI for both sexes and all age groups even when controlling for the confounding effects of the FFM Extraversion and Neuroticism scales.

Conclusions

This study has demonstrated the psychometric soundness of the ERQ–CA, which assesses two well-researched ER strategies. Although ER strategies have been predominantly researched with adults, recent studies have begun to demonstrate the utility of these strategies with younger samples (e.g., Betts et al., 2009). Thus, the ERQ–CA will undoubtedly constitute a valuable tool with which to assess these two specific and theoretically derived ER strategies in child and adolescent samples. Consistent with recent recommendations (see review by Adrian et al., 2011), we endorse the use of the ERQ–CA as part of a battery of measures. When used in conjunction with other measures of ER competencies (e.g., emotion awareness and understanding; the ability to control impulsive behavior; Gratz & Roemer, 2004; MacDermott, Gullone, Allen, Tonge, & King, 2010; Weinberg & Klonsky, 2009), the ERQ–CA will enable a more comprehensive and theoretically driven assessment of ER in children and adolescents.

In conclusion, the current psychometric evaluation of a revised version of the ERQ for use with children and adolescents has demonstrated that the ERQ–CA is a valid and reliable tool for the assessment of two well-researched ER strategies. The current findings demonstrate that the ERQ–CA possesses good internal consistency and stability over time, construct validity that is invariant across age and sex groups, and adequate convergent validity. Thus, the findings support the use of this revised measure with child and adolescent samples.

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