

Children's perceptions of the effectiveness of strategies for regulating anger and sadness

Sara F. Waters and Ross A. Thompson

International Journal of Behavioral Development 2014 38: 174 originally published online 13 January 2014

DOI: 10.1177/0165025413515410

The online version of this article can be found at:

<http://jbd.sagepub.com/content/38/2/174>

Published by:



<http://www.sagepublications.com>

On behalf of:



[International Society for the Study of Behavioral Development](http://www.sagepub.com/content/38/2/174)

Additional services and information for *International Journal of Behavioral Development* can be found at:

Email Alerts: <http://jbd.sagepub.com/cgi/alerts>

Subscriptions: <http://jbd.sagepub.com/subscriptions>

Reprints: <http://www.sagepub.com/journalsReprints.nav>

Permissions: <http://www.sagepub.com/journalsPermissions.nav>

>> [Version of Record](#) - Feb 18, 2014

[OnlineFirst Version of Record](#) - Jan 13, 2014

[What is This?](#)

Children's perceptions of the effectiveness of strategies for regulating anger and sadness

Sara F. Waters¹ and Ross A. Thompson²

International Journal of
Behavioral Development
2014, Vol. 38(2) 174–181
© The Author(s) 2014
Reprints and permissions:
sagepub.co.uk/journalsPermissions.nav
DOI: 10.1177/0165025413515410
ijbd.sagepub.com



Abstract

Children may be capable of understanding the value of emotion regulation strategies before they can enlist these strategies in emotion-evoking situations. This study was designed to extend understanding of children's judgment of the efficacy of alternative emotion regulation strategies. Children aged six and nine ($N = 97$) were presented with illustrated storyboards of anger- and sadness-evoking situations and rated the effectiveness of eight emotion regulation strategies. Children endorsed some strategies on an emotion-specific basis: they rated problem-solving as more effective for anger, and seeking adult support and venting emotion as more effective for sadness. Younger children rated cognitively sophisticated emotion regulatory strategies comparably to older children, but they endorsed relatively ineffective strategies as more effective. Early evidence of gender differences was also apparent as girls reported emotion-focused strategies as more effective than boys did. These findings contribute to understanding children's nuanced estimates of the value of alternative strategies of emotion regulation based on emotion context, age, and gender.

Keywords

child self-report, emotion regulation, gender differences, middle childhood, strategies

Effective emotion regulation is a major achievement of childhood with enduring impact because skills in emotion regulation underlie social and emotional competencies and buffer against risk for affective psychopathology (see Eisenberg, Hofer, & Vaughan, 2007; and Mullin & Hinshaw, 2007, for reviews). Emotion regulation can be defined as “the extrinsic and intrinsic processes responsible for monitoring, evaluating, and modifying emotional reactions, especially their intensive and temporal features, to accomplish one's goals” (Thompson, 1994: p. 27). This conceptualization incorporates multiple levels of regulatory processes including physiological, cognitive, and behavioral management of emotion. It also adopts a functionalist emphasis on viewing emotion regulation in context and in service of the individual's goals.

Our approach to the development of emotion regulation raises important questions that are the focus of this study. First, how do children of different ages perceive the relative effectiveness of different strategies of emotion regulation? Although researchers have documented significant developmental changes in children's utilization of different approaches in emotion self-regulation, much less is known about how children themselves perceive the effectiveness of these approaches, whether or not they regularly enlist them. Second, do children regard the effectiveness of emotion regulation strategies in emotion-specific ways, or do they adopt (as adults do) generalized preferred approaches to emotion management? This question addresses how emotion regulation strategies come to characterize individual styles of emotion management (e.g., “suppressors” vs. “cognitive reappraisers”). Third, are there significant gender differences in children's appraisals of the relative effectiveness of different emotion regulation strategies? This question addresses the connection between well-established findings concerning gender differences in the socialization of emotion with children's developing self-awareness of effective self-regulatory strategies.

Developmental changes in children's perceptions of emotion regulatory strategies

Children's repertoires of emotion regulation strategies change significantly early in life and continue to develop with increasing age. Younger children rely more heavily on directly expressing their emotions (in part owing to the responses they evoke from others) or on instrumental strategies like distraction or turning to an adult for support, whereas older children enlist more psychologically sophisticated strategies like cognitive reappraisal and problem-solving (Band & Weisz, 1988; Harris, Olthof, & Meerum Terwogt, 1981; Kopp, 1989; Thompson & Meyer, 2007). Changes in strategy use are likely a function of children's developing understanding of emotion itself. For instance, Pons, Harris, and de Rosnay (2004) have delineated three components of emotion understanding that emerge at different periods of development. By age five, children recognize emotional expression and understand the causes of emotion as well as the ways in which emotion can be reactivated by external reminders. By age seven, children understand connections between emotions and mentalistic features like beliefs and that felt emotion need not necessarily be expressed. Finally, beginning around age nine, they found that children are aware of how

¹ University of California, San Francisco, USA

² University of California, Davis, USA

Corresponding author:

Sara F. Waters, University of California, San Francisco, 3333 California Street, Suite 465, San Francisco, CA 94118, USA.

Email: sara.waters@ucsf.edu

individuals can cognitively make meaning or regulate emotion. Thus we focused our attention in the current study on six-year-olds, who were expected to have established competency in the first component of emotion understanding and be in the second period, and nine-year-old children, who were expected to have mastered the first and second components and be in the third period.

While children's self-report is not necessarily more valid or predictive than observational measures, recent research suggests that a somewhat different picture of children's emotion regulation understanding may emerge from this approach and it may be important to know whether younger children understand the potential effectiveness of sophisticated strategies even if they do not regularly enlist them. For instance, Davis, Levine, Lench, and Quas (2010) found that five- to seven-year-olds endorsed metacognitive emotion regulation strategies involving cognitive reappraisal and related approaches (see also Sayfan & Lagattuta, 2009), even though few studies have found that children of this age actively enlist such strategies. But very few studies have examined children's perceptions of emotion regulation strategy effectiveness; most focused on preschoolers. Cole, Dennis, Smith-Simon, and Cohen (2009) found an increase in knowledge of emotion regulation strategies between ages three and four for anger scenarios specifically. Their study is the only one of which we are aware that tested links between self-reports and observed regulatory behavior. They found that preschoolers' use of constructive strategies – such as problem-solving and support-seeking – in response to a frustration was predicted by greater strategy recognition while disruptive behavior was predicted by poorer strategy recognition. Dennis and Kelemen (2009) asked three- and four-year-olds to rate effective and ineffective emotion regulation strategies for puppet-enacted vignettes involving anger, fear, and sadness. Children reported that cognitive distraction was more effective for regulating sadness than anger, and repair was more effective for anger than sadness. In the present study, we extended this line of inquiry to children in the early primary grades, a period of significantly expanding understanding of emotion regulation, to better understand developmental changes in children's appreciation of the relative effectiveness of different strategies of emotion management.

Strategy effectiveness: emotion-specific or general?

As the findings reviewed above suggest, young children tend to perceive strategy effectiveness differentially according to which negative emotion is being regulated. It is well that they should do so in light of the personal and social challenges of managing strong emotions like anger and sadness. From a functionalist perspective, anger is conceptualized as a response to a blocked goal and is associated with approach behaviors to remove the block and achieve the goal, while sadness occurs in response to a loss and is more associated with withdrawal and abandonment of the goal (Carver, 2004). Thus, strategies that are approach-oriented and address the blockage such as problem-solving are likely to be most effective in regulating anger, while strategies that are oriented away from the emotion-eliciting event and instead enlist support from another or simply express the emotion (which can elicit support) may be more effective for regulating sadness.

By contrast, other research on emotion regulation with children and adults suggests that individuals are more likely to endorse generalized strategies that work for them across negative emotions. In

studies with children that examine emotion regulation in relation to temperament, for example, children are characterized as being overregulated, underregulated, or optimally regulated in relation to differences in temperamental qualities like effortful control, and as using different emotion regulation strategies that are consistent with their temperamental characteristics (such as behavioral inhibition) (e.g., Eisenberg et al., 2007). In research with adults, generalized styles of emotion regulation such as emotion suppression or cognitive reappraisal are distinguished without regard for the valence of the eliciting circumstances and are differentially associated with health outcomes (John & Gross, 2007).

Whether these different findings concerning emotion-specific or generalized self-regulatory approaches are the product of the methodological approach or reflect developmental changes in how individuals conceptualize emotion regulation cannot be thoroughly addressed empirically since no study to date has compared emotion regulation style using both specific and generalized probes in the same sample. Nevertheless, the theoretical basis for the many studies using generalized measures (like the Emotion Regulation Questionnaire) is that self-regulatory style is an aspect of personality and therefore relatively stable across contexts. Like other elements of personality, then, a generalized self-regulatory style may develop over the course of childhood. This prompts an important developmental question: Do children increasingly prefer a generalized strategy of emotion regulation with increasing age? This study was designed to begin addressing this question by presenting school-age children with multiple hypothetical scenarios involving two different emotions – anger and sadness – and asking them to rate the relative effectiveness of different strategies of emotion regulation for each emotion. By focusing on children who are older than those whose strategy perceptions have been studied previously, we hoped to determine whether the emotion-specific approach to self-regulation extends into the middle childhood period.

Gender differences in perceptions of emotion regulation

How children manage their emotions depends on individual characteristics like gender. Research in late childhood and adolescence consistently finds that females rely more than males on emotion-focused strategies like seeking support or expressing their feelings (Brenner & Salovey, 1997; Causey & Dubow, 1992; Copeland & Hess, 1995; Hastings, Anderson, & Kelley, 1996; Kliewer, Fearnow, & Miller, 1996; Zeman & Shipman, 1997). There is also research evidence that males endorse strategies like avoidance, distancing, or distraction more than females do (Causey & Dubow, 1992; Zeman & Shipman, 1997), although this finding is less consistent (Hastings et al., 1996; Kliewer et al., 1996). Research on gender differences in emotion regulation at earlier ages has yielded mixed results. Bernzweig, Eisenberg, and Fabes (1993), for example, found that five- to seven-year-old girls used more emotion-focused strategies than did boys, but only when mother-report (not child-report) measures were used.

This discrepancy is important because of consistent findings concerning gender differences in emotion socialization in young children. Parents talk about emotions differently with young boys and girls, focusing on the emotion itself with daughters and more on the causes and consequences of the emotion with sons (Fivush, 1989). With daughters they also discuss sadness more frequently than anger, attribute emotions to social-relational causes, and

resolve negative emotions through reassurance and reconciliation, whereas they are less likely to discuss resolution of negative emotions with sons (Fivush, 1994, 1998). While parents may be predominant socializing forces in the first few years of a child's life, by the time children are school-aged, the peer world is salient and different rules regarding emotion and its regulation may apply (Shipman, Zeman, & Stegall, 2001; Zeman & Garber, 1996), especially depending on gender (Murphy & Eisenberg, 2002; Rose & Asher, 1999). Thus, peers are another potential source influencing the emergence of gender differences. In light of this, further understanding of gender differences in early school-age children's perceptions of the effectiveness of different emotion regulation strategies is important, and especially whether these differences are consistent with those observed in older children and adults.

The current study

While effective emotion regulation encompasses up- and down-regulation of positive and negative emotions, we focused in this study on the effectiveness of strategies for down-regulating two negative emotions: anger and sadness. This is a common emotion management goal parents have for their young children. We examined six- and nine-year-old children's perceptions of the effectiveness of eight emotion regulation strategies in scenarios involving anger and sadness. We assessed for developmental differences between the two age groups, similarities and differences in effectiveness ratings across the two emotions, gender differences in these perceptions, and interactions between strategy and emotion, gender, and age. We formulated hypotheses regarding differences in effectiveness ratings for subsets of strategies based on extant research and refrained from hypothesizing differences in strategy effectiveness ratings when sufficient empirical evidence was lacking. Our hypotheses:

1. Children would more highly endorse the effectiveness of goal-focused strategies like problem-solving for regulating anger than for managing sadness, and more highly endorse the effectiveness of emotion-focused strategies like emotional venting and seeking adult or peer support for regulating sadness more than anger.
2. Younger children would rate simpler strategies like emotional venting, distraction, or doing nothing as more highly effective than would older children. Older children would, by contrast, rate sophisticated strategies like cognitive reappraisal as more highly effective than younger children would.
3. Girls would perceive support seeking strategies and emotional venting as more highly effective than boys would, and boys would perceive distraction as more highly effective than girls would.

Methods

Participants

The sample included 48 children recruited from first grade ($M_{age} = 6.8$ years, $SD = .37$) classrooms and 49 from fourth grade ($M_{age} = 9.73$ years, $SD = .34$) classrooms for a total of 97 children (49 girls). Fifty-nine percent were European American, 24% multi-ethnic, and the remaining 17% were Latino, Asian-American, Africa-American, or other. Thirty percent of mothers had less than

a bachelor's degree, 51.5% had a bachelor's degree, and 17.5% had a master's degree or doctorate.

Procedures

Families were recruited to participate through a laboratory database and advertisements posted at elementary schools and public spaces in the area. Data, including some measures not presented in the current study, were collected in the laboratory or in a small, quiet conference room at the participant's school, based on convenience for the participant. Families were compensated \$50 for their participation. All study materials were approved by the university institutional review board.

Measures

The emotion regulation interview consisted of four stories, two involving an anger-evoking event and two involving a sadness-evoking event. Because anger is evoked by a blocked goal, it often involves a causal agent (e.g., peer will not share a prized toy) whereas sadness, which involves loss, may or may not involve a causal agent. To avoid confounding emotion with presence of causal agent, anger and sadness stories were generated that did not involve specific causal agents for the evoked emotion. The stories were designed to be consistent with common experiences of children that were expected to evoke anger or sadness, and pilot testing confirmed that children were likely to feel the target emotion in the appropriate stories. In the anger stories, the target child arrived at a toy store only to find it closed and a movie theater only to find the movie sold out. In the sadness stories, the target child found his/her favorite toy or bike broken for unknown reasons. The order of the stories was counterbalanced across participants.

The experimenter began with a warm-up story to familiarize the participant with the procedure and orient him/her to identify with the target character, who was gender-matched to the participant. Each story was then narrated in the second person (i.e., "Here you are going to play with your favorite toy") with the participant in the role of the target character. Each story was told via five picture card illustrations following this sequence: (1) the target character expressing happiness; (2) the emotion-eliciting event; (3) the target character expressing the negative emotion (either anger or sadness); (4) the question mark card; and (5) the target character expressing happiness again. When the third card was displayed, participants were asked, "How are you feeling here?" to confirm that participants correctly recognized the negative emotion expressed by the target character in the picture card before the participant was asked to rate the emotion regulation strategies. Children as young as two or three accurately identify basic emotional expressions in others (Denham, 1986) and all participants correctly identified the negative emotion expressed by the target character when prompted.

The question mark card indicated where the participant should insert each of eight strategy cards depicting the target character engaging in an emotion regulation strategy. The strategies were taken from Eisenberg et al.'s (1993) emotional coping measures and were consistent with those found in Causey and Dubow's (1992) coping measure and in many other studies in the research literature, as follows:

1. Problem Solve: the target character takes appropriate action to address the situation (e.g., repairing the broken toy/determining when the movie is next shown)

Table 1. Descriptive statistics for strategy effectiveness scores.

Variable	Full sample Mean (SD)	6-year-olds Mean (SD)	9-year-olds Mean (SD)	Girls Mean (SD)	Boys Mean (SD)
Anger					
Problem solve	3.87 (.31)	3.86 (.32)	3.88 (.30)	3.86 (.31)	3.86 (.31)
Seek adult support	2.62 (.90)	2.78 (.88)	2.46 (.90)	2.67 (.87)	2.56 (.94)
Seek peer support	3.01 (.79)	3.13 (.83)	2.90 (.74)	3.20 (.76)	2.81 (.78)
Cognitive reappraisal	2.84 (.87)	2.72 (.96)	2.96 (.77)	2.76 (.91)	2.93 (.83)
Vent emotion	1.96 (.90)	2.16 (.97)	1.77 (.79)	2.15 (.94)	1.76 (.83)
Aggression	1.30 (.58)	1.35 (.68)	1.26 (.50)	1.39 (.69)	1.22 (.47)
Distraction	2.75 (.72)	2.70 (.74)	2.80 (.70)	2.61 (.68)	2.86 (.74)
Do nothing	1.78 (.74)	1.89 (.88)	1.65 (.56)	1.72 (.71)	1.81 (.77)
Sadness					
Problem solve	3.64 (.66)	3.69 (.66)	3.59 (.67)	3.63 (.68)	3.65 (.64)
Seek adult support	3.21 (.79)	3.26 (.77)	3.16 (.81)	3.19 (.70)	3.23 (.88)
Seek peer support	3.00 (.71)	3.05 (.75)	2.96 (.68)	3.10 (.62)	2.91 (.79)
Cognitive reappraisal	2.90 (.79)	2.77 (.79)	3.03 (.79)	2.81 (.79)	2.99 (.80)
Vent emotion	2.10 (.92)	2.28 (1.04)	1.90 (.76)	2.26 (.98)	1.92 (.84)
Aggression	1.31 (.60)	1.29 (.60)	1.34 (.76)	1.41 (.67)	1.22 (.50)
Distraction	2.68 (.75)	2.86 (.74)	2.78 (.76)	2.62 (.78)	2.73 (.73)
Do nothing	1.70 (.65)	1.86 (.73)	1.52 (.51)	1.67 (.60)	1.71 (.70)

2. Seek Adult Support: the target character asks an adult for assistance
3. Seek Peer Support: the target character asks a peer for assistance
4. Cognitive Reappraisal: the target character thinks about something, depicted via a thought bubble overhead
5. Vent Emotion: the target character expresses strong emotion
6. Aggression: the target character angrily kicks a rock
7. Distraction: the target character turns to a different activity altogether (i.e., reading a book)
8. Do Nothing: the target character stands alone with no expression

The experimenter explained that some of the strategies help some kids feel better and some of the strategies do not help some kids feel better. Corresponding graphics of a thumb-up and thumb-down accompanied the helpful and unhelpful distinctions. The participant was then asked to imagine him/herself doing each of these things in the story and to sort each strategy card according to whether it would help him/her feel better or not. After the participant had sorted all eight strategy cards into one of the two categories, the experimenter introduced a double thumb-up graphic and asked the participant to sort the helpful pile into really helpful and helpful. The same was done for the unhelpful pile using a double thumb-down graphic. In this way the participant provided his/her perception of the effectiveness of each strategy to help him/herself feel better on a 4-point scale of really unhelpful to really helpful.

Results

Repeated measures analysis of variance was used to assess effects of trial for each strategy effectiveness score in each emotion condition. In other words, we tested for differences between the two blocked goal stories for anger and the two broken toy stories for sadness, and no significant effects were obtained. Thus we averaged children's strategy effectiveness scores on each of the two trials to create a single effectiveness score for each of the eight strategies in

the anger and sadness conditions (see Table 1 for descriptive statistics). Several of the composite strategy effectiveness scores were moderately to substantially skewed and logarithmic transformations were used to correct this. All analyses were performed with both transformed and untransformed variables. Results did not differ so those using untransformed variables are presented for ease of interpretation.

Bivariate analyses (Table 2) revealed that individual strategy effectiveness scores were positively correlated for the two negative emotions. That is, participants who endorsed the effectiveness of, for instance, "venting emotion" for regulating anger also tended to endorse the effectiveness of that strategy for regulating sadness. This was true for all eight strategies. Of the remaining 56 correlations, nine were significant and several reciprocal patterns emerged. Participants who rated "seek adult support" as more effective in one negative emotion context tended to rate "seek peer support" as more effective in the other negative emotion context. Participants who perceived "seek peer support" as more effective in one negative emotion context tended to perceive "cognitive reappraisal" as more effective in the other negative emotion context. The other five significant correlations were not reciprocated between emotion contexts and are not further discussed.

To test our hypotheses, an 8 (strategy) x 2 (emotion) x 2 (age group) x 2 (gender) mixed repeated measures analysis of variance design with strategy and emotion as within-subject factors was used with an alpha cutoff of .05. There was a significant main effect for emotion ($F(1, 93) = 7.59, p = .001, \eta^2 = .06$), indicating that overall greater strategy effectiveness was endorsed for sadness ($M = 2.57, SD = .31$) than anger ($M = 2.52, SD = .34$). While this difference was statistically significant, the effect size was quite small. There was also a significant effect for the interaction of strategy and emotion ($F(7, 87) = 12.78, p < .001, \eta^2 = .51$), shown in Figure 1. We had hypothesized that approaching the blocked goal directly as represented by the "problem solve" strategy would be more effective for regulating anger than sadness and this is what we found. The effectiveness of "problem solve" was more highly endorsed for anger than sadness ($t(96) = 3.56, p = .001$). We had also hypothesized that strategies oriented away from the event such

Table 2. Bivariate associations among strategy effectiveness scores for anger and sadness stories.

Anger stories	Sadness stories							
	PS	SAS	SPS	CR	VE	AG	DS	DN
PS	.29**	.08	.07	.10	-.03	.04	-.01	.01
SAS	-.06	.68**	.40**	.02	.10	-.32**	.12	.18
SPS	.14	.36**	.73**	.25*	.36**	-.14	.07	.17
CR	.16	-.05	.26*	.75**	.11	.03	.19	.14
VE	.15	.06	.11	.10	.85**	.00	-.01	.25*
AG	-.04	-.13	.09	-.03	.003	.68**	-.17	-.07
DS	.01	-.04	.20	.21*	-.03	-.06	.62**	.17
DN	.12	-.12	.14	.17	.15	.03	.23*	.76**

Note. * $p < .05$; ** $p < .01$; PS = problem solve; SAS = seek adult support; SPS = seek peer support; CR = cognitive reappraisal; VE = vent emotion; AG = aggression; DS = distraction; DN = do nothing.

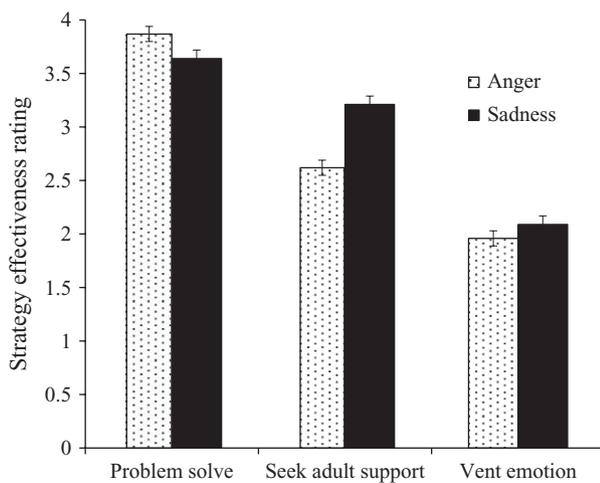


Figure 1. Strategy effectiveness by emotion condition. Note. Error bars represent ± 1 SE.

as seeking support from an adult or peer or simply venting emotion would be more effective for regulating sadness than anger. In partial support of this hypothesis, the effectiveness of “seek adult support” and “vent emotion” were each more highly endorsed for sadness than for anger ($t(96) = 8.51, p < .001$ and $t(96) = 2.53, p = .013$, respectively). Significant emotion effects did not emerge for the remaining five strategy effectiveness ratings, including “seek peer support”.

There was a significant effect for the interaction of strategy and age ($F(7, 87) = 2.31, p = .03, \eta^2 = .16$). In partial support of our hypotheses and shown in Figure 2, the effectiveness of “vent emotion” and “do nothing” were more highly endorsed by six-year-olds than nine-year-olds ($t(95) = 2.21, p = .029$ and $t(95) = 2.22, p = .029$, respectively). Significant age effects did not emerge for the remaining six strategy effectiveness ratings.

There was also a significant effect for the interaction of strategy and gender ($F(7, 87) = 2.54, p = .02, \eta^2 = .17$). Again, in partial support of our hypotheses and shown in Figure 3, the effectiveness of “seek peer support” and “vent emotion” were more highly endorsed by girls than boys ($t(95) = 2.011, p = .038$ and $t(95) = 2.10, p = .040$, respectively). Significant gender effects did not emerge for the remaining six strategy effectiveness ratings. There were no significant three-way or four-way interactions effects.

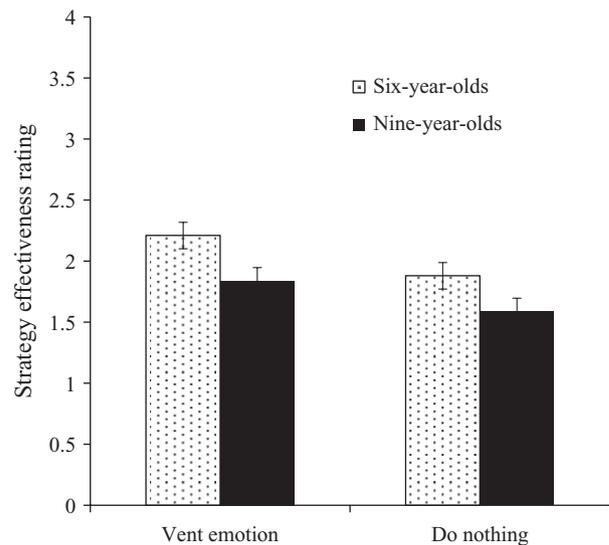


Figure 2. Age differences in strategy effectiveness ratings. Note. Error bars represent ± 1 SE.

Discussion

The primary purpose of this study was to examine how children in the early grade-school years perceive the effectiveness of different strategies for regulating sadness and anger. The use of an illustrated storyboard task was designed to assess children’s own appraisals of regulatory strategies because understanding emotion regulation is an important avenue to the development of self-regulatory competency. First, although there was consistency in their strategy endorsement across anger and sadness situations, children also endorsed certain strategies as especially effective for managing anger, and others as especially effective for sadness regulation, reflecting emotion specificity in their judgments. Second, younger children evaluated more sophisticated strategies (like cognitive reappraisal) comparably to older children, but perceived relatively unsophisticated approaches (like doing nothing) as more effective than did older children. Third, girls as young as six evaluated emotion-focused strategies as more effective than boys did. Together these findings illuminate children’s thinking concerning emotion regulation and how their evaluations of alternative strategies vary according to the emotion context and gender.

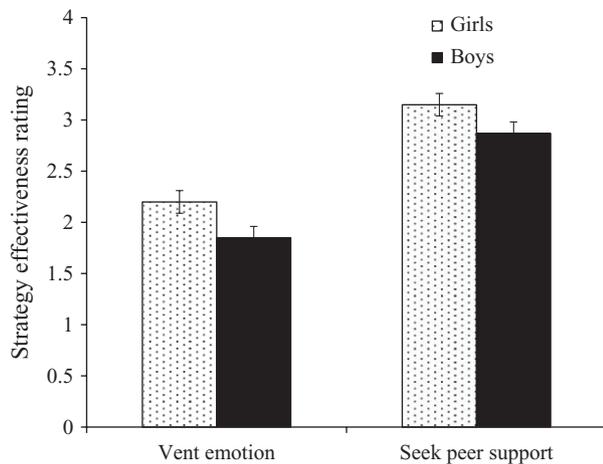


Figure 3. Gender differences in strategy effectiveness ratings.
 Note. Error bars represent ± 1 SE.

Consistent with a functionalist perspective on emotion, children regard some aspects of emotion management in emotion-specific ways although they also recognize that certain self-regulatory strategies are better than others across negative emotions. Interestingly, children perceived sadness to be more easily managed than anger as evidenced by an overall greater effectiveness rating within the given scenarios. This finding suggests that strategies for regulating sadness may be more readily accessible to children, and complements a study of preschool children's abilities to recognize various regulatory strategies in which three-year-olds did not recognize as many strategies for regulating anger as four-year-olds did, but the two groups were comparable in the number of strategies they recognized for regulating sadness (Cole et al., 2009). This difference may be consistent with their different experience of each emotion. Anger is a "negative dominant" emotion that elicits defensiveness and perceptions of hostility from others, while sadness is a "negative submissive" emotion that is less threatening and more likely to elicit support. When these emotions are expressed by others in the child's family, negative dominant emotions like anger are consistently negatively associated with children's coping while negative submissive emotions are not (Thompson & Meyer, 2007). Perhaps for this reason, children's judgments of the efficacy of emotion regulatory strategies were generally higher for sadness situations than for anger.

However, there was also variability in effectiveness perceptions that were specific to each emotion. Problem-solving strategies that directly address the blocked goal were appraised as more effective for anger, while strategies focused on the emotion (i.e., seeking adult support and venting) rather than the goal were appraised as more effective for sadness. This is generally consistent with our hypotheses, and also with the results of research with younger children (Dennis & Kelemen, 2009). Thus while children recognized that some emotion regulatory approaches are generally ineffective (e.g., doing nothing, aggression, venting emotion) and others are generally helpful (e.g., problem-solving, cognitive reappraisal, support seeking), their judgments of the efficacy of particular strategies were emotion-specific.

It remains to be clarified when a more generalized style of emotion regulation that is applied to multiple negative emotions emerges developmentally. The findings of this study suggest

that later in childhood or early adolescence is a potentially important period for further study because this period witnesses significant growth in self-awareness, metacognitive capabilities, and emotion understanding, and development in each, along with further growth in personality development, is likely to influence emotion regulation skills (Thompson, 1994).

Contrary to conventional expectations but consistent with more recent research findings, the six-year-olds in this study endorsed psychologically sophisticated emotion regulation strategies at a level comparable to the nine-year-olds. Even though observational evidence suggests that they are less likely to enlist strategies like cognitive reappraisal as readily as older children do, younger children certainly are aware of the potential benefits of doing so, as other researchers have found (Davis et al., 2010; Dennis & Kelemen, 2009). The more important developmental differences in strategy endorsement, however, concerned less sophisticated strategies like venting emotion and doing nothing, which younger children were more likely to endorse as effective. The lack of a main effect for age in this study suggests that this was not simply a response endorsement bias, but rather specific to these two approaches to emotion regulation, and is consistent with younger children's greater tendency to express rather than to manage their feelings. Taken together with the findings of other studies, these results suggest that younger children deserve greater credit for their knowledge of the value of mentalistic emotion regulation strategies than they have previously received, even though they are slow to abandon less effective strategies.

Our hypotheses concerning gender differences in strategy endorsement were also partially supported. Girls' greater endorsement of emotion-focused strategies like peer support seeking and venting emotion extends the existing research literature on gender differences in emotion-related appraisals to children as young as six, the earliest evidence to date. We did not find, however, that boys endorsed distraction more highly than girls. Together with previous studies linking such differences to differential emotion socialization based on gender, these findings suggest that these socialization influences may begin to become incorporated into children's developing gendered schemas about emotion and emotion regulation by school entry.

Limitations

This study relied on children's self-reports, a necessary approach to studying their understanding. Measuring children's judgments of the effectiveness of emotion regulation strategies is valuable because it contributes to understanding the development of emotion regulation skill – even though children may not reliably enlist certain strategies that they report to be effective, their knowledge is a leading indicator of developing competence. Then the reasons that children do not use strategies they know to be effective becomes important and further research should examine associations between children's perceptions of strategy effectiveness and their employment of those strategies in emotionally challenging situations. Our goal in the current study was not to actively elicit the target negative emotion in the participant or assess the extent to which a participant actually felt the target negative emotion, but to ask children to imagine themselves feeling the target emotion in a given scenario and then evaluate different strategies for down-regulating that emotion.

The emotion regulation interview allowed us to compare ratings of all eight strategies as a function of each of our three predictors and this balanced design revealed that not all strategies were evaluated significantly differently by our two age and gender groups. We did not expect this, however, given the existing literature on emotion regulation in children. The interview included only anger and sadness in order to examine two dissimilar kinds of negative emotion with which children were familiar, and because pretesting revealed that including another emotion condition (e.g., fear) would result in a research protocol that would be too taxing for the youngest participants. Nevertheless, further study of children's judgments of the effectiveness of emotion regulation strategies for a broader range of negative emotions is certainly warranted. Finally, the conclusions of this study may not be readily generalized beyond the kinds of typically-developing middle-class populations for which this sample is representative. It would be particularly important to study perceptions of emotion regulation strategies in samples of children in stress or at risk for the development of affective psychopathology.

Despite these limitations, these findings elucidate the nuanced understanding of emotion regulation strategy effectiveness in children as young as six. They also show how this understanding is influenced by the specific emotion, as well as the age and gender of the child. The early emergence of gender differences in judgments of strategy effectiveness, the emotion-specificity of children's perceptions of some of these self-regulatory strategies, and the sensitivity of even the youngest children to cognitively-oriented emotion regulatory strategies advance current understanding and highlight new directions for further research.

Funding

This work was supported by the Amini Foundation for the Study of Affects.

References

- Band, E. B., & Weisz, J. R. (1988). How to feel better when it feels bad: children's perspectives on coping with everyday stress. *Developmental Psychology, 24*, 247–253.
- Bernzweig, J., Eisenberg, N., & Fabes, R. A. (1993). Children's coping in self- and other-relevant contexts. *Journal of Experimental Child Psychology, 55*, 208–226.
- Brenner, E. M., & Salovey, P. (1997). Emotion regulation during childhood: developmental, interpersonal, and individual considerations. In D. J. Sluyter (Ed.), *Emotional development and emotional intelligence: Educational implications* (pp. 168–192). New York, NY: Basic Books.
- Carver, C. S. (2004). Self-regulation of action and affect. In R. F. Baumeister & K. D. Vohs (Eds.), *Handbook of self-regulation: Research, theory, and applications* (pp. 13–39). New York, NY: Guilford Press.
- Causey, D. L., & Dubow, E. F. (1992). Development of a self-report coping measure for elementary school children. *Journal of Clinical Child Psychology, 22*, 47–59.
- Cole, P. M., Dennis, T. A., Smith-Simon, K. E., & Cohen, L. H. (2009). Preschoolers' emotion regulation strategy understanding: relations with emotion socialization and child self-regulation. *Social Development, 18*, 324–352.
- Copeland, E. P., & Hess, R. S. (1995). Differences in young adolescents' coping strategies based on gender and ethnicity. *Journal of Early Adolescence, 15*, 203–219.
- Davis, E. L., Levine, L. J., Lench, H.C., & Quas, J. A. (2010). Metacognitive emotion regulation: children's awareness that changing thoughts and goals can alleviate negative emotions. *Emotion, 10*, 498–510.
- Denham, S. A. (1986). Social cognition, prosocial behavior, and emotion in preschoolers: contextual validation. *Child Development, 57*, 194–201.
- Dennis, T. A., & Kelemen, D. A. (2009). Preschool children's views on emotion regulation: functional associations and implications for social-emotional adjustment. *International Journal of Behavioral Development, 33*, 243–252.
- Eisenberg, N., Fabes, R. A., Bernzweig, J., Karbon, M., Poulin, R., & Hanish, L. (1993). The relations of emotional and regulation to preschoolers' social skills and socioeconomic status. *Child Development, 64*, 1418–1438.
- Eisenberg, N., Hofer, C., & Vaughan, J. (2007). Effortful control and its socioemotional consequences. In J. J. Gross (Ed.), *Handbook of emotion regulation* (pp. 287–306). New York, NY: Guilford Press.
- Fivush, R. (1989). Exploring sex differences in the emotional content of mother-child conversations about the past. *Sex Roles, 20*, 675–691.
- Fivush, R. (1994). Constructing narrative, emotion, and self in parent-child conversations about the past. In U. Neisser & R. Fivush (Eds.), *The remembering self* (pp. 136–157). Cambridge: Cambridge University Press.
- Fivush, R. (1998). Gendered narratives: elaboration, structure, and emotion in parent-child reminiscing across the preschool years. In C. P. Thompson & D. J. Herrmann (Eds.), *Autobiographical memory: Theoretical and applied perspectives* (pp. 79–103). Mahwah, NJ: Erlbaum.
- Harris, P. L., Olthof, T., & Meerum Terwogt, M. (1981). Children's knowledge of emotion. *Journal of Child Psychology and Psychiatry, 22*, 247–261.
- Hastings, T. L., Anderson, S. J., & Kelley, M. L. (1996). Gender differences in coping and daily stress in conduct-disordered and non-conduct-disordered adolescents. *Journal of Psychopathology and Behavioral Assessment, 18*, 213–226.
- John, O. J., & Gross, J. J. (2007). Individual differences in emotion regulation. In J. J. Gross (Ed.) *Handbook of emotion regulation* (pp. 351–372). New York, NY: Guilford Press.
- Kliewer, W., Fearnow, M. D., & Miller, P. A. (1996). Coping socialization in middle childhood: tests of maternal and paternal influences. *Child Development, 67*, 2339–2357.
- Kopp, C. B. (1989). Regulation of distress and negative emotions: a developmental review. *Developmental Psychology, 25*, 343–354.
- Mullin, B. C., & Hinshaw, S. P. (2007). Emotion regulation and externalizing disorders in children and adolescents. In J. Gross (Ed.), *Handbook of emotion regulation* (pp. 523–542). New York, NY: Guilford Press.
- Murphy, B. C., & Eisenberg, N. (2002). An integrative examination of peer conflict: children's reported goals, emotions, and behaviors. *Social Development, 11*, 534–557.
- Pons, F., Harris, P. L., & de Rosnay, M. (2004). Emotion comprehension between 3 and 11 years: developmental periods and hierarchical organization. *European Journal of Developmental Psychology, 1*, 127–152.
- Rose, A. J., & Asher, S. R. (1999). Children's goals and strategies in response to conflicts within a friendship. *Developmental Psychology, 35*, 69–79.

- Sayfan, L., & Lagattuta, K. H. (2009). Scaring the monster away: what children know about managing fears of real and imaginary creatures. *Child Development, 80*, 1756–1774.
- Shipman, K. L., Zeman, J. L., & Stegall, S. (2001). Regulating emotionally expressive behavior: implications of goals and social partner from middle childhood to adolescence. *Child Study Journal, 31*, 249–268.
- Thompson, R. A. (1994). Emotion regulation: a theme in search of definition. *Monographs of the Society for Research in Child Development, 59*, 25–52.
- Thompson, R. A., & Meyer, S. (2007). Socialization of emotion regulation in the family. In J. Gross (Ed.), *Handbook of emotion regulation* (pp. 249–268). New York, NY: Guilford Press.
- Zeman, J., & Garber, J. (1996). Display rules for anger, sadness, and pain: it depends on who is watching. *Child Development, 67*, 957–973.
- Zeman, J., & Shipman, K. (1997). Social-contextual influences on expectancies for managing anger and sadness: the transition from middle childhood to adolescence. *Developmental Psychology, 33*, 917–924.