Development and Psychopathology (2019), **31**, 999–1009
doi:10.1017/S0954579419000543

CAMBRIDGE UNIVERSITY PRESS

Special Issue Article

Emotion regulation processes linking peer victimization to anxiety and depression symptoms in adolescence

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Abstract

Difficulties with emotion regulation can take many forms, including increased sensitivity to emotional cues and habitual use of maladaptive cognitive or behavioral regulation strategies. Despite extensive research on emotion regulation and youth adjustment, few studies integrate multiple measures of emotion regulation. The present study evaluated the underlying structure of emotion regulation processes in adolescence using both task- and survey-based measures and determined whether differences in these emotion regulation latent factors mediated the association between peer victimization and internalizing psychopathology. Adolescents aged 16–17 years ($n = 287$; 55% female; 42% White) recruited in three urban centers in the United States completed baseline and follow-up assessments 4 months apart. Three models of emotion regulation were evaluated with confirmatory factor analysis. A three-factor model fit the data best, including cognitive regulation, behavioral regulation, and emotional reactivity latent factors. Task-based measures did not load onto these latent factors. Difficulties with behavioral regulation mediated the association between peer victimization and depression symptoms, whereas cognitive regulation difficulties mediated the association with anxiety symptoms. Findings point to potential targets for intervention efforts to reduce risk for internalizing problems in adolescents following experiences of peer victimization.

Keywords: anxiety, depression, emotion dysregulation, emotion regulation, peer victimization

(Received 18 January 2019; accepted 9 March 2019)

Emotion regulation is a transdiagnostic construct that plays a central role in the development and maintenance of psychopathology (Aldao, Gee, Reyes, & Seager, 2016; Cicchetti, Ackerman, & Izard, 1995; McLaughlin, Hatzenbuehler, Mennin, & Nolen-Hoeksema, 2011). Developing adaptive emotion regulation skills is a core developmental task of adolescence that promotes well-being and social competence. Emotion regulation is the ability to change the expression, perception, and experience of affective responses (Gross, 1998). A process model of emotion generation and regulation argues that individuals can change the experience and expression of emotions in any of the following ways: (a) changing the prompting event(s) of an emotion, (b) shifting attention away from the emotion or the prompting event, (c) reappraisal of the prompting event, (d) or changing how one responds to the emotion (Gross, 2002). In contrast, the inability to engage in effective emotion regulation, often referred to as emotion dysregulation or disruptions in emotion regulation, occurs when strategies to change emotions reduce distress in the short term but compromise well-being, productivity, relationships, or future achievements (Cole, Hall & Hajal, 2017). Cole et al. (2017) present four primary ways in which emotion dysregulation can be distinguished from emotion regulation patterns that serve longer term functioning. First, emotions endure, and attempts to regulate are ineffective. In essence, one does not feel the way that one desires to feel despite efforts to change one's emotional states. With extended sustainment or heightened intensity, emotions may begin to interfere with functioning and lose their value of aiding in problem solving or healthy interpersonal relations. Attempts to regulate may be ineffective because of insufficient knowledge or skill, deficiencies in biological regulatory systems, or reward gained from emotion sustainment. Second, disruptions in emotion regulation can involve emotions that interfere with adaptive behavior. Behavior may begin as effective but can negatively impact functioning if it becomes a stable pattern that interferes with intra- or interpersonal functioning (e.g., emotional numbing after a trauma). Third, emotions are context inappropriate in that expression is undercontrolled, overcontrolled, atypical, or unresponsive. It should be noted that function and developmental level should be considered alongside context: although individuals may differ in their response to a particular situation, some situations have typical responses, and the ability to fully comprehend context will likely impact emotion response. Fourth, emotion dynamics that change too quickly or slow emotional recovery deviates from the normative processes of the time course of emotion generation and resolution. Compared to the typical flow of emotions, emotion dysregulation may present with a pattern of emotions that "linger" or resist change or emotions that change quickly or frequently. There are

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Cite this article: Adrian M, Jenness JL, Kuehn KS, Smith MR, McLaughlin KA (2019). Emotion regulation processes linking peer victimization to anxiety and depression symptoms in adolescence. *Development and Psychopathology* **31**, 999–1009. https://doi.org/10.1017/S0954579419000543

patterns that reflect psychopathology symptomology. Rapid changes in emotion are associated with both internalizing and externalizing symptoms and social difficulties (Jacob, Suveg, & Whitehead, 2014; Kim-Spoon, Cicchetti, & Rogosch, 2013; Sobanski et al., 2010). Resistance to emotional change is characteristic of mood disorders (e.g., prolonged sadness/irritability in childhood depression) (Cole et al., 2017; Kashdan & Rottenberg, 2010).

Disruptions in emotion regulation are also thought to play a critical role as a mechanism linking exposure to stress with internalizing psychopathology (Gross, 2014). However, there is a paucity of research integrating multiple dimensions of emotion regulation in order to identify precise mechanisms through which environmental experiences influence emotion regulation and internalizing problems. Here, we integrate multiple self-report and task-based measurements across several dimensions of emotion regulation (i.e., emotional reactivity, and cognitive and behavioral regulation) to evaluate how disruptions in emotion regulation may contribute to the link between stressful life experiences and subsequent internalizing problems. Specifically, we examine the role of emotion regulation as a mechanism linking peer victimization with depression and anxiety symptoms in adolescents. Exposure to peer victimization is associated with elevations in internalizing problems during adolescence in both cross-sectional and longitudinal studies (for meta-analyses see Hawker & Boulton, 2000; Schoeler, Duncan, Cecil, Ploubidis, & Pingault, 2018). Being victimized explains 4%–9% of the variance in internalizing psychopathology in youth after accounting for shared method variance (Hawker & Boulton, 2000). Determining how peer victimization leads to subsequent internalizing problems is an important priority in order to prevent and intervene with the development of anxiety and depression. Emotion regulation has been suggested as a putative mechanism underlying this association (McLaughlin, Hatzenbuehler, & Hilt, 2009).

Peer experiences can influence developing emotional processes. Youth who report victimization experiences report strong negative emotions, including anger, sadness, and contempt, and youth who are the victims of peer aggression exhibit high levels of emotional arousal and reactivity (Deater-Deckard, 2001; Mahady Wilton, Craig, & Pepler, 2000) and report higher levels of emotion dysregulation (Morelen, Southam-Gerow, & Zeman, 2016) relative to youths who have not experienced victimization. Peer victimization may also influence neurobiological systems related to emotion reactivity and regulation across neural (Jankowski et al., 2018; Miller, Prinstein, Munier, Machlin, & Sheridan, 2018; Rudolph, Miernicki, Troop-Gordon, Davis, & Telzer, 2016) and psychophysiological levels (Rudolph, Troop-Gordon, & Granger, 2011; Stroud et al., 2009). Further, a prior longitudinal study found that peer victimization was associated with subsequent disruptions in emotion regulation as measured by a composite of emotional awareness, rumination, and behavioral expressions of anger and sadness (McLaughlin et al., 2009). Taken together, peer victimization elicits strong negative emotions and may influence adolescents' ability to effectively manage emotional responses.

Internalizing problems are characterized by avoidance, low positive affect, and persistent negative affect (Fang & Asnaani, 2012). Ineffective regulation of negative affect and positive arousal are key features of internalizing psychopathology (Thompson, 2001; Tone, Garn, & Pine, 2016), and disruptions in multiple emotion regulation processes may increase risk for internalizing problems in children and adolescents (for reviews, see Aldao et al., 2016; Kring & Sloan, 2009; McLaughlin, Garrad, & Somerville, 2015). Heightened emotional reactivity (characterized by the speed, pattern, and intensity of an individual's emotional response to an event) is associated with internalizing problems, including anxiety and depression (Pine, Cohen, & Brook, 2001; Shapero, Abramson, & Alloy, 2016). Cognitive aspects of emotion regulation can involve reappraisal or other strategies that alter the meaning of an emotion-eliciting situation or direct attention toward or away from an emotional stimulus (e.g., rumination or distraction; Moyal, Henik, & Anholt, 2014). Some cognitive responses to distress, such as rumination, prolong and exacerbate negative affect, and habitual use of rumination increases risk for concurrent and subsequent anxiety and depression (e.g., Abela & Hankin, 2011; Klemanski, Curtiss, McLaughlin, & Nolen-Hoeksema, 2017; McLaughlin & Nolen-Hoeksema, 2011; Nolen-Hoeksema et al., 2008). Finally, behavioral aspects of emotion dysregulation, including negative urgency and distress tolerance, are defined as the perceived or actual inability to tolerate negative emotions and discomfort (Leyro, Zvolensky, & Bernstein, 2010). Adolescents with high levels of urgency engage in reflexive actions aimed at immediately relieving negative emotions; negative urgency has been associated with internalizing problems in several studies (King, Feil, & Halvorson, 2018; Smith & Cyders, 2016). A recent meta-analysis documents associations of small to moderate effect sizes between emotion regulation and internalizing problems in children and adolescents (Compas et al., 2017). Taken together, diverse processes of emotion regulation impact the development of internalizing problems of anxiety and depression.

Emotion regulation is a multilevel phenomenon expressed at neural, cognitive, behavioral, and social levels (Gross, 2014; Gross & Thompson, 2007). Disruptions in emotion regulation can occur at multiple stages of the emotion generation process ranging from attention deployment and appraisals of emotion-eliciting stimuli to strategies intended to modulate the intensity or duration of an emotional response once it has been generated (Gross, 2014; Gross & Thompson, 2007). Given the wide range of behaviors that encompass emotion regulation, measurement of emotion regulation strategies often includes self-report, other informants (e.g., parent, teacher, or peer), physiological/biological indicators, observational approaches, and behavioral tasks (for reviews, see Adrian & Berk, 2018; Beauchaine, 2015). Due to the large number of emotion regulation processes and the wide variability in assessment of emotion regulation strategies across studies, little consensus has emerged regarding the underlying structure of emotion regulation strategies or whether specific domains of emotion regulation have particularly strong associations with psychopathology. More specifically, although disruptions in emotion regulation may mediate the association of peer victimization with internalizing problems (e.g., McLaughlin et al., 2009), prior work has evaluated either global maladaptive strategies into one latent construct of emotion regulation (e.g., McLaughlin et al., 2009) or specific indices of emotion regulation in isolation (e.g., Doyle & Sullivan, 2017). It is unknown whether specific aspects of emotion regulation play a particularly important role in the association between peer victimization and internalizing problems. Uncovering these mechanisms may help to inform strategies to prevent the development of internalizing problems among children who have experienced peer victimization.

Current Study

The current study examines the latent structure of emotion regulation across both survey and task-based measures to evaluate whether distinct components of disrupted emotion regulation

explain the association between experiences of peer victimization and internalizing psychopathology. Because different components of emotional reactivity and regulation develop and change during adolescence (McLaughlin et al., 2015), it is important to evaluate if different specific emotional processes mediate the association between peer victimization and internalizing problems. We sought to examine two primary research questions. First, we examined the latent structure of emotion regulation to evaluate whether a one-factor, two-factor, or three-factor model reflecting emotional reactivity and cognitive and behavioral regulation would best characterize the multiple components of disrupted emotion regulation. We further explored whether task-based measures of cognitive and behavioral aspects of emotion regulation loaded onto these latent constructs. Second, we evaluated whether different components of emotion regulation are influenced by peer victimization and, in turn, associated with internalizing problems. Third, we evaluated whether disruptions in specific aspects of emotion regulation served as mechanisms linking peer victimization to increases in internalizing problems over time.

Method

Participants

Data were drawn from a larger study of self-regulation and sensitivity to peer context as risk factors for adolescent psychopathology in a community sample of 16- and 17-year-old adolescents ($N = 287$) from three major cities in the United States (Boston, MA; Seattle, WA; and Pittsburgh, PA). We recruited English-speaking 16- and 17-year-olds for participation. Exclusion criteria included pervasive developmental disorders and psychosis. Participants were recruited with community flyers and were on average in 11th grade. Approximately half of the sample was female ($n = 156$; 54%), and 21% of the sample identified as Black ($n = 59$), 6.3% as Hispanic/Latino ($n = 18$), 11.1% as biracial ($n = 32$), 16.0% as Asian ($n = 46$), and 40.8% as White ($n = 117$). A further 2.1% of participants reported as members of other racial/ethnic groups ($n = 6$), while 2.5% ($n = 7$) declined to report race/ethnicity status. See King, McLaughlin, Silk, and Monahan (2018) for full details of this study.

Procedure

The study involved two assessments 4 months apart. In Session 1 (i.e., baseline visit), adolescents completed peer victimization, emotion regulation, and internalizing symptom questionnaires and tasks to assess emotion dysregulation. In Session 2 (i.e., follow-up visit), adolescents completed only internalizing symptom questionnaires.

Measures

Peer victimization

The Peer Victimization Questionnaire is an 18-item modified version of the Revised Peer Experiences Questionnaire (Prinstein, Boergers, & Vernberg, 2001). Participants are asked to rate how often an overt, relational, or reputational aggressive behavior was directed toward them in the past year. Overt victimization was defined as being hit, pushed, or receiving threats to be beat up. Relational and reputational victimization were defined as having a child's relationship with another teen, or their friendship status, used as a way of inflicting social harm (e.g., purposefully being excluded from social activities, being threatened to have friendship withdrawn, or having rumors or gossip spread about them). We calculated a total score by summing responses across the 18 items. Internal consistency was good ($\alpha = 0.86$, 18 items).

Emotion regulation

Emotional reactivity. The Emotional Reactivity Scale (ERS; Nock, Wedig, Holmberg, & Hooley, 2008) is a 21-item self-report measure designed to assess individuals' experience of emotion reactivity. The subscales of the ERS are emotion sensitivity, intensity, and persistence. Participants are asked to rate how much the statement is like them on a 4-point Likert scale (1 = *not at all like me*; 5 = *completely like me*). The ERS subscales measure the extent to which an individual experiences emotions (a) in response to a wide array of stimuli (i.e., emotion sensitivity), (b) strongly or intensely (i.e., emotion intensity), and (c) for a prolonged period of time before returning to baseline level of arousal (i.e., emotion persistence). We calculated a total score by summing responses across the 21 items. The ERS demonstrated good reliability in the present sample ($\alpha = 0.93$) and has been validated in adolescents (Nock et al., 2008).

Cognitive regulation

Inhibition of emotional information. The emotional Stroop task is based on the classic Stroop task, a color–word paradigm used for studying nonemotional response conflict (i.e., inhibitory control; MacLeod, 1991; Stroop, 1935). Subjects are asked to identify the emotional expression of the faces while ignoring the words, which are either congruent or incongruent with the facial expression. Incongruent stimuli are thus associated with response conflict that arises from an emotional incompatibility between task-relevant and task-irrelevant stimulus dimensions (e.g., a fearful expression with the word "happy"; Etkin, Egner, Peraza, Kandel, & Hirsch, 2006). An initial incongruent stimulus engages neural processes associated with conflict *detection*, which in turn activates a conflict *resolution* system that biases information processing and promotes correct responding. Several studies have shown that this conflict resolution system, by remaining active, facilitates response to a subsequent incongruent stimuli trial; that is, responses to an incongruent trial are facilitated when they are preceded by an incongruent trial. This facilitation, or "adaptation," is implicit, because individuals are not aware of it, but the effect can be captured by a speeded reaction time to incongruent trials that were preceded by an incongruent trial. The adaption to emotional conflict score was calculated by subtracting the mean reaction time on incongruent trials preceded by a congruent trial from the mean reaction time on incongruent trials proceeded by an incongruent trial. Thus, high scores indicated poorer adaptation. This adaptation effect is a measure of automatic emotion regulation as it occurs outside of conscious awareness (Egner, Etkin, Gale, & Hirsch, 2008; Gyurak, Gross, & Etkin, 2011).

Rumination. The Children's Response Styles Questionnaire (CRSQ; Abela, Brozina, & Haigh, 2002) was used to assess the extent to which children respond to sad feelings with rumination (e.g., "Think about a recent situation wishing it had gone better" and "Think why can't I handle things better?"). For each of the 13 rumination items, youths are asked to rate how often they respond in that way on a 4-point Likert scale. We calculated a total score by summing responses across the 12 items. The reliability and validity of the CRSQ have been demonstrated in samples of adolescents (Abela et al., 2002). The CRSQ rumination scale demonstrated good reliability in this study ($\alpha = 0.89$).

Behavioral regulation

Distress tolerance. The paced auditory serial addition task (PASAT; Gronwall, 1977) has been deployed as a performance-based measure of distress tolerance (Lejuez, Kahler, & Brown, 2003). For this task, numbers were flashed sequentially on a computer screen and participants were instructed to add the presented number to the previously presented number before the subsequent number appeared on the screen using the computer mouse to click on the correct answer. Numbers presented typically ranged from 0 to 20, with no sum greater than 20, in order to not confound mathematical ability. Participants completed three blocks with decreasing latencies between number presentations. In Block 1, the latency between stimuli was 3 s (60 trials), in Block 2, 2 s (72 trials), and in Block 3, latency was 1 s (92 trials). Shorter latencies between stimuli increase the difficulty of the task. Participants were told that they could terminate the task at any time once they reached the final block of the task. Participants were unaware of the task length. Willingness to tolerate emotional distress is indexed by latency in seconds to task termination, consistent with prior research (Daughters, Sargeant, Bornovalova, Gratz, & Lejuez, 2008). Distress tolerance was measured as latency (in seconds) to task termination in the third round as a continuous measure, with the maximum possible score of 420 s reflecting high levels of distress tolerance/persistence. Prior work indicates that the PASAT-C has high internal validity and test–retest reliability (Tombaugh, 2006) and induces negative affect (Holdwick & Wingenfeld, 1999).

Negative urgency. The 12-item negative urgency scale of the Urgency, Premeditation, Perseverance, Sensation Seeking, Positive Urgency, Impulsive Behavior Scale (UPPS) was used to assess the tendency to act impulsively when emotionally dysregulated. Five response options were presented on a Likert scale (1 = *not at all*; 5 = *very much*). A total score was created by calculating the mean response across the 12 items. The UPPS negative urgency subscale demonstrated good reliability in the present sample ($\alpha = 0.86$), and has demonstrated good validity and reliability (Zapolski, Stairs, Settles, Combs, & Smith, 2010).

Depression symptoms

Depression symptoms were assessed using the Children's Depression Inventory (CDI; Kovacs, 1992). The CDI is a widely used self-report measure of depressive symptoms in children and adolescents. The CDI includes 27 items consisting of three statements (e.g., "I am sad once in a while," "I am sad many times," and "I am sad all the time") representing different levels of severity of a specific symptom of depression. The item pertaining to suicidal ideation was removed. The 26 remaining items were summed for a total score. The CDI has demonstrated adequate reliability in this sample ($\alpha = 0.86$).

Anxiety symptoms

The Multidimensional Anxiety Scale for Children (March, 1997) assesses physical symptoms (tense/restless and somatic/autonomic), social anxiety (humiliation/rejection and public performance fears), harm avoidance (perfectionism and anxious coping), and separation anxiety. On a 4-point Likert scale, participants responded to 39 items of various situations and affective statements and were asked to indicate how often these items occur. A total score was created by calculating the mean response across the 39 items. The Multidimensional Anxiety Scale for Children had good reliability in this sample ($\alpha = 0.89$).

Data analytic plan

We used confirmatory factor analysis (CFA) to determine whether a one- (emotion regulation), two- (emotion reactivity and cognitive regulation), or three-factor (emotion reactivity, cognitive regulation, and behavioral regulation) model of emotion regulation best fit the data. For all CFA models, we entered item-level data from the ERS, CRSQ rumination, and UPPS negative urgency scales along with the Stroop effect, Stroop adaptation, and PASAT time to quit task (PASAT quit time) variables as continuous indicators.

Structural equation modeling was then used to perform mediation analyses examining the indirect effect of peer victimization on depression and anxiety symptoms at the longitudinal follow-up through emotion regulation. Latent variables representing dimensions of emotion regulation as determined by the CFA analysis were entered simultaneously in order to examine the relative contribution of each indirect effect while accounting for the shared association among the emotion regulation latent factors (Hayes, 2013). Baseline depression and anxiety symptoms and sex were entered as covariates in each mediation model.

Model fit across CFA and structural equation model analyses was assessed using a combination of chi-square and several relative fit indices that are transformations of chi-square such as the comparative fit index (CFI), root mean square error of approximation (RMSEA), and standardized root mean square residual value (SRMR; Hooper, Coughlan, & Mullen, 2008). CFA and mediation analyses were conducted using R 3.4.1 with the package "lavaan" version 0.5–23 (Rosseel, 2012).

Missing data

Missing data at baseline were from the following sources: incomplete or low performance for the Stroop ($n = 3$) and PASAT ($n = 6$) tasks, and missing item-level responses on emotion regulation questionnaires due to participant error (*n*s ranging from 4 to 8 across all items). Therefore, complete data for CFA analyses was available for $n = 254$ participants. Participant retention between the baseline and follow-up visit was 83% ($n = 237$ of 287); attrition was solely due to the inability to contact participants to come in for the follow-up assessment. Both baseline and follow-up data were missing at random (Little's missing completely at random test $p > .05$). Therefore, all analyses were conducted both with and without full information maximum likelihood (FIML; Schafer & Graham, 2002).[1]

Results

Preliminary analyses

Means and standard deviation of all measures at each time point are displayed in Table 1. Primary variables of interest (victimization, emotion regulation, and psychopathology) were also stratified by sex. One-way analysis of variance demonstrated females reported higher depression and anxiety symptoms at baseline and higher anxiety symptoms at follow-up, and higher scores on the rumination and emotional reactivity questionnaires. Table 2 provides the zero-order correlations among all study measures. As expected, peer victimization was positively associated with depression and anxiety symptoms at baseline and follow-up

1.Findings on CFA and mediation analyses did not differ based on the use of FIML estimation procedures. However, model fit indices across all CFA and mediation models indicated FIML estimation was not a good fit for the data, so model estimates without FIML estimation are presented.

Table 1. Distribution of sociodemographics and peer victimization, psychopathology, and emotion regulation measures stratified by sex

	%	*n*				
Female	54.4	156				
Race/ethnicity[a]						
White	40.8	117				
Black	20.6	59				
Latino	6.3	18				
Asian/Pacific Islander	16.0	46				
Biracial/other	11.1	32				
	Total sample			**Males**	**Females**	
	M	(*SD*)	*Range*	*M* (*SD*)	*M* (*SD*)	*Cohen's d*
Baseline						
Age	16.56	0.52	16–18			
Peer victimization	8.79	8.61	0–48	8.83 (8.12)	8.75 (9.02)	0.01
Depression symptoms	10.39	6.88	0–34	9.36 (6.66)	11.24 (6.97)	0.28*
Anxiety symptoms	1.99	0.40	0.56–3.21	1.91 (0.40)	2.06 (0.40)	0.38**
CRSQ rumination	17.48	8.10	0–36	16.32 (7.68)	18.43 (8.34)	0.26*
ERS total	27.61	16.64	0–84	22.56 (14.07)	31.73 (17.45)	0.58***
UPPS negative urgency	2.41	0.82	1.0–4.92	2.32 (0.80)	2.50 (0.84)	0.22^{+}
Stroop effect	47.13	49.85	−239.07–338.10	44.26 (43.97)	49.28 (54.60)	0.10
Stroop adaptation	−7.07	59.71	−346.63–327.40	−8.00 (62.79)	−6.17 (57.67)	0.03
PASAT quit time	104.56	46.32	0.00–137.00	106.80 (45.37)	103.70 (46.73)	0.06
Follow-up						
Depression symptoms	9.86	7.37	0–42	9.17 (7.00)	10.52 (7.60)	0.18
Anxiety symptoms	2.10	0.41	0.96–3.68	2.00 (0.38)	2.16 (0.43)	0.39**

Note: [a]Fifteen adolescents had missing data on this variable. CRS, Children's Response Style Questionnaire. ER, Emotion Reactivity Scale. UPP, Urgency, Premeditation, Perseverance, Sensation Seeking, Positive Urgency, Impulsive Behavior Scale. PASA, Paced Auditory Serial Addition Test. *$p < .05$. **$p < .01$. ***$p < .001$. $^{+}p < .10$.

and all emotion regulation self-report measures, which were in turn positively associated with one another. Task-based measures were not associated with either peer victimization or depression and anxiety symptoms with the exception of the Stroop adaptation measure, which was positively associated with both peer victimization at baseline and depression symptoms at follow-up.

CFA

CFA was used to determine whether a one-, two-, or three-factor structure of emotion regulation best fit the data. The one-factor model was composed of one emotion regulation factor that included all survey and task-based measures of emotion regulation, χ^2 (1127) = 4259.410, $p < .001$; CFI = .93, RMSEA = .105, SRMR = .101. When testing the one-factor model, none of the task-based indicators loaded meaningfully onto the emotion regulation factor (i.e., standardized factor loadings <.40, meaning the latent factor explained <16% of the variance in the indicator), so were removed from the latent factor but retained as covariates in all subsequent models. The two-factor model included an emotional reactivity latent factor comprised of the UPPS negative urgency, ERS items, and PASAT task score and a cognitive regulation factor that included all of the CRSQ rumination subscale items, and Stroop effect and adaptation scores, χ^2 (1126) = 3313.221, $p < .001$; CFI = .951, RMSEA = .088, SRMR = .089. Results showed a three-factor solution that included emotion reactivity, cognitive regulation, and behavioral regulation as separate latent factors best fit the data, χ^2 (1115) = 2420.955, $p < .001$; CFI = .971, RMSEA = .068, SRMR = .081. Observed variables loading onto the latent factors were as follows: the emotion reactivity latent factor included all items of the ERS scale, the cognitive regulation latent factor included all items of the CRSQ rumination scale, and the behavioral regulation latent factor included all items from the UPPS negative urgency scale. None of the task-based indicators loaded meaningfully onto the emotion regulation factors across all three models (i.e., standardized factor loadings <.40, meaning the latent factor explained <16% of the variance in the indicator), so final model fit statistics reflect a three-factor model with the task data removed and retained as covariates (see Supplementary Table 1).

Latent variable mediation analyses

Depression

The three emotion regulation latent factors were examined simultaneously as mediators of the association between peer victimization at baseline and depression symptoms at follow-up, controlling for baseline depression symptoms and sex. In the mediation model, baseline peer victimization was no longer a significant predictor of depression symptoms at follow-up after

Table 2. Correlations among demographic variables, peer victimization, emotion regulation, and internalizing psychopathology symptoms

	1	2	3	4	5	6	7	8	9	10	11	12
1. Peer victimization	—											
2. CRSQ rumination	.38***	—										
3. ERS total	.37***	.56***	—									
4. UPPS negative urgency	.43***	.52***	.62***	—								
5. Stroop effect	.08	.02	.01	.02	—							
6. Stroop adaptation	.16**	.13*	.10	.16**	.09	—						
7. PASAT quit time	−.11+	.04	−.03	−.01	−.01	.09	—					
8. Depression symptoms (baseline)	.38***	.51***	.53***	.44***	−.01	.07	−.06	—				
9. Anxiety symptoms (baseline)	−.30***	.43***	.44***	.21***	.01	.11+	.06	.39***	—			
10. Depression symptoms (follow-up)	.32***	.46***	.44***	.46***	.01	.17*	−.04	.73***	.31***	—		
11. Anxiety symptoms (follow-up)	.24***	.32***	.30***	.19**	.09	.10	.03	.33***	.60***	.43***	—	
12. Sex	−.01	.13*	.28***	.11+	.05	.02	−.03	.14*	.18*	.09	.19**	—

Note: CRSQ, Children's Response Style Questionnaire. ERS, Emotion Reactivity Scale. UPPS, Urgency, Premeditation, Perseverance, Sensation Seeking, Positive Urgency, Impulsive Behavior Scale. PASAT, Paced Auditory Serial Addition Test. ***$p < .001$. **$p < .01$. *$p < .05$. +$p < .10$.

adjusting for emotion regulation ($b = .013$, $p = .633$, 95% confidence interval; CI [−.041, .067]; c' path; Figure 1a). We observed a significant indirect effect of peer victimization on depression symptoms through behavioral regulation ($b = .039$, $p = .016$, 95% CI [.007, .071]). Model fit indices indicated that the model adequately fit the data, χ^2 (1162) = 3512.767, $p < .001$; CFI = .887, RMSEA = .098, SRMR = .090. No other latent emotion regulation factor mediated the association between peer victimization and depression symptoms.

We next conducted multiple mediation analyses utilizing the task-based measures of emotion regulation to determine whether these measures also functioned as a mediator of the association between peer victimization and depression symptoms. In the mediation model, baseline peer victimization no longer predicted depression symptoms at follow-up ($b = .035$, $p = .389$, 95% CI [−.044, .114]). While Stroop adaptation continued to be positively associated with both peer victimization and depression symptoms, it did not mediate the association between the two (indirect effect = .016, $p = .086$, 95% CI [−.002, .035]). No other task-based measures were associated with peer victimization or depression symptoms at follow-up ($ps > .131$), and no indirect effects of peer victimization on depression were observed through the other task-based emotion regulation measures ($ps > .72$). Model fit indices indicated the model was not a good fit for the data, χ^2 (4) = 40.672, $p < .001$; CFI = .829, RMSEA = .207, SRMR = .098.

Anxiety

The three emotion regulation latent factors were examined simultaneously as mediators of the association between peer victimization at baseline and anxiety symptoms at follow-up, controlling for baseline anxiety symptoms and sex. In the mediation model, baseline peer victimization was no longer a significant predictor of anxiety symptoms at follow-up ($b = .004$, $p = .115$, 95% CI [−.001, .008]; c' path; Figure 1b). A significant indirect effect of peer victimization on anxiety symptoms was observed through cognitive regulation (indirect effect = .002, $p = .019$, 95% CI [.0001, .004]). Model fit indices indicated that the model adequately fit the data, χ^2 (1162) = 2909.557, $p < .001$; CFI = .939, RMSEA = .084, SRMR = .086. No other latent emotion regulation factor mediated the association between peer victimization and anxiety symptoms.

We next conducted multiple mediation analyses utilizing the task-based measures of emotion regulation to determine whether these measures also function as a mediator of the association between peer victimization and anxiety symptoms. In the mediation model, baseline peer victimization no longer predicted anxiety symptoms at follow-up ($b = .004$, $p = .105$, 95% CI [−.001, .009]). While Stroop adaptation continued to be positively associated with peer victimization, no other task-based measures were associated with peer victimization or anxiety symptoms at follow-up ($ps > .12$), nor did any task-based measures mediate the association between peer victimization and anxiety symptoms ($ps > .494$). Model fit indices varied as to whether the model was an adequate fit for the data, χ^2 (4) = 23.054, $p < .001$; CFI = .879, RMSEA = .150, SRMR = .072.

Discussion

The primary goal of this study was to examine the underlying structure of a variety of task-based and self-report measures of emotion regulation and evaluate whether disruptions in these

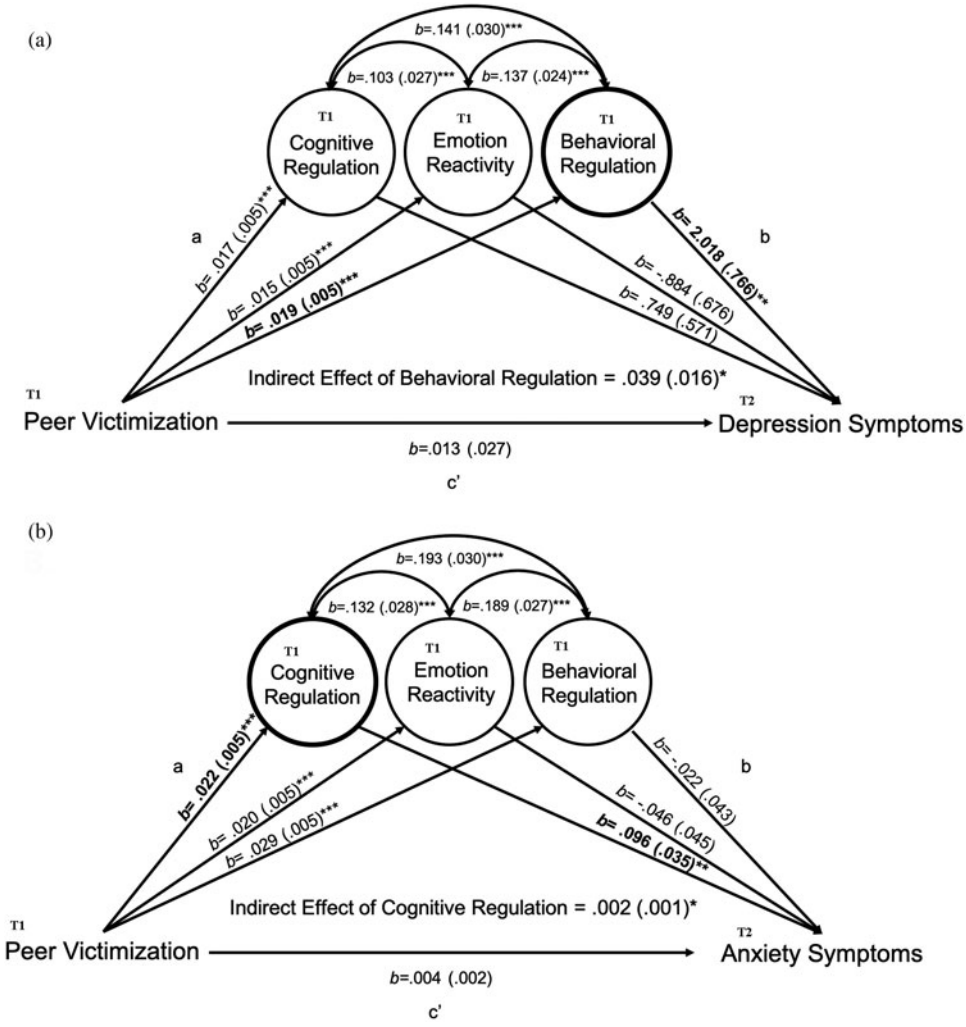

Figure 1. Mediational model representing the indirect effects of (a) behavioral regulation and (b) cognitive regulation on internalizing problems.

aspects of emotion regulation mediated the association between peer victimization and internalizing problems in adolescence. A three-factor model of emotion regulation representing emotional reactivity, cognitive regulation, and behavioral regulation best fit the data. No task-based measures of emotion regulation meaningfully contributed to the emotion regulation latent factors. The association between peer victimization and subsequent depression symptoms was mediated by poor behavioral regulation, whereas the association with subsequent anxiety symptoms was mediated by disruptions in the cognitive regulation of emotion. These findings point to potential targets for interventions aimed at preventing the onset of internalizing problems for adolescents who experience peer victimization.

Emotion regulation is a complex construct that encompasses a variety of cognitive and behavioral processes that serve to modulate the intensity and duration of emotional responses (Gross, 2014). The underlying structure of emotion regulation during adolescence has rarely been examined. Prior work using self-report measures of emotion regulation observed a one-factor structure in early adolescence, composed of poor emotional awareness, difficulties regulating the expression of negative emotions, and rumination (McLaughlin et al., 2011). In contrast, we found that a three-factor model, representing emotional reactivity, cognitive regulation, and behavioral regulation as separate latent factors, best fit the data. Although the measures used across the two studies were not identical, they did tap into similar types of cognitive and behavioral emotion regulation strategies. The discrepancies could reflect that emotion regulation processes become more distinct from one another across adolescence, such that in early adolescence, youths who have difficulty with one form of emotion regulation are likely to also exhibit problems with other emotion regulation strategies. By late adolescence, emotional reactivity, cognitive regulation, and behavioral regulation of emotion are overlapping but distinct constructs, with only moderate associations with one another. Our findings are in line with Naragon-Gainey, McMahon, and Chacko's (2017) recent meta-analysis evaluating the structure of self-reported emotion regulation strategies in adults. When an exploratory approach was taken, evaluating up to four factors, a three-factor model characterized by disengagement (behavioral avoidance and distraction), cognitive perseveration (worry and rumination), and adaptive engagement (problem solving and mindfulness) best fit the data (Naragon-Gainey et al., 2017). This pattern is consistent with the idea that emotion regulation processes become more distinct from one another across development, and by adulthood reflect only partially overlapping constructs.

Consistent with extensive prior research (Hawker & Boulton, 2000; Schoeler et al., 2018), peer victimization was associated

with higher levels of depression and anxiety symptoms both cross-sectionally and across the longitudinal follow-up. Here, we provide evidence that distinct aspects of emotion regulation are potential mechanisms underlying the associations of peer victimization with depression and anxiety. Behavioral regulation (specifically, high negative urgency) mediated the association between peer victimization and subsequent depression symptoms, whereas cognitive regulation (specifically, high habitual use of rumination) mediated the association of peer victimization with anxiety symptoms. These findings provide novel evidence for a role of negative urgency, characterized by reflexive action when distressed, in the link between peer victimization and depression symptoms. Although behavioral dysregulation has been long associated with externalizing behavior including risk taking, substance use, and conduct problems (Settles et al., 2012), recent meta-analyses implicate negative urgency is associated with a broad range of psychopathology with the urgency aspect of impulsivity demonstrating stronger associations with psychopathology than other dimensions of impulsivity such as sensation seeking, lack of premeditation, and lack of perseverance (Berg, Latzman, Bliwise, & Lilienfeld, 2015). Carver, Johnson, and Joormann (2008) and Carver, Johnson, and Timpano (2017) suggest a two-mode model of processing (one reflexive, automatic, quick, and bottom-up and the other reflective, planful, effortful, and strategic) to account for the shared contribution of aspects of impulsivity with depression and aggression. Specifically, Carver et al. (2008, 2017) suggest that the reflexive mode processing is a shared vulnerability factor for both depression and externalizing problems because it produces high levels of negative urgency (i.e., reacting quickly to emotions and taking actions without consideration of consequences) and interferes with reflective, goal-oriented processing during salient negative emotion states. Our findings suggest that impulsive actions taken to alleviate distress when experiencing strong negative emotion states may be an important factor linking peer victimization with depression symptoms during adolescence. Impulsive responses to negative emotion may be more common during periods characterized by high levels of stress as this process requires fewer resources compared to more deliberate and reflective strategies for emotion regulation, despite having longer term consequences of increased depressive symptoms (Carver et al., 2017).

Our findings also suggest a specific pathway in which peer victimization influences anxiety symptoms through increased engagement in rumination. There is a high rate of co-occurrence between symptoms of depression and anxiety, and rumination contributes to this co-occurrence, leading to its conceptualization as a transdiagnostic factor underlying multiple forms of internalizing psychopathology (McLaughlin & Nolen-Hoeksema, 2011; Nolen-Hoeksema & Watkins, 2011; Olatunji, Naragon-Gainey, & Wolitzky-Taylor, 2013). Consistent with numerous prior studies (McLaughlin & Nolen-Hoeksema, 2011; Nolen-Hoeksema, 2000; Nolen-Hoeksema, Stice, Wade, & Bohon, 2007; Nolen-Hoeksema et al., 2008), rumination was associated with anxiety and depression both cross-sectionally and longitudinally. However, rumination emerged as a mechanism linking peer victimization only to anxiety, and not depression symptoms. At first glance, this might appear surprising given the strong and well-established association of rumination with depression symptoms (e.g., Nolen-Hoeksema, 2000; Nolen-Hoeksema et al., 2008). However, this finding is consistent with a prior longitudinal study of adolescents demonstrating that rumination was a mediator of the longitudinal association between stressful life events and anxiety symptoms among adolescents and adults; although rumination predicted increases in depression over time, it was not a mechanism linking stressful life events and depression until adulthood (Michl, McLaughlin, Shepherd, & Nolen-Hoeksema, 2013). We replicate this basic pattern here in relation to peer victimization. It may be that ruminative thoughts engendered by peer victimization focused on the causes and consequences of distress produce fear that victimization experiences will occur again, contributing to anxiety. Peer victimization experiences are often experienced chronically over time, and rumination about the causes and consequences of the resulting distress may contribute to the emergence of anxiety.

The task-based behavioral regulation (i.e., PASAT performance) and cognitive regulation measures (i.e., emotional Stroop performance) did not meaningfully contribute to any of the latent factors across all models. The factor analysis results supported the structure of the validated questionnaires' measuring of emotional reactivity, cognitive regulation, and behavioral regulation. Perhaps this is not surprising given the prior development and evaluation of the tools; however, it is notable that these questionnaires were not evaluated with respect to other dimensions of emotional processes, and thus the findings add to the discriminant and incremental validity of these questionnaires. It is also possible that the findings are related to methodological artifacts, or otherwise stated, an unintended consequence of having the same source of information (self-report) informing both predictor and outcomes variables resulting in inflated estimates of their association (Hunsley & Meyer, 2003).

The emotional Stroop measures inhibition of responses to emotional stimuli and adaptation to emotional conflict, and is interpreted as an automatic form of emotion regulation (Etkin et al., 2006). Although the emotional Stroop data did not meaningfully load onto the emotion dysregulation factors, or mediate the association between exposure to peer victimization and internalizing problems, the emotional Stroop adaptation score was associated with both peer victimization and depression symptoms, consistent with prior research (Etkin & Schatzberg, 2011; Lambert, King, Monahan, & McLaughlin, 2017). The distress tolerance PASAT task did not load onto the latent factors of emotion regulation and was not associated with peer victimization or internalizing problems. Previous studies have similarly not found an association between questionnaire measures and the behavioral measures of distress tolerance (Iverson, Follette, Pistorello, & Fruzzetti, 2012; McHugh et al., 2011; Schloss & Haaga, 2011). This lack of convergence across task- and survey-based measures could reflect low external validity of the task, or different processes associated with the development of internalizing as opposed to externalizing problems.

It is also possible that reaction time tasks (such as the emotional Stroop and PASAT) do a poor job of capturing reliable individual differences. Many behavioral tasks are designed to maximize an experimental effect (such as the difference in reaction times to emotional stimuli), which minimized between-individual differences (Enkavi et al., 2019; Hedge, Powell, & Sumner, 2018; Rouder & Haaf, 2018; Weafer, Baggott, deWit, & deWit, 2013). Hedge et al. (2018) highlight important issues for the use of experimental tasks in the study of individual differences. Specifically, experimental tasks aim to characterize an average response to environmental manipulation, and the tasks that have been developed and selected for these replicable and robust effects are at odds with goals of correlational approaches that seek to find individual differences. Experimental tasks require low

variability between individuals and may be incompatible for the use of exploring individual differences, which requires high variability. Evaluation of interclass correlations of variability in task performance reveals low between-participant variability, which limits their contribution to paradigms that explicitly seek to discover individual differences (Hedges et al., 2018). In short, in spite of the popularity of behavioral tasks, poor psychometric properties may undermine their use as measures of between-individual differences. Future research evaluating the divergence between the conceptualization and measurement of distress tolerance and its relationship to emotion regulation and psychopathology are needed as the present study's findings suggest that task-based and self-reported emotion dysregulation variables do not share sufficient variance to be considered measurements of the same construct.

This study utilized a longitudinal design with a diverse sample of adolescents over time to understand multiple dimensions of emotion regulation as a mechanism by which peer victimization impacts later internalizing problems. Several limitations are worth noting. First, peer victimization was evaluated broadly and incorporated both relational and overt victimization into one construct due to the high level of overlap in the subscales. It is possible that different pathways could be associated with overt and relationship victimization processes and collapsing into an overall victimization construct obscured these differences. Second, the longitudinal time frame was a short period in an adolescent's life consistent with prior work demonstrating emotion regulation pathways linking peer victimization and internalizing problems in adolescents (McLaughlin et al., 2009); future research is needed to replicate these findings over longer time frames. Third, although we utilized a multiple-method approach for emotional regulation, the task data did not load onto latent factors of emotion regulation. Thus, shared method variance for the self-report variables in the mediational model as well as the inability to account for within-person variance over time are limitations of this study. Fourth, alternative models may be explored as peer victimization and emotion regulation processes reciprocally influence one another. As such, several investigations have highlighted that youth's emotional reactivity and behavioral aspects of emotion regulation place them at risk as targets of victimization (Kim & Cicchetti, 2010; Rosen, Milich, & Harris, 2012; Schwartz, 2000; Schwartz & Proctor, 2000; Shields & Cicchetti, 2010; Shields, Ryan, & Cicchetti, 2001). Unfortunately, our study design did not allow for evaluation of alternative models given the time frame of the assessments as peer victimization and emotion regulation variables were measured at the same time point: the peer victimization questionnaire assessed victimization experiences occurring in the past year and the emotion regulation questionnaires queried current strategy use.

Peer victimization is a significant social stressor for adolescents, and our data indicate that peer victimization can lead to difficulties in multiple forms of emotion regulation, including heightened emotional reactivity and both behavioral and cognitive forms of emotion regulation. The tendency to engage in rash action to modulate strong emotions mediated the association of peer victimization with future depression symptoms, whereas high habitual use of rumination explained the association of peer victimization with subsequent anxiety symptoms. These findings highlight specific forms of emotion regulation as potential targets for prevention and intervention with youths who have experienced peer victimization.

Supplementary material. The supplementary material for this article can be found at https://doi.org/10.1017/S0954579419000543.

Acknowledgments. We would like to thank Kevin King for his generosity in consulting regarding the data analyses.

Financial support. Funding for data collection and analysis was provided by the Jacobs Foundation through a research grant awarded to Katie Anne McLaughlin, Kevin King, and Kathryn Monahan. The preparation of this article was supported in part by the Agency for Healthcare Research and Quality Grant K12HS022982 (to M.A.) and the National Institute of Mental Health Grants K23MH112872 (to J.L.J.) and F31MH117827 (to K.S.K.).

References

Abela, J. R. Z., Brozina, K., & Haigh, E. P. (2002). An examination of the response styles theory of depression in third- and seventh-grade children: A short-term longitudinal study. *Journal of Abnormal Child Psychology*, *30*, 515–527. doi:10.1023/A:1019873015594

Abela, J. R. Z., & Hankin, B. L. (2011). Rumination as a vulnerability factor to depression during the transition from early to middle adolescence: A multiwave longitudinal study. *Journal of Abnormal Psychology*, *120*, 259–271. doi:10.1037/a0022796

Adrian, M., & Berk, M. (2018). Behavioral assessment of emotion dysregulation. In T. P. Beauchaine & S. E. Crowell (Eds.), *The Oxford handbook of emotion dysregulation*. New York: Oxford University Press.

Aldao, A., Gee, D. G., Reyes, A. D. L., & Seager, I. (2016). Emotion regulation as a transdiagnostic factor in the development of internalizing and externalizing psychopathology: Current and future directions. *Development and Psychopathology*, *28*(4, Pt. 1), 927–946. doi:10.1017/S0954579416000638

Beauchaine, T. P. (2015). Future directions in emotion dysregulation and youth psychopathology. *Journal of Clinical Child and Adolescent Psychology*, *44*, 875–896. doi:10.1080/15374416.2015.1038827

Berg, J. M., Latzman, R. D., Bliwise, N. G., & Lilienfeld, S. O. (2015). Parsing the heterogeneity of impulsivity: A meta-analytic review of the behavioral implications of the UPPS for psychopathology. *Psychological Assessment*, *27*, 1129–1146. doi:10.1037/pas0000111

Carver, C. S., Johnson, S. L., & Joormann, J. (2008). Serotonergic function, two-mode models of self-regulation, and vulnerability to depression: What depression has in common with impulsive aggression. *Psychological Bulletin*, *134*, 912.

Carver, C. S., Johnson, S. L., & Timpano, K. R. (2017). Toward a functional view of the p factor in psychopathology. *Clinical Psychological Science*, *5*, 880–889.

Cicchetti, D., Ackerman, B. P., & Izard, C. E. (1995). Emotions and emotion regulation in developmental psychopathology. *Development and Psychopathology*, *7*, 1–10. doi:10.1017/S0954579400006301

Cole, P. M., Hall, S. E., & Hajal, N. J. (2017). Emotion dysregulation as a vulnerability to psychopathology. In T. P. Beauchaine & S. P. Hinshaw (Eds.), *Child and adolescent psychopathology* (3rd ed., pp. 346–386). Hoboken, NJ: Wiley.

Compas, B. E., Jaser, S. S., Bettis, A. H., Watson, K. H., Gruhn, M. A., Dunbar, J. P., … Thigpen, J. C. (2017). Coping, emotion regulation, and psychopathology in childhood and adolescence: A meta-analysis and narrative review. *Psychological Bulletin*, *143*, 939–991. doi:10.1037/bul0000110

Daughters, S. B., Sargeant, M. N., Bornovalova, M. A., Gratz, K. L., & Lejuez, C. W. (2008). The relationship between distress tolerance and antisocial personality disorder among male inner-city treatment seeking substance users. *Journal of Personality Disorders*, *22*, 509–524.

Deater-Deckard, K. (2001). Annotation: Recent research examining the role of peer relationships in the development of psychopathology. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, *42*, 565–579. doi:10.1017/S0021963001007272

Doyle, S. T., & Sullivan, T. N. (2017). Longitudinal relations between peer victimization, emotion dysregulation, and internalizing symptoms among early adolescents. *Journal of Early Adolescence*, *37*, 165–191. doi:10.1177/0272431615594458

Egner, T., Etkin, A., Gale, S., & Hirsch, J. (2008). Dissociable neural systems resolve conflict from emotional versus nonemotional distracters. *Cerebral Cortex*, *18*, 1475–1484. doi:10.1093/cercor/bhm179

Enkavi, A. Z., Eisenberg, I. W., Bissett, P. G., Mazza, G. L., Mackinnon, D. P., & Marsch, L. A. (2019). A large-scale analysis of test-retest reliabilities of self-regulation measures. *Proceedings of the National Academy of Sciences of the USA*, *116*, 5472–5477. doi:10.31234/osf.io/x5pm4

Etkin, A., Egner, T., Peraza, D. M., Kandel, E. R., & Hirsch, J. (2006). Resolving emotional conflict: A role for the rostral anterior cingulate cortex in modulating activity in the amygdala. *Neuron*, *51*, 1–12.

Etkin, A., & Schatzberg, A. F. (2011). Common abnormalities and disorder-specific compensation during implicit regulation of emotional processing in generalized anxiety and major depressive disorders. *American Journal of Psychiatry*, *168*, 968–978.

Fang, A., & Asnaani, A. (2012). Emotion dysregulation model of mood and anxiety disorders. *Depression and Anxiety*, *29*, 409–416.

Gronwall, D. M. A. (1977). Paced Auditory Serial-Addition Task: A measure of recovery from concussion. *Perceptual and Motor Skills*, *44*, 367–373. doi:10.2466/pms.1977.44.2.367

Gross, J. J. (1998). The emerging field of emotion regulation: An integrative review. *Review of General Psychology*, *2*, 271–299. doi:10.1037/1089-2680.2.3.271

Gross, J. J. (2002). Emotion regulation: Affective, cognitive, and social consequences. *Psychophysiology*, *39*(3), 281–291.

Gross, J. J. (2014). Emotion regulation: Conceptual and empirical foundations. In J. J. Gross (Ed.), *Handbook of emotion regulation* (2nd ed., pp. 3–20). New York: Guilford Press.

Gross, J. J., & Thompson, R. (2007). Emotion regulation: Conceptual foundations. In J. J. Gross (Ed.), *Handbook of emotion regulation*. New York: Guilford Press.

Gyurak, A., Gross, J. J., & Etkin, A. (2011). Explicit and implicit emotion regulation: A dual-process framework. *Cognition & Emotion*, *25*, 400–412. doi:10.1080/02699931.2010.544160

Hawker, D. S. J., & Boulton, M. J. (2000). Twenty years' research on peer victimization and psychosocial maladjustment: A meta-analytic review of cross-sectional studies. *Journal of Child Psychology and Psychiatry*, *41*, 441–455. doi:10.1111/1469-7610.00629

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York: Guilford Press.

Hedge, C., Powell, G., & Sumner, P. (2018). The reliability paradox: Why robust cognitive tasks do not produce reliable individual differences. *Behavior Research Methods*, *50*, 1166–1186. doi:10.3758/s13428-017-0935-1

Holdwick, D. J., & Wingenfeld, S. A. (1999). The subjective experience of PASAT testing. Does the PASAT induce negative mood? *Archives of Clinical Neuropsychology*, *14*, 273–284.

Hooper, D., Coughlan, J., & Mullen, M. (2008). Structural equation modelling: Guidelines for determining model fit. *Journal of Business Research Methods*, *6*, 53–60.

Hunsley, J., & Meyer, G. J. (2003). The incremental validity of psychological testing and assessment: conceptual, methodological, and statistical issues. *Psychological assessment*, *15*(4), 446.

Iverson, K. M., Follette, V. M., Pistorello, J., & Fruzzetti, A. E. (2012). An investigation of experiential avoidance, emotion dysregulation, and distress tolerance in young adult outpatients with borderline personality disorder symptoms. *Personality Disorders*, *3*, 415–422. doi:10.1037/a0023703

Jacob, M. L., Suveg, C., & Whitehead, M. R. (2014). Relations between emotional and social functioning in children with anxiety disorders. *Child Psychiatry & Human Development*, *45*(5), 519–532.

Jankowski, K. F., Batres, J., Scott, H., Smyda, G., Pfeifer, J. H., & Quevedo, K. (2018). Feeling left out: Depressed adolescents may atypically recruit emotional salience and regulation networks during social exclusion. *Social Cognitive and Affective Neuroscience*, *13*, 863–876.

Kashdan, T. B., & Rottenberg, J. (2010). Psychological flexibility as a fundamental aspect of health. *Clinical Psychology Review*, *30*(7), 865–878.

Kim, J., & Cicchetti, D. (2010). Longitudinal pathways linking child maltreatment, emotion regulation, peer relations, and psychopathology. *Journal of Child Psychology and Psychiatry*, *51*, 706–716.

Kim-Spoon, J., Cicchetti, D., & Rogosch, F. A. (2013). A longitudinal study of emotion regulation, emotion lability-negativity, and internalizing symptomatology in maltreated and nonmaltreated children. *Child development*, *84*(2), 512–527.

King, K. M., Feil, M. C., & Halvorson, M. A. (2018). Negative urgency is correlated with the use of reflexive and disengagement emotion regulation strategies. *Clinical Psychological Science*, *6*, 822–834. doi:10.1177/2167702618785619

King, K. M., McLaughlin, K. A., Silk, J., & Monahan, K. C. (2018). Peer effects on self-regulation in adolescence depend on the nature and quality of the peer interaction. *Development and Psychopathology*, *30*, 1389–1401. doi:10.1017/S0954579417001560

Klemanski, D. H., Curtiss, J., McLaughlin, K. A., & Nolen-Hoeksema, S. (2017). Emotion regulation and the transdiagnostic role of repetitive negative thinking in adolescents with social anxiety and depression. *Cognitive Therapy and Research*, *41*, 206–219. doi:10.1007/s10608-016-9817-6

Kovacs, M. (1992). *Children's Depression Inventory*. North Tonawanda, NY: Multi-Health Systems.

Kring, A. M., & Sloan, D. M. (2009). *Emotion regulation and psychopathology: A transdiagnostic approach to etiology and treatment*. New York: Guilford Press.

Lambert, H. K., King, K. M., Monahan, K. C., & Mclaughlin, K. A. (2017). Differential associations of threat and deprivation with emotion regulation and cognitive control in adolescence. *Development and Psychopathology*, *29*, 929–940. doi:10.1017/S0954579416000584

Lejuez, C., Kahler, C. W., & Brown, R. A. (2003). A modified computer version of the Paced Auditory Serial Addition Task (PASAT) as a laboratory-based stressor. *Behavior Therapist*, *26*, 290–293.

Leyro, T. M., Zvolensky, M. J., & Bernstein, A. (2010). Distress tolerance and psychopathological symptoms and disorders: A review of the empirical literature among adults. *Psychological Bulletin*, *136*, 576–600. doi:10.1037/a0019712

MacLeod, C. M. (1991). Half a century of research on the Stroop effect: an integrative review. *Psychological Bulletin*, *109*(2), 163.

Mahady Wilton, M. M., Craig, W. M., & Pepler, D. J. (2000). Emotional regulation and display in classroom victims of bullying: Characteristic expressions of affect, coping styles and relevant contextual factors. *Social Development*, *9*, 226–245. doi:10.1111/1467-9507.00121

March, J. (1997). *Multidimensional Anxiety Scale for Children*. Toronto: Multihealth Systems.

McHugh, R. K., Daughters, S. B., Lejuez, C. W., Murray, H. W., Hearon, B. A., Gorka, S. M., & Otto, M. W. (2011). Shared variance among self-report and behavioral measures of distress intolerance. *Cognitive Therapy and Research*, *35*, 266–275.

McLaughlin, K. A., Garrad, M. C., & Somerville, L. H. (2015). What develops during emotional development? A component process approach to identifying sources of psychopathology risk in adolescence. *Dialogues in Clinical Neuroscience*, *17*, 403–410.

McLaughlin, K. A., Hatzenbuehler, M. L., & Hilt, L. M. (2009). Emotion dysregulation as a mechanism linking peer victimization to internalizing symptoms in adolescents. *Journal of Consulting and Clinical Psychology*, *77*, 894–904. doi:10.1037/a0015760

McLaughlin, K. A., Hatzenbuehler, M. L., Mennin, D. S., & Nolen-Hoeksema, S. (2011). Emotion dysregulation and adolescent psychopathology: A prospective study. *Behaviour Research and Therapy*, *49*, 544–554. doi:10.1016/j.brat.2011.06.003

McLaughlin, K. A., & Nolen-Hoeksema, S. (2011). Rumination as a transdiagnostic factor in depression and anxiety. *Behaviour Research and Therapy*, *49*(3), 186–193.

Michl, L. C., McLaughlin, K. A., Shepherd, K., & Nolen-Hoeksema, S. (2013). Rumination as a mechanism linking stressful life events to symptoms of depression and anxiety: Longitudinal evidence in early adolescents and adults. *Journal of Abnormal Psychology*, *122*, 339.

Miller, A. B., Prinstein, M. J., Munier, E., Machlin, L. S., & Sheridan, M. A. (2018). Emotion reactivity and regulation in adolescent girls following an interpersonal rejection. *Journal of Cognitive Neuroscience*, *31*, 249–261. doi:10.1162/jocn_a_01351

Morelen, D., Southam-Gerow, M., & Zeman, J. (2016). Child emotion regulation and peer victimization: The moderating role of child sex.

Journal of Child and Family Studies, *25*, 1941–1953. doi:10.1007/s10826-016-0360-6

Moyal, N., Henik, A., & Anholt, G. E. (2014). Cognitive strategies to regulate emotions-current evidence and future directions. *Frontiers in Psychology*, *4*, 1019. doi:10.3389/fpsyg.2013.01019

Naragon-Gainey, K., McMahon, T. P., & Chacko, T. P. (2017). The structure of common emotion regulation strategies: A meta-analytic examination. *Psychological Bulletin*, *143*, 384–427. doi:10.1037/bul0000093

Nock, M. K., Wedig, M. M., Holmberg, E. B., & Hooley, J. M. (2008). The emotion reactivity scale: Development, evaluation, and relation to self-injurious thoughts and behaviors. *Behavior Therapy*, *39*, 107–116. doi:10.1016/j.beth.2007.05.005

Nolen-Hoeksema, S. (2000). The role of rumination in depressive disorders and mixed anxiety/depressive symptoms. *Journal of Abnormal Psychology*, *109*, 504–511.

Nolen-Hoeksema, S., Stice, E., Wade, E., & Bohon, C. (2007). Reciprocal relations between rumination and bulimic, substance abuse, and depressive symptoms in female adolescents. *Journal of Abnormal Psychology*, *116*, 198–207.

Nolen-Hoeksema, S., Wisco, B. E., & Lyubomirsky, S. (2008). Rethinking rumination. *Perspectives on Psychological Science*, *3*(5), 400–424.

Nolen-Hoeksema, S., & Watkins, E. R. (2011). A heuristic for developing transdiagnostic models of psychopathology: Explaining multifinality and divergent trajectories. *Perspectives on Psychological Science*, *6*(6), 589–609.

Olatunji, B. O., Naragon-Gainey, K., & Wolitzky-Taylor, K. B. (2013). Specificity of rumination in anxiety and depression: A multimodal meta-analysis. *Clinical Psychology: Science and Practice*, *20*, 225–257. doi:10.1111/cpsp.12037

Pine, D. S., Cohen, P., & Brook, J. S. (2001). Emotional reactivity and risk for psychopathology among adolescents. *CNS Spectrums*, *6*, 27–35.

Prinstein, M. J., Boergers, J., & Vernberg, E. M. (2001). Overt and relational aggression in adolescents: Social–psychological adjustment of aggressors and victims. *Journal of Clinical Child Psychology*, *30*, 479–491. doi:10.1207/S15374424JCCP3004_05

Rosen, P. J., Milich, R., & Harris, M. J. (2012). Dysregulated negative emotional reactivity as a predictor of chronic peer victimization in childhood. *Aggressive Behavior*, *38*, 414–427.

Rosseel, Y. (2012). lavaan: An R package for structural equation modeling. *Journal of Statistical Software*, *48*, 1–36.

Rouder, J. N., & Haaf, J. M. (2018). A psychometrics of individual differences in experimental tasks. *PsyArXiv*. doi:10.31234/osf.io/f3h2k

Rudolph, K. D., Miernicki, M. E., Troop-Gordon, W., Davis, M. M., & Telzer, E. H. (2016). Adding insult to injury: Neural sensitivity to social exclusion is associated with internalizing symptoms in chronically peer-victimized girls. *Social Cognitive and Affective Neuroscience*, *11*, 829–842.

Rudolph, K. D., Troop-Gordon, W., & Granger, D. A. (2011). Individual differences in biological stress responses moderate the contribution of early peer victimization to subsequent depressive symptoms. *Psychopharmacology*, *214*, 209–219.

Schafer, J. L., & Graham, J. W. (2002). Missing data: Our view of the state of the art. *Psychological Methods*, *7*, 147–177.

Schloss, H. M., & Haaga, D. A. F. (2011). Interrelating behavioral measures of distress tolerance with self-reported experiential avoidance. *Journal of Rational-Emotive and Cognitive-Behavior Therapy*, *29*, 53–63. doi:10.1007/s10942-011-0127-3

Schoeler, T., Duncan, L., Cecil, C. M., Ploubidis, G. B., & Pingault, J.-B. (2018). Quasi-experimental evidence on short- and long-term consequences of bullying victimization: A meta-analysis. *Psychological Bulletin*, *144*, 1229–1246. doi:10.1037/bul0000171

Schwartz, D. (2000). Subtypes of victims and aggressors in children's peer groups. *Journal of Abnormal Child Psychology*, *28*, 181–192.

Schwartz, D., & Proctor, L. J. (2000). Community violence exposure and children's social adjustment in the school peer group: The mediating roles of emotion regulation and social cognition. *Journal of Consulting and Clinical Psychology*, *68*, 670–683.

Settles, R. E., Fischer, S., Cyders, M. A., Combs, J. L., Gunn, R. L., & Smith, G. T. (2012). Negative urgency: A personality predictor of externalizing behavior characterized by neuroticism, low conscientiousness, and disagreeableness. *Journal of Abnormal Psychology*, *121*, 160–172. doi:10.1037/a0024948

Shapero, B. G., Abramson, L. Y., & Alloy, L. B. (2016). Emotional reactivity and internalizing symptoms: Moderating role of emotion regulation. *Cognitive Therapy and Research*, *40*, 328–340. doi:10.1007/s10608-015-9722-4

Shields, A., & Cicchetti, D. (2010). Parental maltreatment and emotion dysregulation as risk factors for bullying and victimization in middle childhood. *Journal of Clinical Child and Adolescent Psychology*, *30*, 349–363.

Shields, A., Ryan, R. M., & Cicchetti, D. (2001). Narrative representations of caregivers and emotion dysregulation as predictors of maltreated children's rejection by peers. *Developmental Psychology*, *37*, 321–337.

Smith, G. T., & Cyders, M. A. (2016). Integrating affect and impulsivity: The role of positive and negative urgency in substance use risk. *Drug and Alcohol Dependence*, *163*(Suppl. 1), S3–S12. doi:10.1016/j.drugalcdep.2015.08.038

Sobanski, E., Banaschewski, T., Asherson, P., Buitelaar, J., Chen, W., Franke, B., … Stringaris, A. (2010). Emotional lability in children and adolescents with attention deficit/hyperactivity disorder (ADHD): clinical correlates and familial prevalence. *Journal of Child Psychology and Psychiatry*, *51*(8), 915–923.

Stroop, J. R. (1935). Studies of interference in serial verbal reactions. *Journal of Experimental Psychology*, *18*(6), 643.

Stroud, L. R., Foster, E., Papandonatos, G. D., Handwerger, K., Granger, D. A., Kivlighan, K. T., & Niaura, R. (2009). Stress response and the adolescent transition: Performance versus peer rejection stressors. *Development and Psychopathology*, *21*, 47–68. doi:10.1017/S0954579409000042

Thompson, R. A. (2001). Childhood anxiety disorders from the perspective of emotion regulation. In M. W. Vasey & M. R. Dadds (Eds.), *The developmental psychopathology of anxiety* (pp. 160–182). New York: Oxford University Press.

Tombaugh, T. N. (2006). A comprehensive review of the Paced Auditory Serial Addition Test (PASAT). *Archives of Clinical Neuropsychology*, *21*, 53–76. doi:10.1016/j.acn.2005.07.006

Tone, E., Garn, C. L., & Pine, D. S. (2016). Anxiety regulation: A developmental psychopathology perspective. In D. Cicchetti (Ed.), *Developmental psychopathology* (3rd ed., Vol. 2). Hoboken, NJ: Wiley.

Weafer, J., Baggott, M. J., de Wit, H., & de Wit, H. (2013). Test-retest reliability of behavioral measures of impulsive choice, impulsive action, and inattention. *Experimental and Clinical Psychopharmacology*, *21*, 475–481. doi:10.1037/a0033659

Zapolski, T. C. B., Stairs, A. M., Settles, R. F., Combs, J. L., & Smith, G. T. (2010). The measurement of dispositions to rash action in children. *Assessment*, *17*, 116–125. doi:10.1177/1073191109351372