

# The Structure of Common Emotion Regulation Strategies: A Meta-Analytic Examination

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Emotion regulation has been examined extensively with regard to important outcomes, including psychological and physical health. However, the literature includes many different emotion regulation strategies but little examination of how they relate to one another, making it difficult to interpret and synthesize findings. The goal of this meta-analysis was to examine the underlying structure of common emotion regulation strategies (i.e., acceptance, behavioral avoidance, distraction, experiential avoidance, expressive suppression, mindfulness, problem solving, reappraisal, rumination, worry), and to evaluate this structure in light of theoretical models of emotion regulation. We also examined how distress tolerance—an important emotion regulation ability—relates to strategy use. We conducted meta-analyses estimating the correlations between emotion regulation strategies (based on 331 samples and 670 effect sizes), as well as between distress tolerance and strategies. The resulting meta-analytic correlation matrix was submitted to confirmatory and exploratory factor analyses. None of the confirmatory models, based on prior theory, was an acceptable fit to the data. Exploratory factor analysis suggested that 3 underlying factors best characterized these data. Two factors—labeled Disengagement and Aversive Cognitive Perseveration—emerged as strongly correlated but distinct factors, with the latter consisting of putatively maladaptive strategies. The third factor, Adaptive Engagement, was a less unified factor and weakly related to the other 2 factors. Distress tolerance was most closely associated with low levels of repetitive negative thought and experiential avoidance, and high levels of acceptance and mindfulness. We discuss the theoretical implications of these findings and applications to emotion regulation assessment.

**Keywords:** distress tolerance, emotion regulation, maladaptive and adaptive strategies, meta-analysis, structure

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Emotion regulation has garnered substantial and increasing attention in the last several decades in psychology and related fields. As one rough metric of research activity in this area, a PsycINFO search in February 2016 with “emotion regulation” as the keyword yielded over 3,000 hits. The recent second edition of the *Handbook of Emotion Regulation* (Gross, 2014) describes an extensive body of research that has examined the underpinnings of emotion regulation in terms of biological, social, developmental, cognitive, and personality processes, as well as its associations with physical and psychological health and dysfunction. Within the realm of clinical psychology, poor emotion regulation is a transdiagnostic

risk factor that has been implicated in many psychological disorders, including mood, anxiety, substance use, personality, and eating disorders (e.g., Aldao, Nolen-Hoeksema, & Schweizer, 2010). Correspondingly, improved emotion regulation is an important target in many psychological interventions: cognitive-behavioral therapy (CBT) has long incorporated certain emotion regulation strategies (e.g., reappraisal), and several more recent therapies explicitly focus on emotion regulation as a primary therapeutic target (e.g., Emotion Regulation Therapy, dialectical behavior therapy, Affect Regulation Training; see Gratz, Weiss, & Tull, 2015; Gross, 2014). Overall, emotion regulation has become a key construct in psychology in general and clinical psychology in particular (Gross, 2015; Gross & Jazaieri, 2014; Kring & Sloan, 2010; Tracy, Klonsky, & Proudfoot, 2014).

Despite this prominence in psychology research, little is known about how different emotion regulation strategies empirically relate to one another (see Aldao & Nolen-Hoeksema, 2010; Lee, Witte, Weathers, & Davis, 2015; Seligowski & Orcutt, 2015) or to relevant abilities that may underlie successful emotion regulation (see Tull & Aldao, 2015). In this meta-analysis, we aim to (a) delineate the associations among emotion regulation strategies and assess their underlying structure, and (b) examine associations between strategy use and distress tolerance, one exemplar of an emotion regulation ability.

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## Defining and Conceptualizing Emotion Regulation

There is not a clear consensus about the definition of emotion regulation (Berking & Wupperman, 2012; Cole, Martin, & Dennis, 2004; see Bloch, Moran, & Kring, 2010 for a detailed discussion of different definitions), but perhaps the most basic and common definitional element is that emotion regulation involves an attempt to influence emotions. These emotions may be (a) positive and/or negative in valence, (b) one's own emotions and/or those of another person, and (c) influenced in terms of intensity, duration, and/or quality. Furthermore, emotion regulation need not be consciously initiated, but may be automatic and unconscious such that there is not an explicit awareness of one's activated goal to influence emotions (Aldao et al., 2010; Gross, 1998, 2015; Gross & Jazaieri, 2014; Gross & Thompson, 2007; Koole, 2009; Thompson, 1994; Webb, Miles, & Sheeran, 2012). With regard to emotion valence, recently there has been increased interest in the regulation of positive emotions (see Carl, Soskin, Kerns, & Barlow, 2013), but most existing emotion regulation research centers around attempts to decrease negatively valenced emotions. Thus, the current review focuses on strategies and skills primarily relevant to the down-regulation of negative emotions.

Recent conceptualizations of emotion regulation emphasize that it is defined by function rather than form: that is, any act performed with the goal of influencing emotions would be an instance of emotion regulation (e.g., Aldao et al., 2010; Berking & Wupperman, 2012; Gross, 2015; Gross & Jazaieri, 2014). For example, one could regulate emotions by eating or restricting food intake, by accepting one's current emotional experiences or trying to suppress them, and by talking to friends or isolating oneself.<sup>1</sup> Although this context-dependent quality introduces substantial complexity in emotion regulation conceptualization and assessment, one common approach has been to focus on the habitual use of certain strategies that are *typically* or *often used* for the purpose of emotion regulation, including distraction, behavioral and experiential avoidance, rumination, acceptance, mindfulness, problem solving, worry, reappraisal, and expressive suppression (e.g., Aldao et al., 2010; Gross, 2015; Webb et al., 2012). A second major approach is to emphasize dispositional emotion regulation abilities (e.g., emotional clarity, distress tolerance, emotion regulation flexibility), which may be thought of as providing information about one's emotion regulation *potential* (e.g., Berking et al., 2008; Gratz & Roemer, 2004; Tull & Aldao, 2015).<sup>2</sup> Both approaches have been fruitful in understanding how emotion regulation relates to outcomes such as psychopathology, decision-making, romantic relationships, and effectiveness in attaining emotional goals (e.g., Aldao et al., 2010; Carl et al., 2013; Gratz & Roemer, 2004; Grecucci & Sanfey, 2014; Levenson, Haase, Bloch, Holley, & Seider, 2014; Tull & Aldao, 2015; Webb et al., 2012).

Despite the clear importance of emotion regulation strategies and abilities for healthy functioning in numerous domains, we know surprisingly little about the ways in which various emotion regulation strategies co-occur and interact with one another. Individuals report that they typically use multiple emotion regulation strategies simultaneously, both in daily life and in the lab (Aldao & Nolen-Hoeksema, 2013; Brans, Koval, Verduyn, Lim, & Kuppens, 2013; Dixon-Gordon, Aldao, & De Los Reyes, 2015). Furthermore, correlations among the general use of some emotion regulation strategies are quite strong (e.g., .1601 to .1751; e.g., Brans

et al., 2013; Lee et al., 2015; Seligowski & Orcutt, 2015), suggesting they may be reducible to fewer underlying factors or there may be empirical redundancies among them. The impracticality of assessing all (or even most) potentially relevant strategies in a given study has resulted in numerous local bodies of research centered around individual strategies with a corresponding absence of integration across the breadth of putative strategies (Aldao, 2013). Likewise, almost no empirical research has addressed how habitual strategy use relates to dispositional abilities. But recently, researchers have argued that it is important to consider strategies and abilities in concert, as they likely exert bidirectional effects on one another (e.g., Tull & Aldao, 2015).

An articulation of the underlying structure of emotion regulation strategies could make several important contributions to this research area. It would assist in the synthesis of results across many studies focused on individual strategies, explicate central similarities and distinctions among strategies, and allow for a more informed selection of specific strategies or groups of strategies for specific research questions and clinical applications. In addition, a parsimonious, empirically validated framework may help to clarify our understanding of emotion regulation and its major components, as well as to facilitate an examination of how strategy use may vary across different contexts.

## Theoretical Models of Emotion Regulation

To explore the structure of emotion regulation strategies, we first review two groups of prominent theoretical models of emotion regulation that may imply plausible structures (i.e., temporal process models and strategy-based models).<sup>3</sup> We then review several ability-based models, given our interest in clarifying how strategy use and abilities relate to one another.

### Temporal Process Models

Among the most influential models of emotion regulation is Gross' process model, presented first in 1998 and revised and

<sup>1</sup> Some scholars feel that the definition has become so broad and inclusive as to threaten its utility: everything one does that is relevant to emotion is emotion regulation (e.g., Berking & Wupperman, 2012; Eisenberg & Spinrad, 2004). For example, worry and rumination are often classified as emotion regulation strategies (as they are in the current study), but some researchers have argued that they are concomitants of anxiety and mood states, rather than attempts to change said emotional states, and therefore they should not be considered emotion regulation (Berking & Wupperman, 2012). Thus, there is some ambiguity regarding which strategies should be considered emotion regulatory in nature.

<sup>2</sup> Certain emotion regulation processes have been conceptualized both as dispositional abilities and as enacted strategies. Acceptance has been studied by some as a cognitive strategy that is selectively utilized (e.g., Aldao et al., 2010; Webb et al., 2012), whereas others view it as a person-level underlying ability (e.g., Berking et al., 2008; Gratz & Roemer, 2004). For this study, we consider acceptance a strategy because its utility and employment varies substantially across contexts (e.g., Aldao & Nolen-Hoeksema, 2012), in contrast to higher-order individual differences that contribute to but are not themselves enacted as cognitive or behavioral emotion regulation strategies (e.g., emotional clarity, distress tolerance, impulse control, persistence towards larger goals).

<sup>3</sup> Note that other major models of emotion regulation exist, such as Koole's (2009) descriptive framework that includes formal and functional features of emotion regulation, but these are not reviewed here because they are not amenable in scope and/or content to the structural examination of dispositional strategy use.

updated as the extended process model in 2015. These models built upon the modal model of emotion, which specifies that the temporal unfolding of emotion has four stages: the situation that elicited the emotion, attention to that situation, appraisal of the meaning of the situation given one's current goals, and, finally, an emotional response tendency that includes behavioral, physiological, and experiential components. Emotion regulation can be attempted at any of the stages of emotion generation, yielding corresponding emotion regulation categories of situation selection (e.g., avoidance of the situation altogether) and situation modification (e.g., changing or avoiding specific stimuli in a situation), attentional deployment (e.g., distraction, rumination, mindfulness), cognitive change (e.g., reappraisal, acceptance), and response modulation (e.g., experiential avoidance, expressive suppression). As these strategies are hypothesized to occur at different points in the emotion generation process, they may require different levels of effort expenditure and result in different outcomes, with antecedent-focused strategies (those that occur prior to the emotional response; i.e., situation selection or modification, attentional deployment, cognitive change) often leading to more successful emotion regulation than response-focused strategies (Gross, 1998, 2015). However, most research comparing antecedent- and response-focused strategies has only focused on two specific strategies (i.e., reappraisal and expressive suppression, respectively), precluding strong conclusions about the relative effectiveness of antecedent- and response-focused strategies more broadly.

The process model may have some implications for the structure of emotion regulation strategies, in that it is possible that people tend to use (or fail to use) strategies within the same temporal grouping (e.g., frequently using distraction, rumination, and mindfulness, all of which focus on attentional processes, but not using other types of strategies as frequently). This covariation would result in factors that reflect components of the process model (i.e., situation selection, situation modification, attentional deployment, cognitive change, and response modulation). However, Gross' model is primarily temporal and process-oriented rather than focused on between-person empirical covariation, and as such, there is not a strong *a priori* reason to expect that one's utilization of emotion regulation strategies necessarily corresponds to groupings based on temporal dynamics of emotions.

### Strategy-Based Models

Another set of models conceptualizes emotion regulation according to specific strategies, focusing on their formal characteristics and correlates. For example, Aldao and colleagues (Aldao & Nolen-Hoeksema, 2012; Aldao, Nolen-Hoeksema, & Schweizer, 2010) labeled emotion regulation strategies that generally have negative associations with psychological symptoms as adaptive (e.g., acceptance, problem solving, reappraisal, mindfulness), and those that generally have positive associations with psychopathology as maladaptive (e.g., expressive suppression, experiential avoidance, behavioral avoidance, rumination). As noted by Aldao (2013), classifying strategies as unilaterally "maladaptive" or "adaptive" is somewhat reductive, given that any strategy may be successful or unsuccessful in a particular situation for a particular person and goal. Thus, using strategies flexibly to match the context—rather than rigidly avoiding putatively maladaptive strategies and only utilizing putatively adaptive strategies—may be

critical for successful emotion regulation (e.g., Aldao, 2013; Bonanno & Burton, 2013). For example, if someone just received very upsetting news but now needs to perform a difficult and important task at work, experiential avoidance may be very useful in achieving his or her current emotional and behavioral goals, whereas reappraisal may be counterproductive. Nonetheless, a large body of research (summarized quantitatively by Aldao et al., 2010) shows that *when used habitually*, some strategies tend to be associated with positive outcomes (e.g., psychological health) and others tend to be associated with negative outcomes (e.g., psychological disorders, distress). We use the terms "adaptive" and "maladaptive" in this study to be consistent with prior literature, but we consider them a shorthand for the *probabilistic tendency* of the habitual use of a strategy to be negatively (adaptive) or positively (maladaptive) associated with psychopathology, rather than as some intrinsic and universal property of the strategy itself that is manifest independent of context.

Given the pattern of differential associations across the dispositional use of emotion regulation strategies and individual differences in psychopathology described above, it is plausible that the habitual uses of specific maladaptive strategies are intercorrelated, as are the habitual uses of adaptive strategies. Thus, the adaptive versus maladaptive strategies model could be consistent with two structures: a single factor model wherein putatively adaptive strategies load positively and putatively maladaptive strategies load negatively, or two factors, one for adaptive strategies and the other for maladaptive strategies. The former would imply that people who frequently use adaptive strategies also infrequently use maladaptive strategies, whereas the latter would indicate a greater degree of independence between the use of maladaptive and adaptive strategies.

Another formal distinction among emotion regulation strategies that has received empirical support is that of cognitive or covert strategies (e.g., experiential avoidance, rumination, acceptance, distraction) versus behavioral or overt strategies (e.g., behavioral avoidance, substance use, exercise, eating, social activities) (Aldao & Dixon-Gordon, 2014; Parkinson & Totterdell, 1999). If this distinction is reflected in strategy use and covariances, it would suggest a single factor with use of cognitive strategies at one extreme and use of behavioral strategies at the other, or a two-factor model with relatively independent factors of cognitive strategies and behavioral strategies.

### Ability-Based Models

A final group of emotion regulation models are primarily organized around dispositional abilities believed to facilitate healthy emotion regulation. These abilities cut across different strategies and situations and have particular relevance for the development and maintenance of psychopathology. Two models reviewed here are embodied in measures that assess these abilities. The Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004) measures the (lack of) six abilities, wherein a deficit in any of these may lead to problems with emotion regulation and to psychological symptoms. The specific abilities assessed by the DERS include emotion recognition (i.e., awareness of and clarity of emotions), responses to emotions (i.e., acceptance of emotions), moderation of the effects of negative emotions on behavior (i.e., controlling impulses and enacting goal-directed behaviors in the

presence of negative affect), and perceived access to effective emotion regulation strategies.

A second ability-based model is the adaptive coping with emotions (ACE) model (also referred to as the Affect Regulation Training [ART] model), which posits that multiple skills interact in a specific situational context to yield adaptive emotion regulation (e.g., Berking & Schwarz, 2014; Berking et al., 2008; Radkovsky, McArdle, Bockting, & Berking, 2014). The (German-language) Emotion-Regulation Skills Questionnaire was created to assess these skills (Berking & Znoj, 2008). This model has numerous similarities to the DERS, as it also includes awareness and clarity of emotions (here clarity is divided into identification and labeling of emotions), responses to emotions (here acceptance of and tolerance of negative emotions are distinguished), goal-directed approach behavior even if it elicits or is in the context of negative emotions, and perceived effective utilization of emotion regulation strategies. Unique to the ACE model are the abilities to recognize the causal and maintaining factors underlying specific emotional experiences, and to provide compassion and support to oneself when experiencing negative emotions. The ACE model hypothesizes that the most important abilities for healthy psychological functioning are successful modification of emotions and acceptance/tolerance of aversive emotions, as supported by several empirical studies (e.g., Berking et al., 2008; Radkovsky et al., 2014). The other abilities are viewed as less central, with primary relevance insofar as they influence emotion modification and distress tolerance.

## Empirical Evaluation of the Structure of Emotion Regulation Strategies

### Existing Studies

We were able to identify only three empirical studies that examined the structure of emotion regulation based on strategy covariances. Aldao and Nolen-Hoeksema (2010) assessed the structure of reappraisal, rumination (brooding and pondering), thought suppression, and problem solving in a student sample. A single factor, scale-level confirmatory factor analysis (CFA) revealed that problem solving did not load significantly and global model fit was poor. After removing problem solving, fit was acceptable, although reappraisal loaded weakly on the factor. These results could suggest the need for more than one factor (perhaps an adaptive and a maladaptive strategy factor), but there were not enough indicators to robustly model and test such a structure, as generally three or more indicators per factor are needed (e.g., Brown, 2015).

Two studies examined a larger number of strategies (i.e., 7–8 strategies) and conducted analyses with items or parcels, allowing for the examination of multidimensional factor models. Seligowski and Orcutt (2015) tested Gross' (1998) process model (excluding situation modification, as there are very few available self-report measures) in a community sample. The four-factor model—behavioral avoidance as an indicator of situation selection, brooding and reflective rumination as attentional deployment, reappraisal and thought suppression as cognitive change, and expressive suppression, experiential avoidance, and acceptance as response modulation—was not a good fit to the data. However, fit was accept-

able when thought suppression, acceptance, and experiential avoidance were moved to a separate factor, labeled “emotional distancing.” Unfortunately, constructs and measure-specific variance were confounded in this model, such that each of the strategy factors had items from a single, unique measure. Therefore, these results were equally consistent with the interpretation that the factors reflected measure variance, rather than true distinctions in the underlying emotion regulation constructs.

Lee and colleagues (2015) collected data from a trauma-exposed student sample on the habitual use of acceptance, reappraisal, reflective rumination, brooding rumination, thought suppression, expressive suppression, and experiential avoidance. They used item-level confirmatory factor analysis to compare several models: a single factor model, a two-factor model consisting of adaptive and maladaptive strategy factors, a four-factor model of Gross' process model (again excluding situation modification), and a model in which each strategy loaded on a separate factor. Fit was poor for all models except the model that had separate factors for each strategy. However, as in the Seligowski and Orcutt (2015) study, it does not appear that measure-specific method effects were modeled, so it is likely that potential content-based factors were overridden by the tendency of items from the same measure to cluster together.

### Issues in the Evaluation of Emotion Regulation Structure

These three studies provide conflicting characterizations of the structure of emotion regulation strategies, ranging from the extremes of a single factor to separate factors for every strategy. One reason for these inconsistencies may be the study design and analytic approach. In latent variable structural modeling, a “true” underlying structure may be identified if (a) a sufficient number of indicators are included to allow for the emergence of the correct number of factors, (b) a representative set of the range of relevant constructs is included, and (c) method/measure variance is either accounted for via design (i.e., constructs and indicators are not confounded) or statistically by correlating measurement error terms (see Brown, 2015 for more detail). No study to date has met all of these considerations, making it difficult to draw conclusions from the existing literature on emotion regulation structure.

More generally, Skinner, Edge, Altman, and Sherwood (2003) described some of the difficulties of identifying an underlying structure for the coping domain, and many of the specifics they discussed also apply to the overlapping construct of emotion regulation. Skinner et al. noted a number of concerns with exploratory structural approaches (e.g., exploratory factor analysis), including nonreplicable solutions across different samples<sup>4</sup> and difficulty ensuring that both the constructs selected and their observed indicators provide comprehensive coverage of the coping domain (as described in points 1 and 2 in the preceding paragraph). Given these and other concerns, they argue that confirmatory analytic techniques (e.g., confirmatory factor analysis), which in-

<sup>4</sup> Of note, Skinner et al. reviewed item-level exploratory factor analyses, which often produce less robust solutions than scale-level indicators due to their lower levels of indicator reliability. Our meta-analysis uses scale-level indicators, which enhances reliability and is likely to improve solution replicability.

clude top-down and bottom-up structural approaches, are most likely to yield a useful and accurate structure.

### The Current Study

The primary goal of the current study was to examine the underlying structure of common emotion regulation strategies, drawing from the full body of relevant prior evidence and using a relatively large number of strategies. As reviewed previously, there is some theory and empirical work on emotion regulation strategy structure, but this literature is still small and in the early stages of study. Therefore, we use a combination of data-driven, exploratory techniques and confirmatory tests of prior theory to examine the structure of this domain.

We selected a set of 10 common emotion regulation strategies: rumination, distraction, acceptance, problem solving, behavioral avoidance, experiential avoidance (including emotion or thought suppression),<sup>5</sup> expressive suppression, reappraisal, mindfulness, and worry. We identified these strategies based on a literature review of emotion regulation strategies that were selected for inclusion in existing meta-analyses, conceptual reviews, and structural analyses; the strategies from each of these 10 reviewed studies are shown in Table A of the online supplement. Our meta-analysis includes all eight of the strategies that were identified in four or more of the studies in Table A, as well as two strategies (i.e., mindfulness and worry) that were less frequently identified (see the note of Table A for further justification of their inclusion). Thus, the strategies we selected are “common” in the sense that they are of theoretical importance and are widely accepted exemplars of self-reported habitual regulation of negative emotions (e.g., Aldao et al., 2010; Aldao & Nolen-Hoeksema, 2012; Schäfer et al., 2016; Webb et al., 2012), and they are frequently assessed empirically and reported in the literature (a necessary precondition to conduct a meta-analysis). They also cover a range of content relevant to the previously reviewed structural models, including the process model, cognitive and behavioral strategies, and maladaptive and adaptive strategies. Table 1 shows how the strategies in our meta-analysis may be grouped based on each of these models.<sup>6</sup>

Although no single study has assessed all of the emotion regulation strategies of interest here, many studies have reported correlations between two (or more) relevant strategies. Thus, we can obtain fairly robust estimates of the associations among all of the strategies by conducting meta-analyses of the correlations of each possible pairing. In addition, meta-analytic estimates combine data from many different samples (weighted by sample size) and different measures, whereas individual studies generally include a few samples and a few measures of each strategy at most. As such, meta-analytic results are likely to be more robust and less swayed by measure-specific or sample-specific variance than are those of individual studies, allowing for a clearer examination of the structure of the underlying constructs and potentially a more replicable structure. The meta-analytic correlations between strategies provide important information regarding the magnitudes, significance, and directions of effects, but more crucially for our purpose, they allow for a thorough examination via meta-analytic factor analysis of the structure of this group of 10 strategies. Although we were not primarily interested in and did not have specific hypotheses regarding moderators of meta-analytic effects, for the sake of

comprehensiveness, we also examined how several study and sample characteristics may contribute to between-study heterogeneity.

A secondary aim was to conduct an initial exploration of how emotion regulation abilities relate to emotion regulation strategy use, as it is important to begin to integrate strategy and ability models so that we can better specify how these characteristics interact with one another and jointly contribute to adaptive and successful emotion regulation. Specifically, we focused on how distress tolerance (i.e., the perceived ability to withstand aversive emotional states) is associated with the above emotion regulation strategies, conducting meta-analyses of the correlations between distress tolerance and each strategy. We selected distress tolerance for two reasons. First, it is highly relevant to both of the abilities models reviewed here, as it has been identified as one of the primary skills in the ACE model (e.g., Berking et al., 2008; Radkovsky et al., 2014), and it is theoretically (Bardeen, Tull, Dixon-Gordon, Stevens, & Gratz, 2015; Jeffries, McLeish, Kraemer, Avallone, & Fleming, 2016; Leyro, Zvolensky, & Bernstein, 2010) and empirically ( $r_s = -.64$  to  $-.76$ ; Iverson, Follette, Pistorello, & Fruzzetti, 2012; McHugh, Reynolds, Leyro, & Otto, 2013) closely associated with the DERS (and with the Limited Access to Strategies scale in particular). Second, self-report measures of distress tolerance were first published over a decade ago and are available in English, so there is sufficient data available to conduct meta-analyses.

There is little research on how distress tolerance relates to emotion regulation strategies (see Zvolensky, Leyro, Bernstein, & Vujanovic, 2011) and therefore these analyses are largely exploratory, but we offer tentative expectations based upon theory (Tull & Aldao, 2015; Zvolensky et al., 2011) and one empirical study (Jeffries et al., 2016). First, low distress tolerance may be similarly associated with all strategies used to reduce negative affect, because an inability to withstand difficult emotions could lead one to frequently try to reduce negative emotions by any means. A second possibility is that low distress tolerance may be most closely associated with avoidance-based strategies that require little effort and exert an effect quickly (e.g., expressive suppression, distraction, behavioral and experiential avoidance), as individuals with low distress tolerance may be particularly motivated to regulate emotions based on immediate hedonic concerns. Third, distress tolerance should be moderately associated with mindfulness and acceptance, since these strategies entail an openness to one's current experience (including aversive experiences). Finally, low distress tolerance may be related positively to habitual maladaptive

<sup>5</sup> Experiential avoidance is the avoidance of *any* unwanted internal experience, including emotions, thoughts, and physical sensations (e.g., Hayes et al., 2004). Therefore, we subsumed emotion suppression, thought suppression, and cognitive avoidance within this broader category. In contrast, expressive suppression involves suppression of outward manifestations of emotion, rather than of emotion-driven internal experiences, and so constitutes a separate category.

<sup>6</sup> Note that there were relatively few purely behavioral strategies included, reflecting the fact that cognitive emotion regulation strategies have received the most empirical attention and behavioral strategies tend to be more heterogeneous in function (e.g., reappraisal is largely defined as having an emotion regulatory function, whereas emotion regulation is just one of many possible functions for drinking alcohol or talking with friends; Aldao & Dixon-Gordon, 2014).

Table 1  
*Conceptual Categorizations of Included Emotion Regulation Strategies Within Temporal Process and Strategy-Based Models*

Strategy	Adaptive vs. Maladaptive		Cognitive vs. Behavioral		Process model			
	Adaptive	Maladaptive	Cognitive	Behavioral	Situation	Attention	Cog. change	Response mod.
Acceptance	X		X				X	X
Behavioral avoidance		X		X	X			
Distraction	X	X	X	X		X		
Experiential avoidance		X	X					X
Expressive suppression		X	X					X
Mindfulness	X		X			X		
Problem solving	X		X	X	X			
Reappraisal	X		X				X	
Rumination		X	X			X		
Worry		X	X			X		

*Note.* Some strategies were categorized into more than one group within models, either because of conflicting empirical evidence for their groupings or different components of the strategy belong in different categories. Specifically, distraction is often adaptive in the short-term for specific situations (Gross, 2015; Webb et al., 2012), but maladaptive if used as a long-term avoidance strategy (Sheppes et al., 2014). In addition, both distraction and problem solving can manifest as cognitive/covert (thinking about something else or thinking about how to solve the problem, respectively) or as behavioral/overt (engaging in a distracting activity or taking action to solve the problem, respectively) (Parkinson & Totterdell, 1999). Last, within the process model, acceptance may be viewed as response modulation since it involves accepting one's current emotional response (e.g., Lee et al., 2015; Seligowski & Orcutt, 2015) and as cognitive change because it is essentially a reappraisal of the meaning of one's emotion (e.g., Webb et al., 2012; see Wolgast, Lundh, & Viborg, 2011).

strategy use and negatively to habitual adaptive strategy use, consistent with the results of Jeffries et al. (2016).

## Method

### Literature Search

We sought to identify studies that reported correlations between two or more of the selected emotion regulation strategies (i.e., rumination, distraction, acceptance, problem solving, behavioral avoidance, experiential avoidance, expressive suppression, reappraisal, mindfulness, and worry). Thus, assuming at least one study for each of the possible pairings of constructs, our analyses would yield 45 meta-analytic correlations to include in structural analyses. We also searched for studies reporting correlations of distress tolerance with each of the 10 emotion regulation strategies.

Potentially relevant studies (including published articles, book chapters, and dissertations) were identified via PsycINFO and Medline searches. Searches were limited to studies that were written in English, had human subjects, and were published since 1985, which marked the approximate emergence of the construct of emotion regulation as it is understood today. The following search terms were used, wherein each term was paired with every other term: "emotion regulat\*", "distract\*", "accept\*", "mindful\*", "experiential avoid\*", "suppress\*", "reapprais\*", "rumin\*", "worry", "problem solv\*", "psychological flexibil\*" (a label used for some measures of experiential avoidance and acceptance), and "distress tolera\*." Articles were identified that used these search terms in any field (i.e., title, keyword, and/or abstract). An initial search was conducted in November 2013 and a second search was conducted in July 2014 to add new studies, yielding a total of 13,958 potentially relevant abstracts. In addition, the reference sections of relevant review articles were examined to locate additional relevant studies. Finally, unpublished data were requested via several professional listserves for psychology researchers, and e-mails requesting un-

published relevant data were also sent to scholars who had published extensively on emotion regulation in the past 10 years.

### Selection of Studies

The abstracts identified via the above searches were screened to determine whether they were indeed relevant to emotion regulation strategies and whether they reported empirical data. Thus, we eliminated review or conceptual articles that lacked original empirical data, as well as studies that clearly were irrelevant to emotion regulation and were identified based on a different meaning of the search terms (e.g., suppression of nerve impulses). This left 1,222 studies that were examined in greater detail.

The following inclusion criteria were applied to this set of studies in determining their eligibility for the meta-analysis: (a) Emotion regulation strategies were assessed via self-report (not interview, other-report, behavioral measures, or experimental manipulations) using standardized scales (rather than single items); (b) Data were collected using English language measures, as the meaning of the constructs could vary across languages and limit comparability; (c) The measures assessed *habitual* or *general use* of at least two of the above emotion regulation strategies, rather than state emotion regulation or emotion regulation in response to a specific stressor; and (d) Both emotion regulation strategies were assessed concurrently and, if applicable, at baseline (i.e., prior to an experimental manipulation or induction), with the association reported as a zero-order correlation. Studies were excluded if the sample was characterized by individuals with a current cognitive impairment—such as psychosis, intellectual disability, dementia, or autism—that may have prohibited valid completion of the measure.

Measures were carefully selected to ensure that only valid indicators of the underlying constructs of interest were included. Working definitions of each strategy were created, as described below. Distraction was defined as shifting one's attention to something else in order to avoid or reduce unwanted emotions;

Acceptance as willingness to experience one's current emotions, even if they are aversive; Mindfulness as an open awareness of the present moment without evaluation; Experiential avoidance as avoiding unwanted internal stimuli, such as thoughts, physical sensations, or emotions; Behavioral avoidance as avoiding external stimuli (e.g., situations, people, places) that evoke unwanted emotions; Expressive suppression as inhibiting the outward expression of an emotion; Reappraisal as changing one's perspective or interpretation to recognize positive aspects of a situation; Rumination as repetitively thinking about the experience, causes, and consequences of negative emotion in a passive manner; Worry as repetitive, negative thoughts and images about the future; Problem solving as attempts to actively modify an undesirable situation or its consequences; and Distress tolerance as one's perceived capacity to withstand unpleasant emotional states (see Aldao et al., 2010 and Webb et al., 2012 for similar operational definitions).

Using these working definitions, we identified measures that (a) purported to assess the emotion regulation strategies of interest or distress tolerance, (b) showed good construct validity, including expected empirical patterns of convergent and discriminant validity in published studies, and (c) were dispositional/habitual and not event-specific. Measures that met all criteria but were developed in the coping tradition (rather than as emotion regulation per se) were included in analyses, consistent with other emotion regulation meta-analyses (e.g., Aldao et al., 2010; Schäfer et al., 2016) and theoretical accounts of emotion regulation as one type of coping (e.g., Skinner et al., 2003). Coping may be distinguished from emotion regulation by a focus on longer-term responses to stressors, responses to negative (but not positive) emotions and situations, and the inclusion of nonemotional goals and outcomes (e.g., Gross, 1998). In addition, coping measures are more likely than emotion regulation measures to focus on responses to a specific event (e.g., illness, divorce), such that they may be contextually bound and not generalizable across situations. However, because our analysis is limited to responses to negative emotions that are assessed dispositionally (that is, any measures yoked to a specific event were excluded), the distinctions between coping and emotion regulation should not be manifest in the particular coping measures included in our meta-analysis. When a study used a measure that appeared relevant but had not been identified previously for inclusion in the meta-analysis, the first author used the above criteria as a guide in deciding whether to include the measure. A full list of the measures used in the meta-analysis and their references is provided in the online supplement (Table B).

### Effect Size Coding

After applying study inclusion and exclusion criteria, a final set of 280 studies and 331 independent samples (some studies had multiple samples) remained for inclusion in the meta-analysis. Table 2 shows the characteristics and effect sizes of each included study. Two hundred thirty-five studies were peer-reviewed publications, whereas 45 were dissertations or unpublished data sets. Across all of the 45 pairings among the 10 emotion regulation strategies, there was a total of 670 contributing correlations. Importantly, there was at least one effect size for every possible pairing of the emotion regulation strategies—a necessary condition

for the factor analyses because the meta-analytic correlation matrix cannot have missing cells. There were also 33 correlations contributing to meta-analytic estimates of distress tolerance and the emotion regulation strategies, although there were no correlations of distress tolerance with two of the strategies (i.e., with behavioral avoidance and distraction).

The primary variables that were extracted during the coding process were correlations among all included emotion regulation strategies and/or distress tolerance, and their corresponding sample sizes. If multiple measures for the same emotion regulation strategies were included in a single study, all relevant correlations were coded and then the mean correlation for each pair of strategies was calculated using Fisher's  $r$  to  $Z$  transformation. However, using the same variance as for a single correlation in these cases underestimates the precision of the correlation because it implicitly assumes that the two measures of the same strategy are perfectly correlated, which is almost certainly incorrect (Borenstein, Hedges, Higgins, & Rothstein, 2009). Therefore, we also coded the correlations between measures of the same strategies in these cases and corrected the variances for each averaged estimate using a formula presented by Borenstein and colleagues (pp. 228–229). In instances where the correlation between measures of the same strategy was needed but was not reported in a given article, we took the conservative approach of weighting that estimate by the variance of a single correlation from that sample. Finally, the sign of correlations was reversed when necessary so that each was keyed with higher scores on the measures indicating higher levels of both strategies (in the direction of the strategy labels used in the current study).

We also coded several variables that were potential moderators of the associations between emotion regulation strategies, including the specific measure used, percent of the sample that was female, percent of the sample that was Caucasian, sample age, article type (published article vs. dissertation/unpublished dataset), and sample type (clinical vs. nonclinical; high-risk or mixed clinical and nonclinical samples were not included in this moderator analyses). Finally, we coded the internal consistency (coefficient alpha) of the emotion regulation measures in each sample whenever reported, so that we could correct individual effect sizes for unreliability. If a study did not report coefficient alpha, the mean reliability for other studies that used that measure was inserted. We used the coefficient alpha from the original article that reported the development of the measure in rare cases when only one study used a measure and they did not report alpha from their sample.

### Rater Training and Agreement

Six psychology graduate students underwent extensive training with the first author in the study selection and coding process, and several practice groups of articles were coded by everyone until acceptable rates of reliability (e.g., greater than 85% agreement) were achieved. Following this training period, two independent raters evaluated each potentially relevant study for inclusion and (if deemed eligible) coded the previously described variables. We used this double-coding procedure as a check of reliability and to reduce the likelihood of typos or other data entry errors. Interrater reliability was adequate, as the mean kappa between raters was .87. The first author reviewed each discrepancy in study selection and

Table 2  
*Characteristics of Studies Included in the Meta-Analysis*

Authors (Year)	Published	N	Clinical sample	Age M	% Female	% White	r	Measure 1	Measure 2
Abela et al. (2002)	Yes	184	No	12.8	42.4	65.4	.43	CRSQ- Distraction	CRSQ- Problem Solving
							.01	CRSQ- Distraction	CRSQ- Rumination
Adams (2009)	No	287	No	20.1	49.8	58.0	-.18	CRSQ- Problem Solving	CRSQ- Rumination
							.54	CRSQ- Distraction	CRSQ- Problem Solving
							.40	CRSQ- Distraction	CRSQ- Rumination
							.39	CRSQ- Problem Solving	CRSQ- Rumination
Adams (2011)	No	30	Yes	NR	80.0	70.0	-.52	MAAS	AAQ
Adams et al. (2007)	Yes	392	No	12.3	59.2	74.7	.43	CRSQ- Distraction	CRSQ- Problem Solving
							.09	CRSQ- Distraction	CRSQ- Rumination
Aguirre (2008)	No	138	No	NR	89.6	91.0	-.24	CRSQ- Problem Solving	CRSQ- Rumination
							.11	CERQ- Acceptance	CERQ- Planning
							.22	CERQ- Acceptance	CERQ- Pos. Reappraisal
							-.02	CERQ- Acceptance	CERQ- Rumination
							.72	CERQ- Pos. Reappraisal	CERQ- Planning
Aldao (2015)	No	270	No	19.7	71.0	62.0	-.15	CERQ- Rumination	CERQ- Planning
							-.24	CERQ- Rumination	CERQ- Pos. Reappraisal
							.71	CBAS- Behav. Nonsocial	CBAS- Cog. Nonsocial
							.61	CBAS- Behav. Nonsocial	CBAS- Cog. Social
							.56	CBAS- Behav. Social	CBAS- Cog. Nonsocial
							.62	CBAS- Behav. Social	CBAS- Cog. Social
							-.08	CBAS- Behav. Nonsocial	ERQ- Reappraisal
							-.11	CBAS- Behav. Social	ERQ- Reappraisal
							.54	CBAS- Behav. Nonsocial	RSQ- Brooding
							.44	CBAS- Behav. Social	RSQ- Brooding
							.24	CBAS- Behav. Nonsocial	ERQ- Suppression
							.28	CBAS- Behav. Social	ERQ- Suppression
							.43	CBAS- Behav. Nonsocial	PSWQ
							.31	CBAS- Behav. Social	PSWQ
							-.14	CBAS- Cog. Nonsocial	ERQ- Reappraisal
							-.09	CBAS- Cog. Social	ERQ- Reappraisal
							.48	CBAS- Cog. Nonsocial	RSQ- Brooding
							.43	CBAS- Cog. Social	RSQ- Brooding
							.28	CBAS- Cog. Nonsocial	ERQ- Suppression
							.40	CBAS- Cog. Social	ERQ- Suppression
							.22	CBAS- Cog. Nonsocial	PSWQ
							.23	CBAS- Cog. Social	PSWQ
Aldao & Nolen-Hoeksema (2010)	Yes	252	No	18.4	55.6	55.2	-.10	ERQ- Reappraisal	RSQ- Brooding
							.03	ERQ- Reappraisal	ERQ- Suppression
							-.15	ERQ- Reappraisal	PSWQ
							.20	ERQ- Suppression	RSQ- Brooding
							.50	RSQ- Brooding	PSWQ
							.10	ERQ- Suppression	PSWQ
							.10	WBSI	COPE- Problem Solving
							.05	WBSI	ERQ- Reappraisal
							.55	WBSI	RSQ- Brooding
							.27	COPE- Problem Solving	ERQ- Reappraisal
Allan (2010)	No	79	No	NR	100.0	NR	.02	COPE- Problem Solving	RSQ- Brooding
							-.18	ERQ- Reappraisal	RSQ- Brooding
							.59	CBAS- Behav. Social	CBAS- Cog. Social
							.53	CBAS- Behav. Social	CBAS- Cog. Non-social
							.51	CBAS- Behav. Nonsocial	CBAS- Cog. Social
							.69	CBAS- Behav. Nonsocial	CBAS- Cog. Nonsocial
							.45	CBAS- Behav. Social	RRQ- Rumination
							.52	CBAS- Behav. Social	RSQ- Brooding
							.43	CBAS- Behav. Nonsocial	RRQ- Rumination
							.45	CBAS- Behav. Nonsocial	RSQ- Brooding
							-.05	RSQ- Distraction	RRQ- Rumination
							-.16	RSQ- Distraction	RSQ- Brooding
							.36	RRQ- Rumination	CBAS- Cog. Social
							.28	RRQ- Rumination	CBAS- Cog. Nonsocial
							.35	RSQ- Brooding	CBAS- Cog. Social
							.47	RSQ- Brooding	CBAS- Cog. Nonsocial
							Allan et al. (2014)	Yes	347
-.10	RSQ- Distraction	RSQ- Rumination							
-.13	WBSI	ERQ- Reappraisal							
.03	ERQ- Reappraisal	ERQ- Suppression							
Alloy et al. (2009)	Yes	274	Mixed	19.8	60.6	60.5	-.10	RSQ- Distraction	RSQ- Rumination
Amstadter & Vernon (2008)	Yes	65	Mixed	20.0	87.9	70.8	-.13	WBSI	ERQ- Reappraisal
Andrews et al. (2013)	Yes	80	Yes	12.2	77.5	NR	.46	ACS-SF- Solving Problem	ERQ- Reappraisal

(table continues)



Table 2 (continued)

Authors (Year)	Published	N	Clinical sample	Age M	% Female	% White	r	Measure 1	Measure 2
							-.26	ACS-SF- Solving Problem	ERQ- Suppression
		81	Yes	12.3	72.8	NR	.00	ERQ- Reappraisal	ERQ- Suppression
							.48	ACS-SF- Solving Problem	ERQ- Reappraisal
							-.29	ACS-SF- Solving Problem	ERQ- Suppression
Appleton et al. (2013)	Yes	379	No	NR	100.0	NR	-.07	ERQ- Reappraisal	ERQ- Suppression
Arditte & Joormann (2011)	Yes	40	Mixed	38.3	63.0	80.0	-.06	ERQ- Reappraisal	ERQ- Suppression
							.09	ERQ- Reappraisal	RRS- Brooding
							.17	ERQ- Reappraisal	ERQ- Suppression
							.43	RRS- Brooding	ERQ- Suppression
Argus & Thompson (2008)	Yes	141	Yes	43.1	68.1	NR	.44	MAAS	SPSI-R
Arndt et al. (2013)	Yes	4639	No	19.2	60.7	58.0	.00	ERQ- Reappraisal	ERQ- Suppression
Arnow et al. (2004)	Yes	62	Yes	NR	66.7	NR	.16	RSQ- Distraction	RSQ- Rumination
Baer et al. (2004)	Yes	130	No	19.6	56.0	86.0	-.26	KIMS- Acceptance	AAQ
							-.30	AAQ	KIMS- Act with Aware.
		445	No	NR	62.3	86.1	.29	KIMS- Acceptance	KIMS- Act with Aware.
		115	No	NR	NR	NR	.30	KIMS- Acceptance	MAAS
Baer et al. (2006)	Yes	613	No	20.5	70.0	90.0	.34	FFMQ- Act with Aware.	FFMQ- Nonjudgment
							-.51	AAQ	CAMS- Mindfulness
							-.54	AAQ	FMI
							-.44	AAQ	KIMS
							-.32	AAQ	MAAS
							-.60	AAQ	MQ
							-.27	WBSI	FMI
							-.42	WBSI	KIMS
							-.32	WBSI	MAAS
							-.44	WBSI	CAMS-R
							-.47	WBSI	MQ
Bagby et al. (1999)	Yes	89	Yes	39.3	62.9	NR	.08	RSQ- Distraction	RSQ- Rumination
Bariola et al. (2012)	Yes	207	No	48.0	0.0	NR	.11	ERQ- Reappraisal	ERQ- Suppression
		358	No	45.0	100.0	NR	.06	ERQ- Reappraisal	ERQ- Suppression
		379	No	14.8	56.5	NR	-.17	ERI-CA- Reappraisal	ERI-CA- Suppression
Barnes & Lynn (2010)	Yes	102	No	18.9	67.7	NR	.37	FFMQ- Nonjudgment	FFMQ- Act with Aware.
Belzer et al. (2002)	Yes	353	No	18.9	63.0	44.2	-.29	SPSI- R- SF- PPO	CWQ- Worry
							-.30	SPSI- R- SF- PPO	PSWQ
Benazon (1998)	No	90	Mixed	44	64.4	98	.25	RSQ- Rumination	RSQ- Distraction
Bender (2008)	No	61	Mixed	67.7	NR	NR	.49	DEERS- Awareness	DEERS- Nonacceptance
							-.43	DEERS- Nonacceptance	PSWQ
							-.44	DEERS- Awareness	PSWQ
Bennett et al. (2009)	Yes	295	Yes	43.3	73.0	70	.21	TCQ- Distraction	TCQ- Reappraisal
							-.22	TCQ- Distraction	TCQ- Worry
							.02	TCQ- Reappraisal	TCQ- Worry
Bird et al. (2013)	Yes	230	No	20.0	82.6	NR	.60	AAQ	PSWQ
							.50	WBSI	PSWQ
		190	No	62.5	51.1	NR	.64	AAQ	PSWQ
							.64	WBSI	PSWQ
Bjornsson et al. (2010)	Yes	742	No	18.8	62.7	85.1	.10	RSQ- Distraction	AAQ
							.08	RSQ- Distraction	RSQ- Rumination
							.52	AAQ	RSQ- Rumination
		887	No	18.9	54.5	85.1	.12	RSQ- Distraction	AAQ
							.14	RSQ- Distraction	RSQ- Rumination
							.53	AAQ	RSQ- Rumination
Boden et al. (2013)	Yes	93	Yes	44.5	0.0	49.5	-.07	ERQ- Reappraisal	ERQ- Suppression
Borders et al. (2010)	Yes	211	No	31.8	60.0	>80.0	-.48	MAAS	RRQ
		464	No	19.7	66.7	50.0	-.46	MAAS	RRQ
Britton (2004)	Yes	196	Yes	19.7	44.0	87.0	.43	COPE- Acceptance	COPE- Reinterp.
									Growth
							.06	COPE- Mental Disengag.	COPE- Acceptance
							.04	COPE- Planning	COPE- Mental
									Disengag.
							.56	COPE- Planning	COPE- Reinterp.
									Growth
Brown & Ryan (2003)	Yes	145	No	19.8	64.0	63.0	-.38	COPE- Reinterp. Growth	COPE- Mental Diseng.
		187	No	19.7	62.0	77.0	-.29	RRQ	MAAS
		327	No	19.6	64.0	77.0	-.39	RRQ	MAAS
Bullis et al. (2014)	Yes	48	No	29.1	0.0	52.0	.36	KIMS- Acceptance	KIMS- Act with Aware.
Caldwell & Shaver (2012)	Yes	388	No	22.1	70.0	44.0	.14	RRQ	ERQ- Suppression
Caldwell & Shaver (2015)	Yes	48	High risk	47	100	96.0	.37	ERQ- Suppression	RRQ
Calmes & Roberts (2007)	Yes	543	No	20.3	60.6	59.6	.41	RRS	PSWQ
Cardaciotto (2005)	No	559	No	20.1	50.6	64.4	-.43	PHLMS	WBSI
							-.33	PHLMS	RRQ
Carter (2011)	No	316	No	NR	100.0	89.0	.62	PSWQ	RRQ- Rumination

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Table 2 (continued)

Authors (Year)	Published	N	Clinical sample	Age M	% Female	% White	r	Measure 1	Measure 2							
Carvalho & Hopko (2011)	Yes	186	No	NR	0.0	89.0	.64	PSWQ	RRQ- Rumination							
		158	No	19.1	61.4	77.8	.70	CBAS- Cog. Avoidance	CBAS- Behav. Avoidance							
Carver et al. (1989)	Yes	978	No	NR	NR	NR	.06	COPE- Acceptance	COPE- Mental Disengag.							
								.23	COPE- Acceptance	COPE- Planning						
								.36	COPE- Acceptance	COPE- Reinterp. Growth						
								-.04	COPE- Mental Disengag.	COPE- Planning						
								.06	COPE- Mental Disengag.	COPE- Reinterp. Growth						
Castaneda (2005)	No	204	No	NR	NR	NR	.59	RRQ	WDQ							
							.68	PSWQ	RRQ							
Chambers et al. (2015)	Yes	107	No	18.8	70.1	NR	-.31	MAAS	RRS							
Chang (2004)	Yes	66	High risk	20.6	72.8	65.8	-.17	RSQ- Distraction	RSQ- Rumination							
		78	No	20.6	72.8	65.8	-.16	RSQ- Distraction	RSQ- Rumination							
Chapman et al. (2005)	Yes	105	No	33.9	100	71.4	.37	COPE- Mental Disengag.	AAQ-II							
Cheavens & Heiy (2011)	Yes	447	No	19.4	50	72.3	-.41	COPE- Mental Disengag.	WBSI							
								-.55	DEERS- Nonacceptance	AAQ						
								-.27	DEERS- Nonacceptance	WBSI						
								-.14	DEERS- Nonacceptance	ERQ- Suppression						
								.08	AAQ	ERQ- Suppression						
Chopko & Schwartz (2009)	Yes	183	No	37.9	7.1	83.6	.31	KIMS- Acceptance	KIMS- Act with Aware.							
		Ciarrochi et al. (2011)	Yes	776	No	15.4	49.7	NR	-.49	AAQ	CAM-20- Act w/ Aware.					
Ciesla et al. (2012)	Yes	101	No	16.7	61.0	94.0	.49	FFMQ- Nonjudging	FFMQ- Act with Aware.							
		Clarke (2012)	No	22	Yes	43.6	59.1	72.7	.60	DEERS- Nonacceptance	DEERS- Awareness					
Coffey et al. (2010)	Yes	179	Yes	40	41.9	42.5	-.50	DEERS- Nonacceptance	ERQ- Reappraisal							
								-.17	DEERS- Nonacceptance	ERQ- Suppression						
								.46	DEERS- Awareness	ERQ- Reappraisal						
								-.36	DEERS- Awareness	ERQ- Suppression						
								.10	ERQ- Reappraisal	ERQ- Suppression						
		399	No	19.2	60.0	NR	.27	DEERS- Nonacceptance	ERQ- Reappraisal							
								-.22	DEERS- Nonacceptance	ERQ- Reappraisal						
								-.21	DEERS- Nonacceptance	ERQ- Suppression						
								.42	DEERS- Awareness	ERQ- Reappraisal						
								-.27	DEERS- Awareness	ERQ- Suppression						
413	No	18.7	71.0	NR	-.36	DEERS- Nonacceptance	DEERS- Awareness									
						.15	DEERS- Nonacceptance	FFMQ- Act with Aware.								
						.29	FFMQ- Nonjudging	FFMQ- Act with Aware.								
						-.35	FFMQ- Nonjudging	RSQ- Rumination								
						-.32	DEERS- Nonacceptance	DEERS- Awareness								
Cohn et al. (2010)	Yes	104	No	19.3	0.0	80.5	.32	DEERS- Nonacceptance	DEERS- Awareness							
Coles & Heimberg (2005)	Yes	97	Mixed	32.3	63.0	NR	-.26	TCQ- Distraction	PSWQ							
		-.12	TCQ- Reappraisal	PSWQ												
Connell et al. (2013)	Yes	59	No	13.7	66.1	52.5	.18	ERQ- Reappraisal	ERQ- Suppression							
Coughe et al. (2012)	Yes	238	No	19.5	77.7	65.1	-.51	DTS	PSWQ							
Cribb et al. (2006)	Yes	109	No	20.9	68.8	41.0	.52	CBAS- Behav. Nonsocial	AAQ							
							.69	CBAS- Behav. Nonsocial	CBAS- Cog. Nonsocial							
							.6	CBAS- Behav. Nonsocial	CBAS- Cog. Nonsocial							
							.44	CBAS- Behav. Social	AAQ							
							.52	CBAS- Behav. Social	CBAS- Cog. Nonsocial							
							.55	CBAS- Behav. Social	CBAS- Cog. Social							
							.49	CBAS- Behav. Nonsocial	RRS							
							.42	CBAS- Behav. Social	RRS							
							.62	AAQ	RRS							
							.42	CBAS- Cog. Nonsocial	RRS							
							.49	CBAS- Cog Social	RRS							
							Curtiss & Klemanski (2014)	Yes	151	Yes	38.0	NR	79.5	-.54	FFMQ- Nonjudging	AAQ-II
														.01	FFMQ- Nonjudging	DEERS- Awareness
.08	DEERS- Nonacceptance	FFMQ- Act with Aware.														
.39	FFMQ- Nonjudging	FFMQ- Act with Aware.														
.40	FFMQ- Nonjudging	ERQ- Reappraisal														
-.33	FFMQ- Nonjudging	ERQ- Suppression														
-.33	FFMQ- Nonjudging	PSWQ														
-.43	AAQ-II	FFMQ- Act with Aware.														
Das (2005)	No	314	No	38.7	100.0	71.7	.15	ERQ- Reappraisal	FFMQ- Act with Aware.							
							-.14	ERQ- Suppression	FFMQ- Act with Aware.							
							-.20	PSWQ	FFMQ- Act with Aware.							
							.18	COPE- Mental Disengag.	Brief COPE- Acceptance							
.25	COPE- Mental Disengag.	Brief COPE- Planning														

(table continues)

Table 2 (continued)

Authors (Year)	Published	N	Clinical sample	Age M	% Female	% White	r	Measure 1	Measure 2
							.19	COPE- Mental Disengag.	Brief COPE- Pos. Refram
							.31	Brief COPE- Planning	Brief COPE- Acceptance
							.35	Brief COPE- Pos. Refram	Brief COPE- Acceptance
							.51	Brief COPE- Pos. Refram	Brief COPE- Planning
Davey (1993a)	Yes	106	No	24.0	54.7	NR	.14	HDLF- Avoidance Coping	PSI- Problem Solving
							-.04	PSI- Problem Solving	HDLF- Active Cog Coping
Davey (1993b)	Yes	136	No	30.4	70.6	NR	-.10	HDLF- Active Cog Coping	PSWQ
							.08	HDLF- Active Cog Coping	WDQ
							.05	HDLF- Active Cog Coping	SWS
de Frias (2014)	Yes	89	No	64.1	NR	69.7	-.02	MAAS	ERQ- Reappraisal
							-.01	MAAS	ERQ- Suppression
							.12	ERQ- Reappraisal	ERQ- Suppression
De Jong-Meyer et al. (2009)	Yes	71	High risk	35.2	67.6	NR	.57	RSQ- Rumination	PSWQ
		86	No	29.6	56.9	NR	.61	RSQ- Rumination	PSWQ
de Lisle et al. (2014)	Yes	205	Yes	42.3	26.8	82.0	-.35	MAAS	WBSI
							.51	RRQ	WBSI
							-.30	RRQ	MAAS
Dennis (2007)	Yes	67	No	21.6	62.7	40.3	.20	ERQ- Reappraisal	ERQ- Suppression
Desrosiers et al. (2013)	Yes	187	Yes	38.0	64.6	78.8	.22	DERs- Nonacceptance	ERQ- Reappraisal
							-.40	DERs- Nonacceptance	RRS- Brooding
							-.26	DERs- Nonacceptance	PSWQ
							-.38	ERQ- Reappraisal	RRS- Brooding
							-.30	ERQ- Reappraisal	PSWQ
							.32	RRS- Brooding	PSWQ
De Vlieger et al. (2006)	Yes	185	Yes	53.7	63.2	NR	.15	PSI- Approach-Avoid	WDQ
D'Hudson & Saling (2010)	Yes	138	No	77.0	65.0	NR	.66	aRRS- Brooding	aRRS- Worry
Dickens et al. (2012)	Yes	190	No	62.5	50.0	NR	.64	AAQ	PSWQ
							.65	WBSI	PSWQ
Driscoll (2005)	No	303	No	NR	50.2	66.7	.41	CRSS- Distraction	CRSS- Rumination
Drwal (2008)	Yes	105	No	20.3	55.2	75.0	-.30	RSQ- Distraction	RSQ- Rumination
Dvorak et al. (2013)	Yes	313	High risk	19.9	61.3	89.8	.54	MEAQ- Behav. Avoid.	MEAQ- Distract/Suppres
							.57	MEAQ- Distress Aversion	MEAQ- Behav. Avoid.
							.51	MEAQ- Distress Aversion	MEAQ- Distract/Suppres
Dvorak et al. (2014)	Yes	1758	No	20.5	59.7	90.6	.09	DERs- Nonacceptance	DERs- Awareness
Eastabrook et al. (2014)	Yes	123	No	14.5	100.0	81.0	.31	ERQ- Reappraisal	DERs- Awareness
							-.19	ERQ- Reappraisal	ERQ- Suppression
							-.48	ERQ- Suppression	DERs- Awareness
Ehring & Quack (2010)	Yes	616	High risk	32.0	82.9	NR	-.61	DERs- Nonacceptance	AAQ
							.40	DERs- Nonacceptance	DERs- Awareness
							.25	DERs- Nonacceptance	ERQ- Reappraisal
							-.44	DERs- Nonacceptance	ERQ- Suppression
							-.41	AAQ	DERs- Awareness
							-.45	AAQ	ERQ- Reappraisal
							.40	AAQ	ERQ- Suppression
							.38	ERQ- Reappraisal	DERs- Awareness
							-.15	ERQ- Reappraisal	ERQ- Suppression
							-.46	ERQ- Suppression	DERs- Awareness
Erskine et al. (2007)	Yes	65	No	73.6	49.2	NR	.36	WBSI	Rumination Inventory
		84	No	20.4	82.1	NR	.50	WBSI	Rumination Inventory
Evans & Segerstrom (2011)	Yes	199	No	18.5	63.2	87.2	.39	FFMQ- Nonjudging	FFMQ- Act with Aware.
Feldman et al. (2007)	Yes	250	No	19.3	64.2	55.7	.32	CAMS-R- Acceptance	CAMS-R- Awareness
		298	No	18.7	60.5	55.7	.40	CAMS-R- Acceptance	CAMS-R- Awareness
Feldman et al. (2014)	Yes	96	No	20.5	100.0	76.0	-.50	FFMQ- Nonjudging	RSQ- Brooding
							.39	FFMQ- Act with Aware.	FFMQ- Nonjudging
							-.37	RSQ- Brooding	FFMQ- Act with Aware.
Fergus (2013)	Yes	410	No	32.9	55.4	78.8	.68	RRS- Brooding	PSWQ
Fergus et al. (2013)	Yes	141	Yes	29.1	56.7	92.2	.49	AAQ-II	PSWQ
Fernandez et al. (2010)	Yes	316	No	22.0	56.0	92.0	.42	FFMQ- Nonjudging	FFMQ- Act with Aware.
Field & Cartwright-Hatton (2008)	Yes	423	No	22.0	81.4	NR	.26	PSWQ	Rumination Inventory
Firfer (2006)	No	101	No	19.6	63.4	20.8	.07	RSQ-II- Rumination	RSQ-II- Distraction
Flett et al. (2011)	Yes	81	No	12.8	54.3	NR	.61	CRSQ- Rumination	PSWQ
Flouri & Mavroveli (2013)	Yes	159	No	14.3	58.5	88.0	.18	ERQ- Reappraisal	ERQ- Suppression
Flouri & Panourgia (2014)	Yes	557	No	13.5	49.0	56.0	.15	ERQ- Reappraisal	ERQ- Suppression

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Table 2 (continued)

Authors (Year)	Published	N	Clinical sample	Age M	% Female	% White	r	Measure 1	Measure 2
Flynn et al. (2010)	Yes	328	No	19.3	64.0	67.0	.01	DERS- Nonacceptance	ERQ- Reappraisal
							-.20	DERS- Nonacceptance	ERQ- Suppression
							.04	ERQ- Reappraisal	ERQ- Suppression
Fresco et al. (2002)	Yes	784	No	20.2	67.2	39.0	.46	RSQ- Dwell on Negative	PSWQ
Fresco et al. (2007)	Yes	61	No	19.8	55.7	88.0	-.02	AAQ	ERQ- Reappraisal
							.53	AAQ	RRS- Brooding
							.27	AAQ	ERQ- Suppression
							.14	ERQ- Reappraisal	RRS- Brooding
							.08	ERQ- Reappraisal	ERQ- Suppression
							.31	RRS- Brooding	ERQ- Suppression
Furr (2008)	No	119	No	20.0	68.1	23.4	-.25	MAAS	AAQ
							-.24	MAAS	PSWQ
							.50	PSWQ	AAQ
Gámez et al. (2011)	Yes	314	No	19.2	76.0	90.0	.41	CBAS- Behav. Avoidance	AAQ-II
							.34	CBAS- Behav. Avoidance	WBSI
							.41	MEAQ- Behav. Avoid.	AAQ
							.35	MEAQ- Behav. Avoid.	AAQ-II
							.30	MEAQ- Behav. Avoid.	WBSI
							.37	MEAQ- Distract/Suppres	AAQ
							.33	MEAQ- Distract/Suppres	AAQ-II
		201	Yes	41.6	73.0	89.0	.55	CBAS- Behav. Avoidance	AAQ-II
							.45	CBAS- Behav. Avoidance	WBSI
							.50	MEAQ- Behav. Avoid.	AAQ
							.40	MEAQ- Beh. Avoid.	AAQ-II
							.32	MEAQ- Beh. Avoid.	WBSI
							.43	MEAQ- Distract/Suppres	AAQ
							.23	MEAQ- Distract/Suppres	AAQ-II
Garland & Roberts-Lewis (2013)	Yes	125	Yes	38.7	8.0	39.6	-.55	FFMQ- Nonjudging	WBSI
							.39	FFMQ- Nonjudging	FFMQ- Act with Aware.
							-.49	WBSI	FFMQ- Act with Aware.
Garland et al. (2014)	Yes	165	Yes	36.7	14.6	43.6	.46	FFMQ- Nonjudging	FFMQ- Act with Aware.
							.13	FFMQ- Nonjudging	CERQ- Reappraisal
							.29	FFMQ- Act with Aware.	CERQ- Reappraisal
Geiger et al. (2013)	Yes	85	No	18.8	83.5	87.0	.64	WBSI	ARS
							.56	WBSI	RSQ- Rumination
Gerolimos & Edelstein (2012)	Yes	205	No	NR	NR	NR	.08	ERQ- Reappraisal	ERQ- Suppression
Gerzina & Porfeli (2012)	Yes	62	No	62.9	60.5	NR	.67	FMI	CERQ- Pos. Reappraisal
Goldstein (2001)	No	52	No	NR	100.0	NR	-.02	RSQ- Rumination	RSQ- Distraction
		49	No	NR	0.0	NR	.09	RSQ- Rumination	RSQ- Distraction
Goodall et al. (2012)	Yes	194	No	26.6	84.0	NR	.58	DERS- Nonacceptance	DERS- Awareness
							.19	FFMQ- Nonjudging	DERS- Awareness
							.30	DERS- Nonacceptance	FFMQ- Act with Aware.
							.30	FFMQ- Nonjudging	FFMQ- Act with Aware.
Goring & Papageorgiou (2008)	Yes	216	Yes	36.5	84.7	94.4	.50	RRS	PSWQ
Gorski & Young (2002)	Yes	121	No	17.6	58.7	81.0	.12	RSQ- Distraction	RSQ- Rumination
Gortner (2005)	No	97	No	19	72.2	77.3	-.29	ERQ- Reappraisal	ERQ- Suppression
							-.06	RRS	ERQ- Reappraisal
							.07	RRS	ERQ- Suppression
Gousse (2011)	No	145	No	NR	100	88.3	-.58	AAQ	KIMS- Acceptance
							-.07	AAQ	KIMS- Act with Aware.
		171	No	NR	100	NR	-.60	MAAS	AAQ
Gratz & Roemer (2004)	Yes	357	No	23.1	73	65	-.39	DERS- Nonacceptance	AAQ
							.14	DERS- Nonacceptance	DERS- Awareness
							-.32	AAQ	DERS- Awareness
Gresham & Gullone (2012)	Yes	682	No	13.6	55.1	NR	-.12	ERQ- Reappraisal	ERQ- Suppression
Gross & John (2003)	Yes	145	No	20	73	NR	-.29	ERQ- Reappraisal	RRS
							-.03	ERQ- Reappraisal	RSQ- Rumination
							-.13	COPE- Reinterpretation	ERQ- Suppression
							.43	COPE- Reinterpretation	ERQ- Reappraisal
							.19	RRS	ERQ- Suppression
							.18	RSQ- Rumination	ERQ- Suppression
		240	No	20.0	50.0	56.0	-.04	ERQ- Reappraisal	ERQ- Suppression
		336	No	20.0	63.0	33.0	.01	ERQ- Reappraisal	ERQ- Suppression
		791	No	20.0	67.0	28.0	.06	ERQ- Reappraisal	ERQ- Suppression
		116	No	18.0	64.0	55.0	-.06	ERQ- Reappraisal	ERQ- Suppression
Gruber et al. (2008)	Yes	60	Yes	41.9	61.4	76.7	.62	Global Rumination Scale	PSWQ
Hawley et al. (2014)	Yes	32	Yes	44.1	60.0	83.3	-.02	RSQ- Rumination	RSQ- Distraction
Hertel & Gerstle (2003)	Yes	32	Mixed	NR	NR	NR	.46	WBSI	RRS
Herzberg et al. (2012)	Yes	432	No	19.4	51.9	73.2	-.24	AAQ	MAAS
							-.17	WBSI	MAAS
							.42	AAQ	PSWQ

(table continues)

Table 2 (continued)

Authors (Year)	Published	N	Clinical sample	Age M	% Female	% White	r	Measure 1	Measure 2
							.43	WBSI	PSWQ
		503	Yes	38.1	78.3	86.5	-.17	MAAS	PSWQ
							-.37	AAQ	MAAS
							-.39	WBSI	MAAS
							.52	AAQ	PSWQ
							.47	WBSI	PSWQ
							-.37	MAAS	PSWQ
Hill & Davis (2014)	Yes	227	No	23.9	25.6	NR	.09	ERQ- Reappraisal	ERQ- Suppression
Hilt et al. (2010)	Yes	722	No	NR	NR	13.2	.51	CRSQ- Distraction	CRSQ- Problem Solving
							.23	CRSQ- Distraction	CRSQ- Rumination
							.38	CRSQ- Problem Solving	CRSQ- Rumination
Hinterman et al. (2012)	Yes	232	No	19.6	48.7	89.8	.28	KIMS- Acceptance	KIMS- Act with Aware.
Hofmann & Kashdan (2010)	Yes	434	No	19.2	67.0	68.1	-.05	Brief COPE- Acceptance	ASQ- Tolerating
							-.31	DERS- Nonacceptance	ASQ- Tolerating
							-.02	Brief COPE- Acceptance	ASQ- Concealing
							-.10	DERS- Nonacceptance	ASQ- Concealing
							-.22	ASQ- Tolerating	AAQ-II
							.46	ASQ- Tolerating	DERS- Awareness
							.04	ASQ- Tolerating	Brief COPE- Planning
							.09	ASQ- Tolerating	ERQ- Reappraisal
							.14	ASQ- Tolerating	Brief COPE- Pos. Refram
							-.08	ASQ- Tolerating	ASQ- Concealing
							-.34	ASQ- Tolerating	ERQ- Suppression
							.05	AAQ-II	ASQ- Concealing
							-.15	DERS- Awareness	ASQ- Concealing
							-.02	Brief COPE- Planning	ASQ- Concealing
							.13	ERQ- Reappraisal	ASQ- Concealing
							.04	Brief COPE- Pos. Refram	ASQ- Concealing
		495	No	22.0	78.0	54.5	-.01	Brief COPE- Acceptance	ASQ- Tolerating
							-.15	DERS- Nonacceptance	ASQ- Tolerating
							-.07	Brief COPE- Acceptance	ASQ- Concealing
							-.12	DERS- Nonacceptance	ASQ- Concealing
							-.18	ASQ- Tolerating	AAQ-II
							.39	ASQ- Tolerating	DERS- Awareness
							.11	ASQ- Tolerating	Brief COPE- Planning
							.14	ASQ- Tolerating	ERQ- Reappraisal
							.07	ASQ- Tolerating	Brief COPE- Pos. Refram
							-.03	ASQ- Tolerating	ASQ- Concealing
							-.32	ASQ- Tolerating	ERQ- Suppression
							.03	AAQ-II	ASQ- Concealing
							-.20	DERS- Awareness	ASQ- Concealing
							-.07	Brief COPE- Planning	ASQ- Concealing
							.14	ERQ- Reappraisal	ASQ- Concealing
							.04	Brief COPE- Pos. Refram	ASQ- Concealing
Holt (2013)	No	63	No	38.3	72.7	68.2	-.29	MAAS	RRS
Hong (2007)	Yes	241	No	20.1	75.1	NR	-.30	COPE- Mental Disengag.	COPE- Problem Solving
							.36	COPE- Mental Disengag.	RRS
							-.24	COPE- Mental Disengag.	PSWQ
							-.06	COPE- Problem Solving	RRS
							-.15	COPE- Problem Solving	PSWQ
							.42	RRS	PSWQ
Hong (2013)	Yes	140	No	21.4	60.0	NR	.38	PSWQ	RRS
		195	No	19.8	71.8	NR	.38	PSWQ	RRS
Hood (2006)	No	118	No	NR	NR	NR	.45	RSQ- Rumination	RSQ- Distraction
Hoopes (2009)	No	261	No	21.5	56.7	57.9	.30	FFMQ- Nonjudging	FFMQ- Act with Aware.
Hotovy (1997)	No	62	No	21.9	51.6	NR	.54	RSQ- Distraction	COPE- Acceptance
							-.09	RSQ- Rumination	COPE- Acceptance
							.11	RSQ- Rumination	RSQ- Distraction
Hsu et al. (2013)	Yes	168	Yes	40.5	36.3	53.6	.41	DTS	FFMQ- Nonjudging
							.42	DTS	FFMQ- Act with Aware.
Huang et al. (2009)	Yes	119	No	20	74.0	63.0	-.55	DTS	PSWQ
Hughes et al. (2008)	Yes	364	No	19.5	72.0	49.0	.59	RSQ- Rumination	PSWQ
Hughes et al. (2011)	Yes	340	Mixed	12.3	62.9	NR	.00	ERQ-CA- Reappraisal	ERQ-CA- Suppression
Hwang (2006)	No	307	No	20	71.0	39.0	.66	COPE- Reinterp. Growth	COPE- Planning
Iverson et al. (2012)	Yes	40	Yes	20.8	80.0	77.5	-.74	DTS	AAQ-II
Jaffe et al. (2010)	Yes	293	No	10.8	53.9	NR	.06	ERQ- Reappraisal	ERQ- Suppression
Jimenez (2008)	No	514	No	18.8	61.9	83.6	-.16	RRS- Brooding	FMI
Joormann & Gotlib (2010)	Yes	47	Yes	35.9	63.8	86	-.32	ERQ- Reappraisal	ERQ- Suppression
		101	No	NR	60.4	NR	.23	RRS	ERQ- Suppression
Jose & Schurer (2010)	Yes	102	No	14.3	57.8	0.0	.50	CSS- Problem Solving	CSS- Rumination
		232	No	14.3	61.2	100.0	.57	CSS- Problem Solving	CSS- Rumination

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Table 2 (continued)

Authors (Year)	Published	N	Clinical sample	Age M	% Female	% White	r	Measure 1	Measure 2
Judah et al. (2014)	Yes	232	No	14.3	56.0	0.0	.51	CSS- Problem Solving	CSS- Rumination
		58	No	19.7	69.0	65.5	.02	TCQ- Distraction	TCQ- Reappraisal
							-.21	TCQ- Distraction	TCQ- Worry
							.21	TCQ- Worry	TCQ- Reappraisal
Kahan & Sullivan (2012)	Yes	184	No	19.5	65.2	NR	.30	KIMS- Acceptance	KIMS- Act with Aware.
Kashdan et al. (2006)	Yes	382	No	18.9	47.1	64.9	.32	CSQ- Avoidance	AAQ-II
							.54	CSQ- Avoidance	CSQ- Rational
							-.24	AAQ-II	CSQ- Rational
		97	No	19.8	65.9	76.0	-.19	AAQ-II	ERQ- Reappraisal
							.28	AAQ-II	ERQ- Suppression
							.03	ERQ- Reappraisal	ERQ- Suppression
Kashdan et al. (2008)	Yes	248	No	22.4	54.8	93.1	-.46	DERS- Nonacceptance	PSWQ
Keough et al. (2010)	Yes	418	No	18.8	71.0	69.4	-.56	DTS	PSWQ
Khalsa (1998)	No	279	No	19.8	54.6	88.0	.11	RSQ- Distraction	RSQ- Rumination
							.36	SPSI-R-PPO	RSQ- Distraction
							.35	SPSI-R-RPS	RSQ- Distraction
							-.22	SPSI-R-PPO	RSQ- Rumination
							.04	SPSI-R-RPS	RSQ- Rumination
Kim (2011)	No	91	No	45.2	58.2	76.4	.59	FFMQ- Act with Aware.	FFMQ- Nonjudging
Krause et al. (2003)	Yes	127	No	20.0	61.0	76.0	.28	CSQ- Avoidant Coping	WBSI
Kwon et al. (2013)	Yes	384	No	18.8	66.1	58.4	-.01	ERQ- Reappraisal	RRS- Brooding
							.07	ERQ- Reappraisal	ERQ- Suppression
							.23	RRS- Brooding	ERQ- Suppression
							.20	ERQ- Reappraisal	ERQ- Suppression
							.00	ERQ- Reappraisal	ERQ- Suppression
Lam et al. (2009)	Yes	128	No	20.3	72.7	17.0	.20	ERQ- Reappraisal	ERQ- Suppression
Land et al. (2011)	Yes	266	No	20.9	0.0	54.5	.00	ERQ- Reappraisal	ERQ- Suppression
Lantaigne et al. (2014)	Yes	49	No	14.4	100.0	77.6	-.31	ERQ- Reappraisal	ERQ- Suppression
Latzman & Masuda (2013)	Yes	429	No	21.3	79.7	35.0	-.14	MAAS	AAQ-II
Lavender et al. (2011)	Yes	276	No	20.3	100.0	61.2	.03	FFMQ- Nonjudging	FFMQ- Act with Aware.
Lecce (2008)	No	213	No	37.1	70.4	86.0	.13	DERS- Nonacceptance	CERQ- Reappraisal
Lee et al. (2010)	Yes	66	Mixed	31.9	61.0	91.0	.87	AAQ-II	PSWQ
Lee et al. (2015)	Yes	213	High risk	20.8	78.0	91.0	-.75	KIMS- Acceptance	AAQ
							-.68	KIMS- Acceptance	WBSI
							.19	KIMS- Acceptance	ERQ- Reappraisal
							-.67	KIMS- Acceptance	RRS- Brooding
							-.57	KIMS- Acceptance	ERQ- Suppression
							-.15	AAQ-II	ERQ- Reappraisal
							.12	WBSI	ERQ- Reappraisal
							.78	AAQ-II	RRS- Brooding
							.70	WBSI	RRS- Brooding
							.52	ERQ- Suppression	AAQ-II
							.40	ERQ- Suppression	WBSI
							-.10	RRS- Brooding	ERQ- Reappraisal
							.19	ERQ- Suppression	ERQ- Reappraisal
Linden et al. (2003)	Yes	400	No	NR	NR	NR	-.11	BARQ- Avoidance	BARQ- Rumination
		110	No	20	72.7	NR	-.26	BARQ- Avoidance	BARQ- Rumination
		107	No	35	57.0	NR	.12	BARQ- Avoidance	BARQ- Rumination
Liu et al. (2010)	Yes	212	No	39	50.0	73.0	.28	ERQ- Reappraisal	ERQ- Suppression
		140	No	47	87.1	88.0	.11	ERQ- Reappraisal	ERQ- Suppression
Liverant et al. (2011)	Yes	60	Yes	34.6	66.7	85.0	-.26	DERS- Nonacceptance	WBSI
							-.55	DERS- Nonacceptance	RSS- Rumination
							.37	WBSI	RSS- Rumination
Llewellyn et al. (2013)	Yes	69	No	22.9	0.0	NR	-.06	ERQ- Reappraisal	ERQ- Suppression
		110	No	22.7	100.0	NR	-.12	ERQ- Reappraisal	ERQ- Suppression
Lloyd & Hastings (2008)	Yes	91	No	41.6	100.0	NR	-.18	AAQ	MAAS
Lougheed & Hollenstein (2012)	Yes	177	No	13.6	52.0	75.0	.07	ERQ- Reappraisal	ASQ- Concealing
							.11	ERQ- Reappraisal	ERQ- Suppression
Luberto et al. (2011)	Yes	90	No	26.6	48.0	93.3	.40	KIMS- Acceptance	KIMS- Act with Aware.
Luberto et al. (2014)	Yes	125	No	37.5	29.6	70.0	.60	KIMS- Acceptance	DTS
							.38	KIMS- Act with Aware.	KIMS- Acceptance
							.45	KIMS- Act with Aware.	DTS
MacKenzie & Kocovski (2010)	Yes	339	No	18.9	81.2	84.8	-.59	FFMQ- Nonjudging	AAQ-II
							.52	FFMQ- Nonjudging	FFMQ- Act with Aware.
							.47	FFMQ- Nonjudging	MAAS
							-.41	AAQ-II	MAAS
							-.39	FFMQ- Act with Aware.	AAQ-II
							-.29	DTS	RRS- Brooding
Magidson et al. (2013)	Yes	128	Yes	43	43.7	3.1	.22	AAQ	PSWQ
Mance (2007)	No	122	No	22.3	73.1	10.0	.22	AAQ	PSWQ
Manfredi et al. (2011)	Yes	307	No	33.9	52.8	95.0	.57	RRS- Brooding	PSWQ
Manicavasagar et al. (2012)	Yes	45	Yes	46.0	64.0	NR	-.17	MAAS	RRS- Brooding
Marks et al. (2010)	Yes	317	No	16.1	51.4	NR	-.60	MAAS	RTSQ
Martin & Dahlen (2007)	Yes	205	No	20.0	70.7	55.1	-.05	BARQ- Avoidance	BARQ- Rumination
Martin et al. (2014)	Yes	48	No	20.6	0.0	59.1	.07	KIMS- Act with Aware.	KIMS- Acceptance
		62	No	20.6	100.0	59.1	.31	KIMS- Act with Aware.	KIMS- Acceptance
Masuda et al. (2009)	Yes	301	No	20.8	88.7	0.0	-.44	MAAS	AAQ
Masuda et al. (2012)	Yes	278	No	19.7	74.8	41.0	-.37	AAQ	MAAS

(table continues)

Table 2 (continued)

Authors (Year)	Published	N	Clinical sample	Age M	% Female	% White	r	Measure 1	Measure 2
Masuda & Tully (2012)	Yes	494	No	19.6	76.0	40.0	-.39	AAQ	MAAS
Mathew et al. (2010)	Yes	39	Yes	NR	76.9	NR	-.72	MAAS	RSS- Rumination
Matsumoto et al. (2008)	Yes	246	No	21.8	53.7	NR	.15	ERQ- Reappraisal	ERQ- Suppression
		61	No	23.9	54.1	NR	.02	ERQ- Reappraisal	ERQ- Suppression
		90	No	19.4	53.3	NR	-.08	ERQ- Reappraisal	ERQ- Suppression
		73	No	22.2	50.7	NR	.29	ERQ- Reappraisal	ERQ- Suppression
		121	No	19.2	52.1	NR	-.04	ERQ- Reappraisal	ERQ- Suppression
		458	No	23.3	63.4	NR	.14	ERQ- Reappraisal	ERQ- Suppression
		112	No	22.8	81.3	NR	-.07	ERQ- Reappraisal	ERQ- Suppression
		202	No	NR	51.9	NR	.90	ERQ- Reappraisal	ERQ- Suppression
Maugherman (1999)	No	84	No	23.1	100.0	95.0	.44	PSI	RSQ- Rumination
McCaughy (2009)	No	360	No	20.8	70.3	70.8	.10	ERQ- Reappraisal	ERQ- Suppression
McCracken & Zhao-O'Brien (2010)	Yes	144	Yes	42.4	63.9	96.5	-.53	AAQ-II	MAAS
McCracken et al. (2014)	Yes	346	No	47.3	66.9	72.3	.66	EQ	AAQ
McEvoy & Brans (2013)	Yes	450	Yes	37.2	53.8	NR	.38	RRS- Brooding	PSWQ
McHugh et al. (2013)	Yes	300	No	35.6	75.0	82.0	-.69	DII	AAQ
		100	Yes	31.4	62.0	90.0	-.67	DII	AAQ
McKay & Greisberg (2002)	Yes	118	No	19.1	69.5	NA	-.07	PSWQ	TCQ- Distraction
							.54	PSWQ	WBSI
							.24	PSWQ	TCQ- Reappraisal
							.32	KIMS- Acceptance	KIMS- Act with Aware.
McKee et al. (2007)	Yes	154	No	22.4	57.1	94.0	.32	KIMS- Acceptance	KIMS- Act with Aware.
Melka et al. (2011)	Yes	1188	No	19.2	54.9	60.9	.10	ERQ- Reappraisal	ERQ- Suppression
Memedovic et al. (2010)	Yes	50	No	21	100.0	30.0	-.10	ERQ- Reappraisal	ERQ- Suppression
Mennin et al. (2009)	Yes	113	Mixed	21.3	65.5	54.9	.28	DERS- Nonacceptance	DERS- Awareness
Mitchell et al. (2012)	Yes	196	No	19.9	87.8	NR	.43	RRS	PSWQ
Moore et al. (2008)	Yes	289	No	19.1	100.0	30.0	.08	ERQ- Reappraisal	RRS
							.10	ERQ- Reappraisal	ERQ- Suppression
							.14	RRS	ERQ- Suppression
							-.08	ERQ- Reappraisal	RRS
							.03	ERQ- Reappraisal	ERQ- Suppression
							.28	RRS	ERQ- Suppression
							.09	RSQ- Brooding	RSQ- Distraction
							.60	CBAS- Behav. Nonsocial	CBAS- Cog. Nonsocial
							.48	CBAS- Behav. Nonsocial	CBAS- Cog Social
							.36	CBAS- Behav. Social	CBAS- Cog Nonsocial
.35	CBAS- Behav. Social	CBAS- Cog Social							
.33	CBAS- Behav. Nonsocial	RRS- Brooding							
.32	CBAS- Behav. Social	RRS- Brooding							
.19	CBAS- Behav. Nonsocial	RRS- Brooding							
.20	CBAS- Behav. Social	RRS- Brooding							
.22	CBAS- Behav. Social	CBAS- Cog. Nonsocial							
.37	CBAS- Behav. Social	CBAS- Cog. Social							
.55	CBAS- Behav. Nonsocial	CBAS- Cog. Nonsocial							
.53	CBAS- Behav. Nonsocial	CBAS- Cog. Social							
.25	CBAS- Behav. Nonsocial	RRS- Brooding							
.41	CBAS- Behav. Social	RRS- Brooding							
.32	CBAS- Cog. Nonsocial	RRS- Brooding							
.20	CBAS- Cog. Social	RRS- Brooding							
Naragon-Gainey (2015)	No	314	No	19.3	40.6	51.1	-.32	DERS- Nonacceptance	MEAQ- Behav. Avoid.
							-.23	DERS- Nonacceptance	MEAQ- Dist. Aversion
							.09	DERS- Nonacceptance	ERQ- Reappraisal
							-.49	DERS- Nonacceptance	RRS- Brooding
							-.12	DERS- Nonacceptance	ERQ- Suppression
							.71	MEAQ- Behav. Avoid.	MEAQ- Dist. Aversion
							-.10	MEAQ- Behav. Avoid.	ERQ- Reappraisal
							.34	MEAQ- Behav. Avoid.	RRS- Brooding
							.26	MEAQ- Behav. Avoid.	ERQ- Suppression
							.21	MEAQ- Distraction	ERQ- Suppression
							-.03	MEAQ- Distress	ERQ- Reappraisal
								Aversion	
							.39	MEAQ- Distress	RRS- Brooding
								Aversion	
							.11	MEAQ- Distress	ERQ- Suppression
	Aversion								
-.13	ERQ- Reappraisal	RRS- Brooding							
.11	ERQ- Reappraisal	ERQ- Suppression							
.00	RRS- Brooding	ERQ- Suppression							
.48	RRS-10	PSWQ							
Nikčević et al. (2014)	Yes	273	No	22.2	79.1	62.6	-.57	DTS	PSWQ
							-.65	DTS	PSWQ
Norr et al. (2013)	Yes	217	No	18.9	69.1	80.0	-.57	DTS	PSWQ
Norr et al. (2014)	Yes	104	No	18.9	83.7	81.7	-.65	DTS	PSWQ
Ottenbreit et al. (2014)	Yes	60	Yes	42.1	100.0	95.0	.33	RRS- Brooding	CBAS- Behav. Nonsocial
							.25	RRS- Brooding	CBAS- Behav. Social
							.37	RRS- Brooding	CBAS- Cog. Nonsocial

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Table 2 (continued)

Authors (Year)	Published	N	Clinical sample	Age M	% Female	% White	r	Measure 1	Measure 2
Pakenham & Samios (2013)	Yes	69	No	42.1	78.0	NR	.12	RRS- Brooding	CBAS- Cog. Social
Palm & Strong (2007)	Yes	248	No	22.6	100.0	74.6	-.31	AAQ	MAAS
							.54	WBSI	PSWQ
							.58	WBSI	AAQ
Pang et al. (2013)	Yes	217	Yes	44.0	64.5	NR	-.08	COPE- Disengagement	COPE- Acceptance
							.37	COPE- Active Planning	COPE- Acceptance
							-.35	COPE- Active Planning	COPE- Disengagement
Pearson et al. (2015)	Yes	1277	No	21.3	68.4	50.5	-.25	PSWQ	MAAS
Pepping et al. (2014)	Yes	290	High risk	21.7	73.1	NR	.47	FFMQ- Act with Aware.	FFMQ- Nonjudging
Perez et al. (2012)	Yes	218	Yes	15.9	58.7	90.8	.31	DERs- Nonacceptance	DERs- Awareness
Perini et al. (2006)	Yes	60	Mixed	34.6	53.3	NR	.70	RRS	WBSI
							.74	RRS	PSWQ
							.72	PSWQ	WBSI
Peters et al. (2013)	Yes	223	No	19.0	66.5	84.1	-.42	FFMQ- Nonjudging	ARS
							.50	FFMQ- Awareness	FFMQ- Nonjudging
							-.24	FFMQ- Awareness	ARS
Pietrzak et al. (2011)	Yes	167	Mixed	29.4	4.2	63.5	-.01	CBAS- Behav. Nonsocial	TCQ- Behav. Distraction
							.08	CBAS- Behav. Social	TCQ- Behav. Distraction
							-.16	CBAS- Behav. Nonsocial	TCQ- Cog. Distraction
							-.09	CBAS- Behav. Social	TCQ- Cog. Distraction
							.76	CBAS- Behav. Social	CBAS- Cog. Social
							.76	CBAS- Behav. Nonsocial	CBAS- Cog. Social
							.75	CBAS- Behav. Social	CBAS- Cog. Nonsocial
							.81	CBAS- Behav. Nonsocial	CBAS- Cog. Nonsocial
							-.07	CBAS- Behav. Nonsocial	TCQ- Reappraisal
							.05	CBAS- Behav. Social	TCQ- Reappraisal
							.54	CBAS- Behav. Nonsocial	TCQ- Worry
							.42	CBAS- Behav. Social	TCQ- Worry
							.00	TCQ- Behav. Distraction	CBAS- Cog. Nonsocial
							.00	TCQ- Behav. Distraction	CBAS- Cog. Social
							-.15	TCQ- Cog. Distraction	CBAS- Cog. Nonsocial
							-.16	TCQ- Cog. Distraction	CBAS- Cog. Social
							-.02	CBAS- Cog. Nonsocial	TCQ- Reappraisal
							-.06	CBAS- Cog. Social	TCQ- Reappraisal
							.56	CBAS- Cog. Nonsocial	TCQ- Worry
							.56	CBAS- Cog. Social	TCQ- Worry
							.18	TCQ- Reappraisal	TCQ- Worry
Purdon & Clark (1994)	Yes	160	No	19.8	53.1	NR	.49	WBSI	PSWQ
Raza (2013)	No	509	No	19.6	67.0	66.0	.53	RRS	PSWQ
Reber et al. (2013)	Yes	50	High risk	44.6	2.0	53.0	.37	KIMS- Acceptance	ERQ- Reappraisal
Rector et al. (2008)	Yes	448	No	22.6	84.0	NR	-.17	RSQ- Distraction	RSQ- Rumination
							-.34	RSQ- Distraction	PSWQ
							.58	RSQ- Rumination	PSWQ
Rewston et al. (2007)	Yes	30	Yes	76.0	62.0	NR	.22	aRRS- Brooding	PSWQ
Reynolds & Wells (1999)	Yes	124	Yes	NR	55.7	NR	.22	TCQ- Distraction	TCQ- Reappraisal
							-.07	TCQ- Distraction	TCQ- Worry
							.32	TCQ- Reappraisal	TCQ- Worry
Richards & Gross (2000)	Yes	86	No	19.8	69.0	45.0	.09	ERQ- Reappraisal	ERQ- Suppression
Riley (2014)	Yes	103	Yes	42.0	50.5	96.0	-.51	AAQ-II	MAAS
							.48	WBSI	MAAS
Ritschel (2006)	No	56	Yes	36.8	58.9	83.9	-.52	MAAS	RSQ
Robichaud et al. (2003)	Yes	100	No	22.9	0.0	NR	.44	WBSI	PSWQ
		217	No	22.1	100.0	NR	.49	WBSI	PSWQ
Robins et al. (2012)	Yes	56	No	46.3	84.0	91.0	.35	RRS	PSWQ
Rosenthal, Cheavens, et al. (2006)	Yes	14	No	25.0	100.0	81.4	.53	WBSI	TCQ- Worry
Rosenthal, Cukrowicz, et al. (2006)	Yes	184	Yes	40.4	66.8	72.8	.12	TCQ- Distraction	TCQ- Reappraisal
							-.10	TCQ- Distraction	TCQ- Worry
							.01	TCQ- Reappraisal	TCQ- Worry
Rude et al. (2007)	Yes	232	No	21.0	62.5	57.8	-.06	COPE- Acceptance	RRS- Brooding
							.27	COPE- Mental Disengag.	RRS- Brooding
							.54	WBSI	RRS- Brooding
Rusk et al. (2011)	Yes	62	No	NR	56.5	NR	.42	WBSI	RSQ
		93	No	19.5	52.7	NR	-.07	WBSI	ERQ- Reappraisal
							.38	WBSI	RSQ
							-.06	ERQ- Reappraisal	RSQ
Salsman & Linehan (2012)	Yes	456	No	20.0	61.0	70.0	.02	DERs- Nonacceptance	ERQ- Reappraisal
							.11	DERs- Awareness	DERs- Nonacceptance
							.28	ERQ- Reappraisal	DERs- Awareness
							-.20	ERQ- Suppression	DERs- Nonacceptance
							-.45	ERQ- Suppression	DERs- Awareness
							.07	ERQ- Suppression	ERQ- Reappraisal
Salters-Pedneault et al. (2006)	Yes	325	No	23.8	58.5	50.8	-.42	DERs- Nonacceptance	PSWQ
							-.09	DERs- Awareness	PSWQ

(table continues)



Table 2 (continued)

Authors (Year)	Published	N	Clinical sample	Age M	% Female	% White	r	Measure 1	Measure 2
Santanello & Gardner (2007)	Yes	125	No	20.1	51.2	84.0	.46	AAQ	PSWQ
Santos (2007)	No	101	No	21.7	52.8	70.3	-.61	KIMS- Acceptance	LESS- Rumination
		40	No	NR	NR	NR	-.44	RRS	KIMS- Acceptance
Schmaling et al. (2002)	Yes	92	Yes	42.8	60.9	88.0	.50	RSQ-SF- Distraction	RSQ-SF- Rumination
Schmalz & Murrell (2010)	Yes	487	No	20.6	NR	61.6	-.57	KIMS- Acceptance	AAQ-II
							-.55	KIMS- Acceptance	AFQ-Y
Schutte et al. (2009)	Yes	73	No	45.2	60.3	NR	-.16	ERQ- Reappraisal	ERQ- Suppression
Schwartz & Koenig (1996)	Yes	397	No	15.9	61.7	91.0	.09	RSQ- Distraction	RSQ- Rumination
Scott & McIntosh (1999)	Yes	140	No	NR	NR	NR	.36	SMRI	PSWQ
							.42	SMRI	WDQ
Seegerstrom et al. (2000)	Yes	110	No	20.0	66.0	44.0	.52	GRS	PSWQ
		40	Yes	40.0	72.0	87.0	.40	RRS	PSWQ
							.55	GRS	PSWQ
							.32	RRS	PSWQ
Selby et al. (2008)	Yes	200	No	18.6	68.5	68.0	-.19	CERQ- Acceptance	ARS
							-.39	CERQ- Acceptance	CERQ- Rumination
							.69	CERQ- Refocus on Plan	CERQ- Pos. Reappraisal
							-.11	ARS	CERQ- Refocus on Plan
							.19	CERQ- Rumination	CERQ- Refocus on Plan
							-.14	ARS	CERQ- Pos. Reappraisal
							.02	CERQ- Rumination	CERQ- Pos. Reappraisal
Seriki (2010)	No	184	No	19.3	55.0	82.0	.01	DERS- Nonacceptance	WBSI
							.18	DERS- Nonacceptance	MAAS
							.05	DERS- Nonacceptance	Anger Rumination Scale
							.02	DERS- Nonacceptance	RSQ- Brooding
							.01	DERS- Nonacceptance	RSS
							-.34	WBSI	MAAS
							.43	ARS	WBSI
							.38	RSQ- Brooding	WBSI
							.40	RSS	WBSI
							-.30	RSQ- Brooding	MAAS
							-.29	RSS	MAAS
							-.37	ARS	MAAS
Sexton & Dugas (2008)	Yes	456	No	23.1	65.3	67.8	.68	CAQ- Avoidance	CAQ- Distraction
							.73	CAQ- Suppression	CAQ- Avoidance
							.71	CAQ- Suppression	CAQ- Distraction
							.54	PSWQ	WBSI
Short & Mazmanian (2013)	Yes	213	No	25.0	83.1	89.7	-.55	FFMQ- Nonjudging	RRS- Brooding
							-.53	FFMQ- Nonjudging	PSWQ
							-.45	FFMQ- Act with Aware.	RRS- Brooding
							-.41	FFMQ- Act with Aware.	PSWQ
							.49	RRS- Brooding	PSWQ
Shusterman et al. (2009)	Yes	1337	Mixed	33.8	91.4	86.5	.58	AAQ	PSWQ
Siegle et al. (2004)	Yes	349	No	18.1	63.0	58.1	.34	RSQ- Rumination	TCQ- Reappraisal
							.12	TCQ- Reappraisal	RRQ- Rumination
							.04	TCQ- Reappraisal	PSWQ
							.29	TCQ- Reappraisal	TCQ- Worry
							.62	RRQ- Rumination	PSWQ
							.21	RRQ- Rumination	TCQ- Worry
							.44	RSQ- Rumination	PSWQ
							.32	RSQ- Rumination	TCQ- Worry
Silberstein et al. (2012)	Yes	107	Yes	36.0	48.6	NR	-.39	LESS- Acceptance	AAQ-II
							.39	LESS- Acceptance	MAAS
							-.56	AAQ-II	MAAS
							.47	AAQ-II	LESS- Rumination
							-.27	MAAS	LESS- Rumination
Simon et al. (2007)	Yes	98	Yes	44.8	57.1	95.9	.43	RRS- Brooding	PSWQ
Sirois & Tosti (2012)	Yes	339	No	21.7	81.7	NR	.45	MAAS	KIMS- Acceptance
Sorg et al. (2012)	Yes	506	No	21.1	88.8	71.5	.53	RRS- Brooding	PSWQ
Spaapen et al. (2014)	Yes	1033	No	39.1	72.4	94	-.09	ERQ- Reappraisal	ERQ- Suppression
Starr & Davila (2012)	Yes	112	No	20.6	67.9	43.8	-.47	DTS	PSWQ
Stavosky (1993)	No	516	No	NR	70.4	NR	-.06	PSI- Approach-Avoid	PSWQ
Sumida (2010)	No	1063	No	20.7	60.6	92.9	.04	DERS- Nonacceptance	DERS- Act with Aware.
							.24	CERQ- Acceptance	CERQ- Planning
							.05	DERS- Nonacceptance	CERQ- Planning
							.23	CERQ- Acceptance	CERQ- Pos. Reappraisal
							.11	DERS- Nonacceptance	CERQ- Pos. Reappraisal
							-.43	CERQ- Acceptance	CERQ- Rumination
							-.33	DERS- Nonacceptance	CERQ- Rumination
							.18	DERS- Act with Aware.	CERQ- Acceptance
							.50	DERS- Act with Aware.	CERQ- Planning
							.44	DERS- Act with Aware.	CERQ- Pos. Reappraisal
							-.43	DERS- Act with Aware.	CERQ- Rumination
							.73	CERQ- Planning	CERQ- Pos. Reappraisal
							.29	CERQ- Rumination	CERQ- Planning

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Table 2 (continued)

Authors (Year)	Published	N	Clinical sample	Age M	% Female	% White	r	Measure 1	Measure 2
Swartz & McElwain (2012)	Yes	24	No	21.4	100.0	75.0	.19	CERQ- Rumination	CERQ- Pos. Reappraisal
Szwedo (2012)	No	184	No	NR	NR	58.0	.05	ERQ- Reappraisal	ERQ- Suppression
							.13	COPE- Mental Disengag.	COPE- Acceptance
							.40	COPE- Planning	COPE- Acceptance
							.50	COPE- Pos. Reinterpret.	COPE- Acceptance
							.08	COPE- Planning	COPE- Mental Disengag.
							.16	COPE- Pos. Reinterpret.	COPE- Mental Disengag.
							.58	COPE- Planning	COPE- Pos. Reinterpret.
Tamagawa et al. (2013)	Yes	227	Yes	54.6	100.0	NR	-.24	MAAS	CECS
Tanner et al. (2009)	Yes	142	No	26.4	61.0	68.0	.32	KIMS- Acceptance	KIMS- Act with Aware.
		145	No	26.4	61.0	61.0	.40	KIMS- Acceptance	KIMS- Act with Aware.
Thompson & Waltz (2010)	Yes	378	No	19.6	70.6	NR	-.57	FFMQ- Nonjudging	AAQ
							-.52	FFMQ- Nonjudging	WBSI
							.33	FFMQ- Nonjudging	FFMQ- Act with Aware.
							-.48	AAQ	FFMQ- Act with Aware.
							-.44	WBSI	FFMQ- Act with Aware.
Taylor et al. (2009)	Yes	150	No	31.1	54.0	NR	.31	TCQ- Distraction	TCQ- Worry
Traylor (2012)	No	102	No	NR	78.4	80.0	-.02	ERQ- Reappraisal	ERQ- Suppression
Tull & Roemer (2007)	Yes	91	High risk	23.6	79.1	54.9	-.44	DERS- Nonacceptance	AAQ
							.20	DERS- Nonacceptance	DERS- Awareness
							-.33	AAQ	DERS- Awareness
Tull et al. (2007)	Yes	108	No	24.9	63.9	57.0	.13	DERS- Nonacceptance	DERS- Awareness
Turner et al. (2012)	Yes	162	Yes	22.5	100.0	93.3	.14	ERQ- Reappraisal	ERQ- Suppression
Umezawa et al. (2012)	Yes	257	Yes	68.6	100.0	35.8	-.64	Brief COPE- Acceptance	Brief COPE- Mental Dis.
							.26	Brief COPE- Acceptance	Brief COPE- Planning
							.40	Brief COPE- Acceptance	Brief COPE- Pos. Refram
							-.24	Brief COPE- Mental Dis.	Brief COPE- Planning Refram
							-.35	Brief COPE- Mental Dis.	Brief COPE- Pos. Refram
Uphill et al. (2012)	Yes	400	No	20.5	31.6	NR	.21	ERQ- Reappraisal	ERQ- Suppression
Valdez & Lilly (2012)	Yes	171	High risk	19.7	66.7	56.1	.19	WBSI	TCQ- Distraction
							.31	TCQ- Reappraisal	TCQ- Distraction
							.31	WBSI	TCQ- Reappraisal
							.44	WBSI	TCQ- Worry
							.06	TCQ- Worry	TCQ- Distraction
							.44	TCQ- Worry	TCQ- Reappraisal
Vickers & Vogeltanz-Holm (2003)	Yes	170	No	20.5	58.2	94.7	-.12	RSQ- Distraction	RSQ- Rumination
							-.25	RSQ- Distraction	PSWQ
							.64	RSQ- Rumination	PSWQ
Voon et al. (2014a)	Yes	555	High risk	75.7	NR	NR	-.26	ERQ- Reappraisal	RSTQ- Problem Focused
							-.01	ERQ- Reappraisal	ERQ- Suppression
							.23	ERQ- Suppression	RSTQ- Problem Focused
		2588	No	NR	NR	NR	-.10	ERQ- Reappraisal	RSTQ- Problem Focused
							-.02	ERQ- Reappraisal	ERQ- Suppression
							.31	ERQ- Suppression	RSTQ- Problem Focused
Voon et al. (2014b)	Yes	2507	No	13.9	68.0	NR	-.18	ERQ- Reappraisal	RTSQ- Problem Focus
							-.05	ERQ- Reappraisal	ERQ- Suppression
							.32	RTSQ- Problem Focus	ERQ- Suppression
Vorous (2009)	No	44	Yes	35.3	95.5	75.0	-.66	DTS	AAQ
Vujanovic et al. (2010)	Yes	193	No	23.9	54.9	93.0	.36	DERS- Nonacceptance	DTS
							.41	KIMS- Acceptance	DTS
							.18	KIMS- Acceptance	DERS- Awareness
							.20	DERS- Nonacceptance	DERS- Awareness
							.34	KIMS- Acceptance	KIMS- Act with Aware.
							.28	DERS- Nonacceptance	KIMS- Act with Aware.
							.16	DTS	DERS- Awareness
							.15	DTS	KIMS- Act with Aware.
Wallace et al. (2009)	Yes	150	No	19.5	52.7	87	-.12	ERQ- Reappraisal	ERQ- Suppression
Wang (2007)	Yes	181	No	21.5	71.3	76.8	.25	RSQ- Distraction	SPSI-R- Rat. Problem Sol
							.01	RSQ- Distraction	RSQ- Rumination
							.34	SPSI-R- Rat. Problem Sol.	RSQ- Rumination
Watkins (2004)	Yes	148	No	33.8	76.4	NR	.51	RSQ- Rumination	PSWQ
Watkins & Moulds (2009)	Yes	137	Mixed	38.1	67.2	NR	-.01	TCQ- Distraction	WBSI
							.18	TCQ- Distraction	TCQ- Reappraisal
							-.09	TCQ- Distraction	RSQ- Rumination
							-.24	TCQ- Distraction	PSWQ
							.05	TCQ- Distraction	TCQ- Worry
							.00	WBSI	TCQ- Reappraisal

(table continues)

Table 2 (continued)

Authors (Year)	Published	N	Clinical sample	Age M	% Female	% White	r	Measure 1	Measure 2
							.59	WBSI	RSQ- Rumination
							.49	WBSI	TCQ- Worry
							.62	WBSI	PSWQ
							.07	TCQ- Reappraisal	RSQ- Rumination
							.01	TCQ- Reappraisal	PSWQ
							.14	TCQ- Reappraisal	TCQ- Worry
							.56	RSQ- Rumination	PSWQ
							.33	RSQ- Rumination	TCQ- Worry
Watson (2007)	No	721	No	NR	51.2	90.0	.16	ERQ- Reappraisal	ERQ- Suppression
Watson & Hubbard (1996)	Yes	375	No	NR	NR	NR	.14	COPE- Acceptance	PSI- Approach/Avoid
							.25	COPE- Mental Disengag.	PSI- Approach/Avoid
							-.33	PSI- Approach/Avoid	COPE- Reinter & Growth
Weinrib (2011)	No	106	No	45.9	84.9	96.2	.60	MEAQ- Distract/Suppres	MEAQ- Behav. Avoid.
							.59	AAQ	MEAQ- Behav. Avoid.
							.46	WBSI	MEAQ- Behav. Avoid.
							-.47	FFMQ- Act with Aware.	MEAQ- Behav. Avoid.
							.59	AAQ	MEAQ- Distract/Suppres
							-.52	FFMQ- Act with Aware.	AAQ
							-.38	FFMQ- Act with Aware.	WBSI
							-.37	FFMQ- Act with Aware.	MEAQ- Distract/Suppres
Weinstock & Gruber (2015)	No	60	Yes	38.2	66.0	72.0	.30	BADS- Avoidance	AAQ-II
							-.02	BADS- Avoidance	ERQ- Reappraisal
							.24	BADS- Avoidance	RSQ- Brooding
							-.07	BADS- Avoidance	ERQ- Suppression
							-.34	AAQ-II	ERQ- Reappraisal
							.56	AAQ-II	RSQ- Brooding
							.05	AAQ-II	ERQ- Suppression
							-.12	RSQ- Brooding	ERQ- Reappraisal
							.10	ERQ- Reappraisal	ERQ- Suppression
							-.09	RSQ- Brooding	ERQ- Suppression
Weiss et al. (2012)	Yes	180	No	24.1	67.8	0.0	.17	DEBS- Nonacceptance	DEBS- Awareness
Wells & Carter (2009)	Yes	60	Mixed	37.1	45.0	NR	.36	TCQ- Distraction	TCQ- Reappraisal
							.05	TCQ- Distraction	TCQ- Worry
							.12	TCQ- Reappraisal	TCQ- Worry
Wells & Davies (1994)	Yes	229	No	NR	58.1	NR	.10	TCQ- Distraction	TCQ- Reappraisal
							-.02	TCQ- Reappraisal	TCQ- Worry
		50	No	NR	64.0	NR	-.03	TCQ- Distraction	PSWQ
							-.13	TCQ- Reappraisal	PSWQ
Wendling (2012)	No	602	No	47.4	52.2	85.0	-.58	AAQ-II	SCS
Wenzlaff & Luxton (2003)	Yes	225	No	20.6	61.3	NR	.54	WBSI	Rumination Scale- SF
Whiting et al. (2014)	Yes	206	No	15.5	67.5	84.4	.25	ATCQ- Distraction	ATCQ- Reappraisal
							.17	ATCQ- Worry	ATCQ- Distraction
							.25	ATCQ- Worry	ATCQ- Reappraisal
Whitmer & Banich (2012)	Yes	118	No	NR	72.9	NR	.38	RRS- Brooding	PSWQ
							.32	ARS	PSWQ
Wiggins (2012)	No	335	No	NR	76.1	71.0	.38	FFMQ- Act with Aware.	FFMQ- Nonjudging
Williams (2010)	No	321	No	19.2	67.0	64.0	.70	DEBS- Nonacceptance	DTS
							.48	DEBS- Nonacceptance	FFMQ- Act with Aware.
							.52	DEBS- Nonacceptance	PHLMS
							-.61	AAQ-R	DEBS- Nonacceptance
							-.64	AAQ-R	DTS
							-.63	AAQ-R	PHLMS
							-.50	AAQ-R	FFMQ- Act with Aware.
							-.56	AAQ-R	FFMQ- Act with Aware.
Williams (2012)	Yes	84	No	20.7	61.0	70.0	-.60	DTS	AAQ
Williams et al. (2010)	Yes	60	No	NR	27.0	NR	-.38	AAQ	MAAS
							-.53	WBSI	MAAS
Wilson (2012)	No	315	No	19.2	48.5	68.2	-.57	AAQ	KIMS- Acceptance
							-.35	AAQ	KIMS- Act with Aware.
Wilson & Hall (2012)	Yes	151	No	15.1	56.3	89.0	.13	TCQ- Distraction	TCQ- Reappraisal
							.15	TCQ- Distraction	TCQ- Worry
							.39	TCQ- Reappraisal	TCQ- Worry
Wilson & Scarpa (2012)	Yes	294	High risk	19.1	100.0	66.7	.51	TCQ- Distraction	TCQ- Reappraisal
							.57	TCQ- Distraction	TCQ- Worry
							.63	TCQ- Reappraisal	TCQ- Worry
Wisco et al. (2013)	Yes	61	Yes	54.8	0.0	74.0	.57	WBSI	TCQ- Worry
Wong & Moulds (2011)	Yes	361	No	20.6	61.5	52.0	.42	CBAS- Behav. Social	CBAS- Cog. Nonsocial
							.41	CBAS- Behav. Social	CBAS- Cog. Social
							.59	CBAS- Behav. Nonsocial	CBAS- Cog. Nonsocial
							.51	CBAS- Behav. Nonsocial	CBAS- Cog. Social
Yoon et al. (2013)	Yes	533	No	NR	44.1	56.9	-.35	WBSI	ERQ- Reappraisal
							-.06	ERQ- Reappraisal	ERQ- Suppression
							.37	RRS	WBSI
							-.33	RRS	ERQ- Reappraisal
							.32	RRS	ERQ- Suppression
Zalta & Chambless (2008)	Yes	681	No	18.3	55.6	62.4	.41	RRS	PSWQ
Ziegert & Kistner (2002)	Yes	205	No	10.4	52.0	73.0	.13	CRSS- Distraction	CRSS- Rumination

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Table 2 (continued)

Authors (Year)	Published	N	Clinical sample	Age M	% Female	% White	r	Measure 1	Measure 2
Zlomke & Hahn (2010)	Yes	291	No	20.1	0.0	84.0	-.08	CERQ- Acceptance	PSWQ
							-.21	CERQ- Planning	PSWQ
							-.01	CERQ- Pos. Reappraisal	PSWQ
							.34	CERQ- Rumination	PSWQ
							-.11	CERQ- Acceptance	PSWQ
	789	No	20.1	100.0	84.0	-.04	CERQ- Planning	PSWQ	
						-.19	CERQ- Pos. Reappraisal	PSWQ	
						.35	CERQ- Rumination	PSWQ	

Note. NR = not reported. High risk refers to either a trauma-exposed sample or a sample selected for high levels of risk factors for psychopathology. Reported correlations for all measures are keyed such that higher scale scores correspond to higher scores in the direction of the name of the construct (e.g., all measures assessing acceptance were keyed such that higher scores indicate greater acceptance). For the full names of each measure and which strategy it assesses, see Table B of the online supplement.

double-coding, referred back to the original article as needed, and resolved the discrepancy.

### Meta-Analytic Procedures

We used the random effects model, which assumes that studies are drawn from different populations and that a distribution of “true” effect sizes exists, rather than a single “true” estimate. In the random effects model, sampling error is calculated not only at the subject-level, but also at the study-level, allowing for the generalization of results beyond the specific sample of studies included in the meta-analysis (e.g., Lipsey & Wilson, 2001). Comprehensive Meta-Analysis 2.2 (Borenstein, Hedges, Higgins, Rothstein, & Englewood, 2007) was used to calculate all meta-analytic estimates within the random effects framework. We calculated meta-analytic effects sizes twice, once based on the observed correlations ( $r$ ) and once after correcting each individual correlation for measure unreliability ( $\rho$ ) using the following formula:  $r_{\text{corrected}} = r_{\text{observed}} / (\sqrt{\alpha_{\text{ER Measure 1}}} * \sqrt{\alpha_{\text{ER Measure 2}}})$  (Lipsey & Wilson, 2001). We also computed 95% confidence intervals (CIs), which indicate variability due to sampling error and are a function of the standard error. Finally, we included tau-squared ( $\tau^2$ ), which is an index of between-study variability after accounting for the effects of sampling error; values significantly different than zero are consistent with between-study heterogeneity.

**Moderation and publication bias.** For any effect sizes that showed significant heterogeneity based on  $\tau^2$ , we attempted to identify sources of between-study variability via numerous moderators. We examined moderation by categorical variables (i.e., measure used, sample type, publication status) using a mixed effects model. For these analyses, studies within each subgroup (e.g., clinical and nonclinical samples) were combined using the random effects model, and differences across subgroups were tested using a fixed effects model and the  $Q$  statistic. For any meta-analytic estimates demonstrating between-study heterogeneity, moderation was examined if there were two or more effect sizes for at least two levels of the moderator. Continuous moderators (i.e., percent female, percent Caucasian, age) were tested using metaregression for all heterogeneous meta-analytic estimates for which there were four or more studies reporting moderator data. Metaregression assesses the association between the study moderator and the correlation between emotion regulation strategies (or with distress tolerance), using the random effects framework.

We examined publication bias in several ways, to address the possibility that our results may be biased by a failure to include relevant studies (specifically, those not identifiable for inclusion because they were not published, reported, or made available) with results that differ systematically from those of published studies (e.g., null results that may be hard to publish). First, a moderation analysis comparing published to unpublished studies (i.e., dissertations or unpublished data sets) examined whether there were differences in effect size magnitude based on publication status. We also calculated the fail-safe  $N$ , which indicates the number of unknown studies (i.e., data were collected but not reported or published) with an average effect size of zero that would be necessary to reduce the observed effect size to nonsignificance ( $p > .05$ ; Rosenthal, 1979). Last, Egger’s intercept (Egger, Smith, Schneider, & Minder, 1997)—a quantification of the degree of asymmetry in the funnel plot—was reported, wherein values significantly different than zero suggest that smaller studies tended to be published only if they reported relatively large effect sizes.

**Meta-analytic factor analyses.** To examine the underlying structure of emotion regulation strategies, the meta-analytic correlation matrix for these strategies was submitted to confirmatory and exploratory factor analyses, using the harmonic mean across correlations as the sample size (for examples of similar latent variable modeling based on meta-analytic correlation matrices, see Markon, Krueger, & Watson, 2005; Naragon-Gainey, 2010; Sharma, Markon, & Clark, 2014). Analyses were conducted in Mplus 7.4 (Muthén & Muthén, 1998-2015). Meta-analytic correlation matrices are often nonpositive definite because elements in the correlation matrix are based on different sets of studies, creating a situation analogous to pairwise deletion (Wothke, 1993), and our correlation matrix was in fact nonpositive definite. Confirmatory factor analysis using summary data (such as a correlation matrix) in Mplus requires maximum likelihood estimation, which can only be applied to a positive definite matrix. Omitting mindfulness yielded a positive definite matrix, so we dropped this strategy for the confirmatory factor analyses. In contrast, exploratory factor analyses can use unweighted least squares (ULS) estimators with nonpositive definite matrices, allowing us to examine all 10 strategies in these analyses. ULS estimators have desirable properties including the provision of unbiased parameter estimates without the requirement that the correlation matrix be invertible (e.g., Brown, 2015). However, Mplus cannot currently

provide parameter standard errors, associated  $p$  values, or fit indices when ULS estimators are used with a correlation matrix as the input. Our focus in examining structure is on interpreting patterns of factor loadings and relative magnitudes, so assessments of statistical significance are not particularly important, but the lack of information regarding precision of parameter estimates is a limitation.

For the confirmatory factor analyses, we used standard guidelines when interpreting model fit. In addition to the model chi-square test of exact fit, we considered the comparative fit index (CFI), the root mean square error of approximation (RMSEA), and the standardized root mean squared residual (SRMR). Interpretation of these indices is based on the guidelines set forth by Hu and Bentler (1999) and Browne and Cudeck (1993). Hu and Bentler suggested that CFI should be "close to" .95 or above for good fit, SRMR values should be  $\leq .08$ , and RMSEA should be  $\leq .06$ , whereas Browne and Cudeck suggested that RMSEA values below .08 and above .10 reflect good fit and poor fit, respectively.

For the exploratory factor analyses, we examined one factor through four factor solutions to be inclusive of all viable solutions, although it is very likely that four factors are too many given the number of variables (Brown, 2015). An oblique geomin rotation was used because factors were expected to be correlated. We considered the interpretability of factors, the scree plot, and parallel analysis when selecting the optimal solution(s). Parallel analysis (Horn, 1965) is a technique that generates random eigenvalues from simulated data sets with similar properties to the observed data. The suggested number of factors to extract is one less than the first point at which the generated eigenvalue is larger than the observed sample eigenvalue.

## Results

### Meta-Analytic Correlations of Emotion Regulation Strategies

Table 3 shows the 45 meta-analytic correlations between each of the 10 emotion regulation strategies, as well as their 95% confidence intervals, correlations corrected for measure unreliability, the number of samples and number of participants, and indices of between-study heterogeneity and publication bias. The number of samples for the meta-analytic estimates ranged from one to 76 ( $M = 14.9$ ), with total participants ranging from 106 to 28,100 ( $M = 4,243.8$ ). Most effect sizes (71%) were based on five or more samples, but correlations that included behavioral avoidance in particular tended to have fewer samples. These effect sizes with small  $k$ s (i.e., fewer than five) should be interpreted with caution.

Meta-analytic correlations generally were small to medium in magnitude, ranging from |.02| to |.54| with a mean absolute correlation of .27 ( $SD = .15$ ). Among the largest absolute correlations (between |.45| and |.54|) were those of acceptance-experiential avoidance<sup>7</sup> (negatively correlated), behavioral avoidance-experiential avoidance, experiential avoidance-worry, problem solving-reappraisal, rumination-worry, behavioral avoidance-distraction, mindfulness-problem solving, and behavioral avoidance-mindfulness (negatively correlated); note that

the last three had  $k$ s  $< 5$ . Eighteen percent of the meta-analytic estimates were not significantly different from zero; in particular, four of the nine correlations with worry were nonsignificant. It is noteworthy that even after correcting for measure unreliability, most correlations were only moderate in magnitude: range for  $\rho = |.03|$  to |.65|,  $M = .33$ ,  $SD = .17$ . Only three corrected correlations exceeded .60: behavioral avoidance-experiential avoidance, experiential avoidance-worry, and problem solving-reappraisal. Thus, although most of the emotion regulation strategies were significantly associated, the magnitude was generally small to moderate and none was so strongly correlated as to suggest redundancy or equivalent constructs. Finally, among significant correlations, putatively adaptive strategies were positively correlated, putatively maladaptive strategies were positively correlated, and putatively adaptive and maladaptive strategies generally were negatively correlated. The only exceptions were that several adaptive-maladaptive pairs were weakly positively associated: distraction-problem solving, distraction-reappraisal, problem solving-rumination, and reappraisal-expressive suppression (though this last effect size was negligible in magnitude and is statistically significant because of the very large sample size).

For those effect sizes based on more than one sample, between-study heterogeneity was assessed with  $\tau^2$ . Most meta-analytic estimates were not heterogeneous, as significant variability ( $p < .05$ ) was found for 17 of 45 effect sizes (38%). Each of the 10 emotion regulation strategies was involved in at least one of the heterogeneous effect sizes, and all but behavioral avoidance and expressive suppression were involved in multiple heterogeneous effect sizes. Thus, it does not appear that a small subset of the emotion regulation strategies was responsible for most of the observed heterogeneity.

**Moderation analyses.** We next examined possible contributing variables to between-study variance for the 17 effect sizes found to have significant heterogeneity, focusing first on sample characteristics. Table 4 shows moderation analyses by sample type (i.e., clinical vs. nonclinical); note that the distraction-problem solving and problem solving-rumination analyses were omitted because they included fewer than two clinical samples. Nearly all of the 15 effect sizes had equivalent correlations in clinical and nonclinical samples, with two exceptions. First, the correlation between rumination and worry was significantly stronger in nonclinical samples ( $r = .50$ ;  $p < .001$ ) than clinical samples ( $r = .39$ ;  $p < .001$ ). Second, the correlation between reappraisal and rumination was significantly stronger in clinical samples ( $r = -.33$ ;  $p < .001$ ) than in nonclinical samples ( $r = -.05$ ,  $p > .05$ ).

Table 5 displays the results of metaregression analyses that examine the association of effect sizes with sample age, percentage female, and percentage Caucasian. None of the 17 effect sizes was significantly associated with the percentage of the sample that was female or Caucasian. However, five effect sizes—three of which included reappraisal—were significantly associated with the mean age of the sample: acceptance-mindfulness, acceptance-reappraisal, distraction-problem solving, distraction-reappraisal,

<sup>7</sup> Note that the strong association between these constructs is not surprising, as some scholars consider acceptance and experiential avoidance to be opposite ends of the same continuum (e.g., Hayes, Strosahl, & Wilson, 2012). Nonetheless, the correlation observed here ( $-.48$ ) is weaker than we would expect if these constructs in fact form a single bipolar dimension.

Table 3  
*Meta-Analytic Correlations Among Emotion Regulation Strategies*

ER Strategy 1	ER Strategy 2	<i>k</i>	<i>N</i>	<i>r</i>	95% CI	$\rho$	$\tau^2$	<i>SE</i> ( $\tau^2$ )	FSN	Egger's intercept
Acceptance	Behavioral Avoid.	1	314	-.32**	.42, .22	-.36	—	—	—	—
Acceptance	Distraction	7	2,208	.02	-.23, .27	.09	.111	.079	0	.29
Acceptance	Experiential Avoid.	18	4,780	-.48***	-.55, -.40	-.50	.036*	.016	6,297	2.85
Acceptance	Exprs. Suppression	11	3,655	-.24***	-.34, -.13	-.28	.029	.016	522	-.76
Acceptance	Mindfulness	53	13,753	.32***	.28, .36	.39	.023**	.007	6,448	3.04***
Acceptance	Problem Solving	8	3,526	.24***	.17, .31	.33	.007	.008	386	2.78
Acceptance	Reappraisal	19	6,024	.25***	.19, .32	.35	.018*	.009	1,628	1.21
Acceptance	Rumination	16	3,739	-.38***	-.47, -.28	-.47	.042	.024	2,297	-.40
Acceptance	Worry	8	2,265	-.33***	-.45, -.20	-.37	.039	.026	411	-5.52
Behavioral Avoid.	Distraction	4	1042	.48**	.14, .72	.55	.148	.134	309	-8.69
Behavioral Avoid.	Experiential Avoid.	17	3,521	.54***	.46, .62	.65	.048*	.021	6,032	-1.86
Behavioral Avoid.	Exprs. Suppression	3	644	.20**	.06, .33	.23	.010	.016	18	-4.41
Behavioral Avoid.	Mindfulness	1	106	-.47***	-.61, -.31	-.51	—	—	—	—
Behavioral Avoid.	Problem Solving	2	488	.36	-.07, .68	.49	.101	.152	—	—
Behavioral Avoid.	Reappraisal	4	811	-.07*	-.14, -.01	-.09	.000	.004	0	1.34
Behavioral Avoid.	Rumination	8	996	.39***	.33, .46	.47	.004	.007	324	-1.41
Behavioral Avoid.	Worry	2	437	.42***	.31, .53	.51	.005	.013	—	—
Distraction	Experiential Avoid.	11	3,599	.31***	.14, .47	.39	.092	.051	911	2.78
Distraction	Exprs. Suppression	1	314	.21***	.10, .31	.26	—	—	—	—
Distraction	Mindfulness	1	106	-.37**	-.52, -.19	-.40	—	—	—	—
Distraction	Problem Solving	14	3,672	.18*	.01, .33	.29	.094*	.045	502	-1.18
Distraction	Reappraisal	16	3,838	.16**	.06, .26	.23	.038*	.018	307	1.59
Distraction	Rumination	34	8,360	.09**	.03, .15	.13	.025**	.009	531	-5.58
Distraction	Worry	19	3353	-.04	-.17, .09	-.03	.079*	.031	0	.81
Experiential Avoid.	Exprs. Suppression	10	3,007	.21***	.00, .31	.27	.027	.016	295	1.24
Experiential Avoid.	Mindfulness	34	9,633	-.39***	-.43, -.35	-.49	.015*	.007	6,324	.99
Experiential Avoid.	Problem Solving	2	634	-.07	-.39, .26	-.10	.056	.084	—	—
Experiential Avoid.	Reappraisal	14	3,049	-.10	-.23, .02	-.13	.052	.027	152	4.65
Experiential Avoid.	Rumination	33	6,483	.43***	.35, .50	.54	.063**	.022	10,512	-1.01
Experiential Avoid.	Worry	24	5,634	.53***	.48, .57	.63	.021*	.009	10,713	.25
Exprs. Suppression	Mindfulness	10	2,792	-.28***	-.38, -.18	-.37	.026	.016	560	1.78
Exprs. Suppression	Problem Solving	4	1,090	-.12*	-.23, -.01	-.19	.007	.011	9	-3.44
Exprs. Suppression	Reappraisal	76	28,100	.03**	.01, .05	.04	.007***	.002	171	.47
Exprs. Suppression	Rumination	17	8,442	.22***	.17, .27	.27	.008	.005	1,396	-1.79*
Exprs. Suppression	Worry	1	270	.10	-.02, .22	.11	—	—	—	—
Mindfulness	Problem Solving	3	1,234	.49***	.45, .53	.57	.000	.007	161	-.14***
Mindfulness	Reappraisal	10	2,926	.28***	.15, .41	.36	.042	.030	582	-2.57
Mindfulness	Rumination	20	5,125	-.38***	-.43, -.32	-.45	.016*	.008	3,575	.01
Mindfulness	Worry	8	3,081	-.26***	-.34, -.18	-.30	.010	.008	368	-.64
Problem Solving	Reappraisal	13	4,274	.48***	.30, .63	.65	.152	.084	3,491	-3.30
Problem Solving	Rumination	15	4,432	.20**	.05, .33	.25	.077*	.037	565	-1.00
Problem Solving	Worry	6	2,375	-.09	-.22, .04	-.14	.022	.017	22	-2.85
Reappraisal	Rumination	24	10,726	-.10**	-.17, -.03	-.11	.026*	.013	418	.19
Reappraisal	Worry	22	4,552	.09	-.02, .20	.15	.066*	.027	162	1.34
Rumination	Worry	46	11,562	.49***	.46, .53	.58	.018***	.005	5,024	1.20

Note. ER = emotion regulation; *k* = number of samples; *N* = total sample size; *r* = weighted average uncorrected correlation; 95% CI = lower and upper limits of 95% confidence interval;  $\rho$  = weighted average corrected correlation;  $\tau^2$  = between-study variance; *SE* = standard error; FSN = Fail-safe *N*; Exprs. = Expressive; Avoid. = Avoidance.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

and reappraisal-worry. An examination of scatterplots revealed that the positive correlation between acceptance and reappraisal, as well as acceptance and mindfulness, was stronger in older adults than younger adults/teenagers. Reappraisal and worry were positively related in children, with estimates approaching zero or negative in sign with increasing age. Finally, for distraction-problem solving and distraction-reappraisal, children/adolescents/young adults had stronger positive correlations, whereas those of older adults were near zero or negative.

The last moderator examined was the specific measure used, with results shown in Table 6. For each effect size, separate

moderator analyses were conducted on measures of both constructs contributing to the correlations. Results indicated that the measure used frequently contributed to between-study heterogeneity: of the 17 effect sizes examined, moderation by the measure used for one or both constructs was found for 12 effect sizes. Measures of distraction and reappraisal showed the most consistent evidence of heterogeneity, though there was not a clear pattern across these effects sizes as to how specific distraction or reappraisal measures related to other constructs. We also examined moderation in the correlations that were corrected for unreliability to assess whether the observed het-

Table 4  
Moderation by Sample Type

Constructs	Subgroup	<i>k</i>	<i>r</i>	95% CI	<i>Q<sub>b</sub></i>
Acceptance-Exp. Avoidance	Clinical	4	-.46	-.57, -.34	.02
	Nonclinical	12	-.45	-.53, -.36	
Acceptance-Mindfulness	Clinical	7	.34	.25, .43	.47
	Nonclinical	43	.31	.26, .35	
Acceptance-Reappraisal	Clinical	5	.26	.15, .36	.01
	Nonclinical	10	.25	.15, .35	
Beh. Avoidance-Exp. Avoidance	Clinical	3	.42	.32, .51	3.47
	Nonclinical	12	.54	.45, .63	
Distraction-Reappraisal	Clinical	2	.16	.05, .27	.78
	Nonclinical	10	.09	-.03, .20	
Distraction-Rumination	Clinical	6	.20	-.05, .42	.78
	Nonclinical	27	.08	.02, .14	
Distraction-Worry	Clinical	2	-.09	-.20, .03	.16
	Nonclinical	11	-.05	-.19, .10	
Exp. Avoidance-Mindfulness	Clinical	6	-.38	-.49, -.26	.07
	Nonclinical	27	-.40	-.44, -.35	
Exp. Avoidance-Rumination	Clinical	5	.45	.36, .54	1.10
	Nonclinical	24	.39	.29, .47	
Exp. Avoidance-Worry	Clinical	2	.49	.44, .55	.09
	Nonclinical	15	.48	.42, .54	
Exprs. Suppression-Reappraisal	Clinical	4	-.07	-.25, .11	1.28
	Nonclinical	62	.04	.01, .06	
Mindfulness-Rumination	Clinical	5	-.40	-.56, -.22	.09
	Nonclinical	15	-.38	-.44, -.31	
Reappraisal-Rumination	Clinical	3	-.33	-.45, -.20	11.97***
	Nonclinical	14	-.05	-.14, .04	
Reappraisal-Worry	Clinical	4	-.07	-.34, .21	1.08
	Nonclinical	11	.09	-.04, .22	
Rumination-Worry	Clinical	7	.42	.34, .48	4.61*
	Nonclinical	36	.50	.46, .54	

Note. Beh. = Behavioral; Exp. = Experiential; Exprs. = Expressive; *k* = number of samples; *r* = weighted average uncorrected correlation; 95% CI = lower and upper limits of 95% confidence interval; *Q<sub>b</sub>* = *Q* statistic for the difference between the two subgroups. *df* = 1 for all analyses.

\* *p* < .05. \*\*\* *p* < .001.

erogeneity by measure was primarily a function of differences in measure reliability. However, among the 12 effect sizes that evidenced heterogeneity by measure, only one of them (distraction-reappraisal) no longer showed significant moderation after disattenuating correlations for measure unreliability, suggesting that measure reliability did not contribute substantially to the original moderation results.

**Publication bias.** Moderation analyses were conducted on all effect sizes that included two or more unpublished sources to assess whether correlations differed based on the publication status (i.e., published article vs. unpublished dissertation or dataset). These analyses were not supportive of substantial publication bias, as only 6 of the 45 moderation analyses were statistically significant. Furthermore, 4 of the 6 significant analyses revealed that unpublished dissertations or data sets reported *stronger* correlations than published articles, whereas publication bias should yield unpublished effects that are *weaker* than those of published data. For meta-analytic correlations that were significant and included more than two samples, fail-safe *N*s were generally consistent with robustness to publication bias (see Table 3; FSN range = 9 to 10,713, *M* = 2,101); very few fail-safe *N*s (i.e., three) were smaller than 100. Finally, Egger's intercept indicated significant asymmetry in the funnel plot for only three of the 45 meta-analytic correla-

tions (funnel plots with significant asymmetry are shown in Figures A-C of the online supplement). Overall, evidence did not suggest that publication bias is a substantial or prevalent concern for these meta-analyses.

### Meta-Analytic Correlations With Distress Tolerance

Table 7 shows the meta-analytic correlations of emotion regulation strategies with distress tolerance. Note that no samples were identified that reported correlations between distress tolerance and behavioral avoidance or distraction, so correlations with these two strategies could not be calculated. The number of studies per correlation ranged from 1 to 8, with a total of 128 to 1,818 participants per correlation; given the relatively few samples included in these analyses, they should be considered preliminary.

Distress tolerance was most strongly correlated with experiential avoidance and worry (meta-analytic *r*s = -.54 and -.57, respectively), and it showed moderate correlations with mindfulness and rumination (*r*s = .38 and -.28, respectively). Although distress tolerance was moderately associated with acceptance (*r* = .34), this estimate was not statistically significant and had a wide confidence interval. In examining this estimate further,  $\tau^2$  did not indicate significant between-study variance, but we still conducted moderator analyses to better understand possible sources of study

Table 5  
Moderation by Age, Gender, and Race

Constructs	Age		% female		% Caucasian	
	$\beta$	Z	$\beta$	Z	$\beta$	Z
Acceptance-Exp. Avoidance	-.002	-.28	-.004	-1.43	-.001	-.18
Acceptance-Mindfulness	.005	2.04*	.000	.03	.001	.89
Acceptance-Reappraisal	.006	2.78***	.001	.87	-.001	-.32
Beh. Avoidance-Exp. Avoidance	-.002	-.33	-.002	-1.16	-.004	-1.04
Distraction-Problem Solving	-.013	-2.84***	-.008	-1.61	.000	-.03
Distraction-Reappraisal	-.009	-2.65***	-.001	-.24	.006	1.40
Distraction-Rumination	.002	.47	-.003	-1.44	-.001	-.32
Distraction-Worry	-.006	-.80	.004	.85	-.006	-.80
Exp. Avoidance- Mindfulness	-.001	-.32	.001	1.04	-.000	-.06
Exp. Avoidance-Rumination	.002	.38	-.001	-.36	.003	.92
Exp. Avoidance-Worry	.004	1.95	-.001	-.42	.003	1.67
Exprs. Suppression-Reappraisal	.001	.54	-.001	-1.50	-.001	.63
Mindfulness-Rumination	.003	.73	-.001	-.61	.001	.49
Problem Solving-Rumination	-.003	-.14	.005	.83	-.003	-1.33
Reappraisal-Rumination	-.007	-1.52	.001	.40	.001	.25
Reappraisal-Worry	-.014	-2.53*	.001	.36	-.009	-1.20
Rumination-Worry	.009	.22	-.001	-.78	.001	.75

Note. Beh. = Behavioral; Exp. = Experiential; Exprs. = Expressive.  
\*  $p < .05$ . \*\*  $p < .01$ .

variability. Moderation by measure indicated that the observed heterogeneity was due to a single study (with two samples) that used the Affective Styles Questionnaire to assess distress tolerance (weighted  $r = -.13$ ), whereas the other four samples used the Distress Tolerance Scale (weighted  $r = .54$ ). Thus, the data for this correlation were equivocal but most consistent with a positive association between distress tolerance and acceptance. Finally, correlations with problem solving, reappraisal, and expressive suppression were significant but weak in magnitude ( $r = 1.081$  to  $1.191$ ). Based on  $\tau^2$ , none of these meta-analytic estimates had significant between-study heterogeneity, so no other moderator analyses were conducted. Fail-safe Ns and Egger's intercept did not indicate any concerns about publication bias.

### Structure of Emotion Regulation Strategies

**Confirmatory factor analyses.** We applied confirmatory factor analysis to examine the fit of several a priori models of the structure of emotion regulation strategies, using the correlations among strategies shown in Table 3. Note that mindfulness was omitted from these analyses in order to obtain the positive definite matrix that is required for maximum likelihood estimation. The following models were tested: a single factor model, the adaptive-maladaptive strategies model, the behavioral-cognitive model, and the process model, with model specifications as shown in Table 1. The process model could not converge on a proper solution, likely due to identification difficulties because two of the four factors only had two indicators (a proper solution was still not obtained when we constrained the indicators to be equal within each two-indicator factor). The other three models converged on proper solutions, and standardized factor loadings and fit indices are shown in Table 8. None of the three models even approached an acceptable fit to the data: across models, CFI = .42 to .57, RMSEA = .24 to .27, and SRMR = .12 to .15. Therefore, these solutions were not interpreted further and we turned to exploratory analyses.

**Exploratory factor analyses.** An exploratory factor analysis was also conducted on the full meta-analytic correlation matrix (including mindfulness) with an oblique rotation, and one- through four-factor solutions were evaluated. An examination of the scree plot and the results of the parallel analysis (the Table 9 note shows the observed and simulated eigenvalues) suggested three factors as the optimal solution. Factor loadings for all solutions are presented in Table 9.

The one-factor solution may be generally characterized as a dimension of putatively maladaptive versus adaptive emotion regulation strategies. But this solution did not seem to adequately or fully represent the data because the loadings for several strategies (distraction, expressive suppression, problem solving, reappraisal) were quite weak (i.e.,  $1.091$  to  $1.341$ ), indicating that additional factors may be needed to best model the strategy correlations. The two-factor solution was tenable and was suggestive of largely independent putatively maladaptive and adaptive strategy factors. However, the second factor was very strongly marked by a single strategy (i.e., problem solving =  $1.03$ ), without other substantial loadings. Specifically, the only other primary loading or loading above  $1.401$  was that of reappraisal (.46). Thus, the coherence and interpretation of this factor was questionable, as it seemed to be driven by a single strategy rather than representative of a broader latent variable.

The three-factor solution appeared to be the most interpretable and sound, and it was also supported by the scree test and parallel analysis. The first factor in this solution—labeled Disengagement—was indicative of attentional and behavioral avoidance. It was very strongly defined by distraction ( $1.26$ ), with weaker but still strong primary loadings from behavioral avoidance and (low) mindfulness (.63 and  $-.69$ , respectively). Experiential avoidance and expressive suppression also had weak loadings on this factor (.32 and .35). The second factor that emerged (labeled Aversive Cognitive Perseveration) was characterized by overengagement with negative cognitions, while also rejecting and wanting to avoid



Table 6  
Moderation by Measure Used for Each Construct

Constructs	Measure	<i>k</i>	<i>r</i>	95% CI	<i>Q<sub>b</sub></i> (df)	
Acceptance-Experiential Avoidance	Acceptance	DERS Nonacceptance	8	-.39	-.52, -.24	5.83 (2)
		FFMQ Nonjudging	4	-.56	-.60, -.52	
		KIMS Acceptance	5	-.56	-.66, -.43	
Experiential Avoidance		AAQ	6	-.49	-.59, -.38	1.80 (2)
		WBSI	3	-.28	-.61, .12	
		AAQ-II	3	-.53	-.62, -.42	
Acceptance-Mindfulness	Acceptance	DERS Nonacceptance	15	.25	.16, .33	8.23 (3)*
		FFMQ Nonjudging	16	.40	.34, .45	
		CAMS-R Acceptance	2	.36	.28, .44	
Mindfulness		KIMS Acceptance	14	.33	.30, .37	13.66 (4)**
		DERS Awareness	14	.21	.13, .29	
		FFMQ Acting w/Aware	16	.38	.32, .44	
		CAMS-R Awareness	2	.36	.28, .44	
		KIMS Acting w/Aware	11	.32	.27, .36	
MAAS			4	.34	.20, .46	
			4	.34	.20, .46	
Acceptance-Reappraisal	Acceptance	DERS Nonacceptance	8	.15	.06, .23	24.93 (4)***
		COPE Acceptance	3	.42	.33, .50	
		Brief COPE Accept	2	.37	.30, .44	
Reappraisal		FFMQ Nonjudging	2	.27	-.01, .51	36.92 (3)***
		KIMS Acceptance	2	.24	.08, .40	
		ERQ Reappraisal	10	.19	.11, .28	
		COPE Pos. Reinter.	3	.42	.33, .50	
		Brief COPE Pos. Reinter.	2	.37	.30, .44	
CERQ Reappraisal	4	.17	.12, .21			
Behavioral Avoidance-Experiential Avoidance	Behavioral Avoidance	CSQ Avoidance	2	.31	.23, .39	20.28 (2)***
		CBAS Behavioral (NS, S)	8	.52	.43, .60	
		MEAQ Behavioral Avoid	3	.62	.49, .72	
Experiential Avoidance		AAQ-II	2	.32	.23, .40	18.42 (2)***
		CBAS Cognitive (NS, S)	9	.52	.44, .60	
		MEAQ Distress Avers	2	.65	.49, .76	
Distraction-Problem Solving	Distraction	COPE Mental Diseng.	7	.00	-.17, .17	34.49 (2)***
		CRSQ Distraction	4	.48	.43, .53	
		RSQ Distraction	2	.31	.21, .41	
Problem Solving		COPE Planning	5	-.10	-.27, .0	45.77 (2)***
		Brief COPE Planning	2	.01	-.45, .46	
		CRSQ Problem Solv.	4	.48	.43, .53	
Distraction-Reappraisal	Distraction	TCQ Distraction	12	.22	.13, .30	9.57 (1)**
		COPE Mental Diseng.	2	.05	-.00, .11	
		TCQ Reappraisal	11	.22	.12, .31	
Reappraisal		COPE Pos. Reinter.	2	.05	-.00, .11	8.73 (2)*
		Brief COPE Pos. Reinter.	2	-.09	-.56, .43	
			2	-.09	-.56, .43	
Distraction-Rumination	Distraction	RSQ Distraction	22	.02	-.05, .09	27.35 (2)***
		COPE Mental Diseng.	2	.32	.23, .40	
		CRSQ Distraction	6	.22	.09, .33	
Rumination		RRS/RSQ Brooding	3	.10	-.07, .26	5.46 (2)
		RRS/RSQ Rumination	22	.04	-.03, .12	
		CRSQ Rumination	6	.22	.09, .33	
Distraction-Worry	Distraction	TCQ Distraction	14	.02	-.13, .18	14.88 (1)***
		RSQ Distraction	3	-.30	-.36, -.24	
		TCQ Worry	10	.08	-.12, .26	
Worry		PSWQ	7	-.24	-.31, -.16	8.78 (1)**
			7	-.24	-.31, -.16	
			7	-.24	-.31, -.16	
Experiential Avoidance-Mindfulness	Experiential Avoidance	AAQ	15	-.36	-.42, -.31	25.91 (3)***
		WBSI	4	-.41	-.46, -.34	
		AAQ-II	6	-.45	-.59, -.28	
Mindfulness		AAQ-R	2	-.57	-.62, -.51	17.12 (3)***
		DERS Awareness	3	-.37	-.43, -.30	
			3	-.37	-.43, -.30	

Table 6 (continued)

Constructs	Measure	<i>k</i>	<i>r</i>	95% CI	<i>Q<sub>b</sub></i> (df)
Experiential Avoidance-Rumination	FFMQ Act w/Aware	5	-.49	-.54, -.44	
	MAAS	17	-.36	-.42, -.29	
	KIMS Awareness	3	-.25	-.41, -.08	
Experiential Avoidance	AAQ	4	.56	.49, .63	97.86 (4)***
	CBAS Cog Avoid (NS, S)	4	.27	.15, .39	
	WBSI	15	.49	.44, .54	
	AAQ-II	2	.50	.38, .61	
Rumination	BARQ Avoidance	4	-.08	-.20, .05	73.17 (3)***
	RRS/RSQ Brooding	10	.49	.38, .59	
	BARQ Rumination	4	-.08	-.20, .05	
	RSQ/RRS Rumination	9	.49	.43, .55	
	RI	2	.44	.30, .57	
Experiential Avoidance-Worry	WBSI	11	.52	.49, .56	2.09 (3)
Experiential Avoidance	AAQ-II	2	.73	.15, .94	
	AAQ	4	.46	.29, .60	
Worry	CBAS Cog Avoid (NS, S)	2	.40	.03, .68	.10 (1)
	TCQ Worry	4	.51	.44, .58	
	PSWQ	19	.53	.47, .58	
Expressive Suppression-Reappraisal	ERQ Reappraisal	71	.03	.01, .06	1.65 (1)
Reappraisal	COPE Reinterp.	2	-.05	-.17, .08	
Suppression	ERQ Suppression	71	.03	.01, .06	2.62 (1)
	ASQ Concealing	2	.09	.02, .15	
Mindfulness-Rumination	MAAS	13	-.41	-.48, -.33	1.05 (1)
Mindfulness	FFMQ Act w/Aware	4	-.35	-.44, -.25	
Rumination	RRQ Rumination	2	-.47	-.52, -.41	3.97 (2)
	RRS Brooding	4	-.30	-.46, -.12	
	RSQ/RRS Rumination	10	-.41	-.49, -.32	
Problem Solving-Rumination	COPE Problem Solving	2	-.02	-.11, .07	77.28 (3)***
Problem Solving	CSS Problem Solving	3	.54	.46, .61	
	CRSQ Problem Solving	4	.10	-.28, .44	
	CERQ Refocus on Plan	2	.08	-.35, .48	
Rumination	CSS Rumination	2	.54	.46, .61	13.63 (3)**
	CRSQ Rumination	4	.10	-.28, .44	
	CERQ Rumination	2	.08	-.35, .48	
	RRS/RSQ Rumination	3	.24	-.08, .52	
Reappraisal-Rumination	ERQ Reappraisal	19	-.13	-.19, -.06	.43 (2)
Reappraisal	TCQ Reappraisal	3	-.03	-.31, .26	
	CERQ Pos. Reappraisal	3	-.12	-.19, -.04	
Rumination	RSQ/RRS Brooding	11	-.12	-.21, -.03	1.10 (3)
	CERQ Rumination	2	-.02	-.42, .39	
	RSQ/RRS Rumination	6	-.15	-.32, .03	
	RSTQ Problem Focus	3	-.17	-.25, -.09	
Reappraisal-Worry	ERQ Reappraisal	3	-.25	-.35, -.14	22.69 (2)***
Reappraisal	TCQ Reappraisal	11	.24	.07, .39	
	CERQ Pos. Reappraisal	2	-.11	-.28, .07	
Worry	TCQ Worry	9	.27	.09, .44	12.95 (1)***
	PSWQ	7	-.13	-.24, -.01	
Rumination-Worry	RRS/RSQ Brooding	11	.47	.39, .54	26.59 (4)***
Rumination	RI	2	.31	.18, .43	
	CERQ Rumination	2	.35	.29, .40	
	a-RRS Brooding	2	.45	.03, .74	
	RSQ/RRS Rumination	24	.51	.46, .55	
Worry	—	—	—	—	—

Note. See Supplemental Table B for the full name of each measure. *k* = number of samples; *r* = weighted average uncorrected correlation; 95% CI = lower and upper limits of 95% confidence interval; *Q<sub>b</sub>* = *Q* statistic for the difference between the subgroups.

\* *p* < .05. \*\* *p* < .01. \*\*\* *p* < .001.

Table 7  
*Meta-Analytic Correlations of Emotion Regulation Strategies With Distress Tolerance*

ER Strategy	<i>k</i>	<i>N</i>	<i>r</i>	95%CI	$\rho$	$\tau^2$	<i>SE</i> ( $\tau^2$ )	FSN	Egger's intercept
Acceptance	6	1,736	.34	-.01, .61	.39	.200	.139	224	19.01
Experiential Avoidance	8	1,818	-.57***	-.71, -.39	-.72	.108	.075	990	-6.12
Expressive Suppression	2	929	-.19***	-.25, -.14	-.29	.000	.002	—	—
Mindfulness	5	1,415	.38***	.26, .48	.49	.017	.016	285	.37
Problem Solving	2	929	.08*	.01, .15	.11	.000	.004	—	—
Reappraisal	2	929	.11***	.05, .17	.16	.000	.003	—	—
Rumination	1	128	-.29***	-.44, -.12	-.34	—	—	—	—
Worry	7	1,515	-.54***	-.58, -.50	-.60	.001	.003	945	-1.03

*Note.* ER = emotion regulation; *k* = number of sample; *N* = total sample size; *r* = weighted average uncorrected correlation; 95% CI = lower and upper limits of 95% confidence interval;  $\rho$  = weighted average corrected correlation;  $\tau^2$  = between-study variance; *SE* = standard error; FSN = Fail-safe *N*. \*  $p < .05$ . \*\*\*  $p < .001$ .

negative emotions and thoughts. Worry, rumination, experiential avoidance, and (low) acceptance had strong primary loadings (1.461 to 1.731) on this second factor, and (low) distraction had a strong secondary loading as well (-.80). The third factor in this solution (Adaptive Engagement) was defined primarily by problem solving (1.04), with weaker loadings from reappraisal, mindfulness, and acceptance (.26 to .57).<sup>8</sup> Disengagement and Aversive Cognitive Perseveration were strongly positively associated ( $r = .67$ ). Disengagement was weakly positively associated with Adaptive Strategies ( $r = .17$ ), and Aversive Cognitive Perseveration and Adaptive Strategies were unrelated ( $r = .02$ ).

The four-factor solution was similar to the three-factor solution, with the addition of a factor that had a very strong loading from reappraisal (.98) and weak loadings from all other strategies (i.e.,  $< .33$ ). This pattern of loadings is not very interpretable and is suggestive of overextraction.

## Discussion

This study examined the structure of common habitually used emotion regulation strategies, based on meta-analytic estimates of the correlations between each of the strategies. A secondary aim was to assess how distress tolerance—a central emotion regulation ability—relates to the use of emotion regulation strategies. We were motivated to explore the structure of emotion regulation strategies in part by the conceptual and empirical overlap of some strategies, which could suggest a proliferation of overly similar constructs. However, the meta-analyses of correlations among strategies revealed only small to moderate associations. It is striking that, even in these analyses that were based on concurrent measurement and a single method (i.e., self-report), the emotion regulation strategies showed reasonable discriminant validity with one another and did not suggest empirical redundancy. Meta-analytic estimates were relatively homogenous, with about one third of them exhibiting significant between-study variance, and they were generally robust to publication bias. Overall, these estimates appear to form a valid basis for the structural analyses.

## Interpretations of Factor Structures

Using the meta-analytic correlations between strategies, we examined their underlying structure with confirmatory and exploratory factor analysis, testing a single emotion regulation factor, adaptive and maladaptive strategies, cognitive and behavioral

strategies, and four stages of the process model (i.e., situation selection/modification, attention deployment, cognitive change, and response modulation). However, it is important to keep in mind two caveats when interpreting results in light of these models. First, several groups of strategies (i.e., behavioral strategies, situation selection, cognitive change) had few indicators in these analyses, which could have inhibited the emergence of those factors. For example, the process model could not be tested with confirmatory factor analysis due to too few indicators for some factors which likely led to model underidentification. Of note, the four-factor exploratory factor analysis solution was marked strongly and solely by reappraisal, perhaps suggesting the distinctiveness of this cognitive change process and that a full factor may have emerged if more indicators of cognitive change had been included. Second, these models do not all claim to reflect between-person empirical covariance among strategy use (particularly the process model). Therefore, our results should not be interpreted as a test of the veridicality of the model itself, but rather as a test of whether the strategy groupings implied by these models are manifest in correlations among the use of various strategies.

Bearing these considerations in mind, we did not find support for the single factor model, the adaptive-maladaptive model, or the cognitive-behavioral model in confirmatory factor analyses, as each fit the data poorly. These findings could be interpreted to mean that none of the tested structures adequately describes the covariation of emotion regulation strategies and that a different or more complex structure is needed. This is consistent with the few prior structural studies (i.e., Aldao & Nolen-Hoeksema, 2010; Lee et al., 2015; Seligowski & Orcutt, 2015), all of which reported poor fit for the theoretical models they tested with confirmatory factor analysis (but see the introduction for study design and analytic limitations). Nonetheless, it is important not to overinterpret these null results, particularly given that it was not possible to include numerous indicators for each proposed factor in our meta-analysis because of the lack of available data on some strategies.

<sup>8</sup> Because problem solving and distraction both had very strong loadings in the three-factor solution (greater than 1.0), we re-ran the factor analyses omitting these variables to assess whether they may have unduly influenced the underlying structure of the remaining variables. We also examined whether the structure differed if the corrected, rather than uncorrected, meta-analytic correlations were used. In both cases, the structure and patterns of loadings were highly similar to the original analyses.

Table 8  
Standardized Loadings and Standard Errors From Confirmatory Factor Analyses of Theorized Emotion Regulation Models

Strategy	Single factor	Adaptive vs. Maladaptive		Cognitive vs. Behavioral	
		Adaptive	Maladaptive	Cognitive	Behavioral
Acceptance	-.55 (.03)	.43 (.04)		-.62 (.02)	
Problem Solving	.04 (.03)	.63 (.04)		-.64 (.04)	.78 (.04)
Distraction	.32 (.03)	.29 (.04)	.42 (.04)	-.18 (.04)	.60 (.04)
Reappraisal	-.10 (.04)	.71 (.05)		-.23 (.03)	
Behavioral Avoidance	.69 (.02)		.70 (.03)		1.00 (.00)
Experiential Avoidance	.80 (.02)		.80 (.03)	.78 (.02)	
Rumination	.60 (.03)		.57 (.03)	.55 (.03)	
Worry	.63 (.02)		.62 (.03)	.66 (.02)	
Expressive Suppression	.29 (.03)		.28 (.04)	.29 (.03)	

Note. Factor loadings above |.30| are shown in boldface. Fit indices for single factor model:  $\chi^2(27) = 1874.13$ ,  $p < .001$ , CFI = .42, RMSEA = .27, SRMR = .14. Fit indices for Adaptive/Maladaptive model:  $\chi^2(25) = 1756.31$ ,  $p < .001$ , CFI = .46, RMSEA = .27, SRMR = .15. Fit indices for Behavioral/Cognitive model:  $\chi^2(25) = 1394.82$ ,  $p < .001$ , CFI = .57, RMSEA = .24, SRMR = .12. Factor correlations = -.17 for Adaptive/Maladaptive and .65 for Behavioral/Cognitive.

Future studies should more strongly test these models empirically by using a design that specifically includes multiple valid indicators of each putative factor.

Turning to the exploratory factor analyses, our results were most consistent with a variant of the adaptive versus maladaptive strategy framework. The single-factor solution had positive loadings from habitually used maladaptive strategies and negative loadings from habitually used adaptive strategies, whereas adaptive strategies split off to form the second factor in the two-factor solution. However, neither solution seemed optimal for these data. Specifically, there were several weak loadings (primarily problem solving and reappraisal) in the one-factor solution, and the second factor in the two-factor solution was strongly dominated by problem solving and lacked robust loadings from the other adaptive strategies. The three factor model was most interpretable, yielding factors that we labeled Disengagement, Aversive Cognitive Perseveration, and Adaptive Engagement. With regard to prior theo-

retical models, the first factor does not fit clearly into the adaptive/maladaptive framework (see below and the note of Table 1 regarding the ambiguous placement of distraction in this model), the second factor is composed of putatively maladaptive cognitive strategies, and the third factor is composed of putatively adaptive strategies (though mindfulness and acceptance were only secondarily associated with Adaptive Engagement). These factors also align to some degree with Sheppes and colleagues' (Sheppes et al., 2014) framework that contrasts disengagement (i.e., the first factor) and engagement strategies (i.e., the last two factors), both of which have specific costs and benefits that must be weighed when selecting an emotion regulation strategy.

The first factor in this solution—Disengagement—was characterized by attempts to avoid or shift focus from an emotionally relevant situation (whether an internal experience or related external stimuli). Distraction primarily defined this factor, but there were additional substantial contributions from low mindfulness,

Table 9  
Geomin-Rotated Loadings From Exploratory Factor Analyses of Emotion Regulation Strategies

Strategy	1 factor	2 factors		3 factors			4 factors			
		1	2	1	2	3	1	2	3	4
Behavioral Avoidance	.70	.79	.33	.63	.21	.15	.71	.38	.09	-.13
Mindfulness	-.64	-.63	.36	-.69	.00	.57	-.71	.41	.01	.09
Experiential Avoidance	.77	.75	-.02	.35	.46	-.12	.43	.00	.43	.07
Rumination	.60	.61	.11	.07	.63	.08	.17	.22	.54	.01
Acceptance	-.56	-.53	.24	-.01	-.58	.26	-.12	.09	-.51	.06
Worry	.56	.55	.00	-.08	.73	.01	-.01	-.01	.81	.33
Distraction	.33	.37	.22	1.26	-.80	.00	1.04	.00	-.67	.04
Expressive Suppression	.34	.32	-.07	.32	.03	-.15	.34	-.16	.04	.10
Problem Solving	-.09	.00	1.03	.00	.01	1.02	.00	1.00	-.10	.03
Reappraisal	-.16	-.12	.46	.03	-.15	.46	.00	.04	-.01	.98
<b>Factor correlations</b>										
1			-.05		.67	.17		.08	.57	-.08
2						.02			-.10	.36
3										-.29

Note. Factor loadings above |.30| are shown in boldface. Observed eigenvalues = 3.34, 1.89, 1.27, .93, .78, .65, .48, .42, .25, -.01. Randomly-generated eigenvalues for parallel analysis = 1.20, 1.15, 1.10, 1.07, 1.04, 1.01, .97, .95, .92, .87.

behavioral avoidance, experiential avoidance, and expressive suppression. Of note, strategies that marked this factor require relatively few cognitive resources and are particularly appropriate for regulating high-intensity emotions (e.g., Sheppes et al., 2014; Sheppes, Scheibe, Suri, & Gross, 2011). For example, distraction is generally effective in reducing negative affect when examined in the laboratory and/or when short-term goals dominate (Webb et al., 2012). However, distraction is linked to psychopathology when used habitually and indiscriminately, as it does not allow for adequate processing of meaningful or recurring emotional information (Sheppes et al., 2014; Wilson & Gilbert, 2008). Disengagement's strong positive association with Aversive Cognitive Perseveration and weak positive association with Adaptive Strategies may reflect this dual quality, suggesting that people who report *habitually* using distraction and other disengagement strategies may do so in a context-sensitive and adaptive manner, but they are likely to do so inappropriately and with some negative consequences.

In contrast, Aversive Cognitive Perseveration was marked by overengagement with or difficulty disengaging from negative cognitions (i.e., worry, rumination, low distraction), as well as rejection and avoidance of these negative internal experiences (i.e., experiential avoidance, low acceptance). As compared with the strategies in Disengagement, strategies like rumination, worry, and experiential avoidance tend to be more strongly and consistently linked with psychopathology (Aldao et al., 2010). The combination of perseverative negative thinking (approach behavior) and desires or attempts to avoid negative thoughts/experiences (avoidance behavior) may initially seem counterintuitive, but it likely reflects two established processes. First, thought suppression (subsumed within experiential avoidance here) tends to have an ironic effect such that it increases the frequency of the very thought one is trying to avoid, consistent with perseverative thought processes like rumination or worry (Wenzlaff & Wegner, 2000). Second, rumination and worry are often employed as attempts to avoid future episodes of negative affect by learning from one's past mistakes (rumination; Watkins & Baracaia, 2001; Watkins & Moulds, 2005) or preventing bad events from occurring (worry; Behar, DiMarco, Hekler, Mohlman, & Staples, 2009). However, these strategies typically serve to increase rather than decrease negative emotions and thoughts (e.g., Dickson, Ciesla, & Reilly, 2012; McLaughlin, Borkovec, & Sibrava, 2007), which may lead to greater attempts to avoid these negative internal experiences.

Last, the Adaptive Engagement factor was primarily and strongly marked by problem solving, with weaker but substantial loadings from mindfulness, reappraisal, and acceptance. Our finding that problem solving stands out from other strategies in structural analyses is consistent with the results of Aldao and Nolen-Hoeksema (2010). This may be because problem solving is unique among adaptive strategies in that it focuses on modifying external situations, rather than directly influencing one's emotions (Aldao & Nolen-Hoeksema, 2010). Although this factor is interpretable, it has fewer strong and primary loadings and is less unified than the other factors (especially Aversive Cognitive Perseveration). There is evidence that the employment of putatively adaptive strategies is more variable and dependent upon context, relative to the more stable use of putatively maladaptive strategies (Aldao & Nolen-Hoeksema, 2012). As such, it may be more difficult for respondents to accurately summarize their overall use of these strategies

in dispositional self-reported measures and such ratings may not be optimally meaningful or form a coherent structure. On the other hand, if adaptive strategies were truly unrelated to one another (and to maladaptive strategies) because their use is extremely context-dependent, they would have loaded weakly and arbitrarily on any/all factors. Thus, these results paint a picture somewhere between the extremes, suggesting that the habitual use of adaptive strategies tend to covary with one another, albeit somewhat loosely. Finally, it is noteworthy that this factor was weakly related to Disengagement and unrelated to Aversive Cognitive Perseveration, indicating that habitual use of these putatively adaptive strategies is relatively independent from distraction and putatively maladaptive strategies.

### Distress Tolerance and Emotion Regulation Strategies

We also examined how distress tolerance, an important emotion regulation ability (e.g., Berking et al., 2008), is associated with the habitual use of emotion regulation strategies. However, these results should be considered preliminary given the small number of samples contributing to most of the meta-analytic estimates. We found that individuals with low distress tolerance did not show increased use of any and all strategies to regulate their negative emotions, but rather favored certain strategies. Specifically, distress tolerance was most strongly associated with (low) experiential avoidance and (low) worry; more moderately with mindfulness, (low) rumination, and acceptance; and weakly but significantly with problem solving, reappraisal, and (low) expressive suppression. These results are generally consistent with the only other study to examine the associations of distress tolerance with emotion regulation strategies, which found significant negative zero-order associations with thought suppression, avoidance, and rumination, as well as a positive association with reappraisal (Jeffries et al., 2016). Unfortunately, we were not able to examine correlations between distress tolerance and the emotion regulation strategy factors because this correlation matrix had missing cells (i.e., there were no studies reporting correlations between distress tolerance and two of the emotion regulation strategies), but the pattern of correlations suggests that distress tolerance is probably most closely related to Aversive Cognitive Perseveration, and, to a lesser degree, Disengagement.

There was not strong evidence that individuals with low distress tolerance tend to use quicker, less effortful strategies (but note that two such strategies, behavioral avoidance and distraction, could not be examined due to an absence of relevant studies). Rather, the primary correlates of distress tolerance may be placed into two groups: perseverative thought focused on negative content (i.e., rumination and worry) and an open approach to one's current experiences (i.e., acceptance and mindfulness, low experiential avoidance). As described previously, rumination and worry are both tied to elevated negative affect. Thus, it is unclear in these cross-sectional data whether low distress tolerance may lead individuals to get stuck in thoughts about past and future negative events, and/or whether rumination and worry increase the frequency and intensity of negative affect, causing individuals to become more averse to distress.

The positive associations with mindfulness and acceptance were consistent with theory, as all three constructs share a nonavoidant stance toward negative affect. However, these effect sizes were

only moderate in magnitude, and we speculate that this may be because mindfulness and acceptance go beyond a “lack of avoidance” to include a welcoming, curious, and open approach to one’s current experience, distressing or otherwise (e.g., Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006). In addition, it is notable that the corrected correlation between distress tolerance and experiential avoidance was very strong ( $\rho = -.72$ ). Measures of experiential avoidance generally include content about the perceived unacceptability of negative emotions, which clearly is connected to low distress tolerance. Although researchers have also pointed out important conceptual distinctions between the two constructs (e.g., Boulanger, Hayes, & Pistorello, 2010), this strong correlation suggests possible discriminant validity concerns when measured at the dispositional, self-reported level. In summary, it appears that high levels of distress tolerance are related to an increased habitual use of adaptive strategies and a decreased habitual use of maladaptive strategies, but it is most closely aligned with (low) perseverative negative cognition and an approach-oriented stance toward aversive internal experiences.

### Moderators of Correlations Between Strategies

Most of the demographic moderators examined here did not account for significant variance across studies in heterogeneous meta-analytic correlations. Specifically, gender, race, and clinical versus nonclinical sample largely did not moderate effect sizes, indicating that associations among strategies were similar across these subgroups. The only exceptions were that the positive correlation between rumination and worry—two variants of negative repetitive thought whose similarity versus distinctiveness continues to be debated (e.g., Hong, 2007)—was stronger in samples with nonclinical participants than samples with clinical participants, and the association between reappraisal and rumination was significantly negative in clinical samples but nonsignificant in nonclinical samples. In the absence of similar empirical findings from prior research, it is not clear how to explain the difference in correlations for rumination and worry or even how meaningful it is (particularly given the weak significance of the test), as the effect sizes of the subgroup correlations were comparable in magnitude. With regard to the association between rumination and reappraisal, mindfulness training is known to decrease the former (e.g., Ietsugu et al., 2015) and increase the latter (e.g., Garland et al., 2015), and so it is plausible exposure to mindfulness training via therapy may have increased the association between these strategies for clinical participants.

In contrast to the above demographic characteristics, age was a significant moderator of the associations between some of the emotion regulation strategies (i.e., five out of 17). Prior to interpreting these findings, however, it is important to note that applying a Bonferroni correction for the 17 tests conducted in these moderation analyses reduced all findings for age to nonsignificance. Therefore, these results should be interpreted cautiously and we focus on larger patterns rather than individual findings. The majority of these analyses suggested greater differentiation or independence in associations of several strategies as age increases. Correlations between distraction-reappraisal, distraction-problem solving, and reappraisal-worry tended to be moderately positive in child samples and near zero or weakly negative in adults (particularly older adults), yielding weak positive overall estimates. This

is consistent with findings in the coping literature that, as children age and approach adulthood, they develop a larger and more refined set of relevant strategies. Furthermore, they reflect more on their emotion regulation processes and show greater specificity and discrimination when selecting strategies to use (see Zimmer-Gembeck & Skinner, 2011, for a review). In addition, the acceptance-reappraisal and acceptance-mindfulness correlations were moderated by age. The samples contributing to these estimates did not include children, but we found that the positive correlations were stronger in older than younger adults. This may reflect stronger covariances among putatively adaptive strategies as one ages, consistent with evidence that older adults more frequently use acceptance and less frequently use putatively maladaptive strategies than do younger adults (Schirda, Valentine, Aldao, & Prakash, 2016).

The moderator that was most influential in these analyses was the specific measure used to assess the constructs. Overall, about two thirds (i.e., 22 of 34) of these moderator analyses indicated that the measure used for a given construct contributed to heterogeneity across correlations. This effect did not appear to be attributable to differences in measure reliability, nor was it primarily attributable to Type I error (after applying a Bonferroni correction for 34 tests, 16 of 22 tests remained significant). Note that two considerations complicate the interpretation of these analyses: (a) In many cases, there were only two or three studies that used a given measure in a given meta-analytic effect, rendering these results particularly vulnerable to outliers and sampling error, and (b) often studies measured both constructs in a correlation with subscales from the same inventory, wherein the same studies were grouped together for both constructs and the resulting analyses were not independent. As such, these analyses should be interpreted with caution, but they raise several questions. How problematic is this variability of associations by measure? Is such heterogeneity across measures unique to the emotion regulation domain? Or is this normative for trait-based, self-reported measures of complex and multidimensional constructs? We suspect the latter contention is more accurate, but it is difficult to evaluate empirically because most comparable meta-analyses based on self-report measures (e.g., in emotion regulation, coping, personality, or psychopathology) did not examine measure as a moderator, compared only two or three measures per meta-analytic estimate, or took a more liberal approach by putting the predominant measure in its own category and collapsing the rest of the measures in an “other” category. Although correlations that included distraction or reappraisal were most frequently heterogeneous with regard to measure, there was not a clear pattern as to specific measures and correlation strength. At the least, these results serve as a reminder that the measure one selects matters, and indicators of a construct are often not truly interchangeable in practice.

### Theoretical and Applied Considerations

**Contemplating context.** There is not currently sufficient contextually sensitive data on emotion regulation strategy use to synthesize into a quantitative review, and so our analysis was restricted to dispositionally-assessed emotion regulation use that by definition cannot reflect the role of context (though we speculate above that the relatively weak loadings on the Adaptive Engagement factor may be due to greater contextual variability in

the use of these strategies). This is a substantial limitation, but we believe an analysis of habitual strategy use is still of value, as there is a large literature demonstrating that self-reported habitual use of emotion regulation strategies is robustly predictive of important outcomes, and this meta-analysis helps to organize and clarify that literature. Assessment of dispositional strategy use is particularly relevant for research questions focused on the correlates or effects of long-term and inflexible use of specific strategies, which is associated with psychopathology (e.g., Campbell-Sills & Barlow, 2007). Furthermore, assessing overall strategy use and/or abilities may be the best option in clinical and research situations where an idiographic and contextualized assessment of emotion regulation is simply not feasible (e.g., when many people need to be assessed, or time and resources are prohibitive).

However, conceptualizing emotion regulation in terms of habitual strategy use is inadequate or even misleading for some important research questions, in that this approach addresses only a piece of the picture. Recent research has found that momentary emotion regulation strategy use and outcomes are dependent upon many contextual features, including characteristics of the person, external stimuli, specific emotion regulation goals, the emotion(s) to be regulated, long-term goals, and available cognitive resources (see Aldao, 2013). Thus, dispositional strategy use is of limited value if one wants to examine certain higher-order abilities related to strategy use (e.g., emotion regulation flexibility), how contextual features lead to selection and implementation of strategies, or the functions and goals of emotion regulation attempts. For questions like these, other ways of examining emotion regulation are likely superior, including laboratory paradigms that experimentally control contextual features and strategy use, or ecological momentary assessment that gathers real-time information repeatedly on the context and content of emotion regulation episodes. Furthermore, the assessment of the habitual use of emotion regulation strategies relies on retrospective recall, which may be particularly problematic for strategies whose use is highly contextually dependent, such as acceptance, reappraisal, or problem solving (Aldao & Nolen-Hoeksema, 2012). Overall, we argue that neither a dispositional nor a contextual approach to emotion regulation is inherently “better”—rather, each provides different information, and it is critical to select the most useful approach for a given purpose and interpret results within the associated informational constraints.

**Clinical and research implications.** One important application of these results is as an empirically driven framework for synthesizing the large but generally isolated bodies of research on how specific habitual emotion regulation strategies relate to psychopathology. Synthesis of results within this framework could yield novel or broader hypotheses by clarifying important similarities and distinctions in these strategies as they relate to psychopathology. In addition, these groupings may help clinicians conceptualize and characterize the nature of a specific client’s repertoire and use of emotion regulation strategies.

These results also have implications for assessment of emotion regulation strategies in clinical and research contexts. Given that it is not always feasible to assess a large number of emotion regulation strategies, one way to capture important areas of breadth in an efficient manner would be to assess one or two constructs with the strongest loadings on each of the three factors. Of note, while existing instruments with subscales assessing multiples strategies are of great utility (e.g., Emotion Regulation Questionnaire, Cog-

nitiv Emotion Regulation Questionnaire, COPE Inventory), none of them has good coverage of all three of these factors. Thus, if one is interested in the full range of content found in these structural analyses, multiple inventories would likely need to be used. The pattern of loadings in our analyses suggests that individual putatively adaptive strategies are not captured or represented as fully in this structure as are individual putatively maladaptive strategies (which share a greater proportion of variance with one another). Thus, if adaptive strategies are of particular interest, it may be wise to assess a number of these strategies, whereas focusing on a smaller number of highly loading maladaptive strategies may suffice.

## Study Limitations

Although this study provides a novel and relatively comprehensive assessment of the structure of emotion regulation strategies as revealed by extant literature, there are numerous limitations that should be considered. First, to keep the scope of analyses manageable, we selected a moderately large group of some of the most frequently studied and regularly employed emotion regulation strategies, but many possible exemplars of emotion regulation were not included. In particular, reflecting the larger literature, cognitive emotion regulation strategies were overrepresented relative to behavioral strategies, and there were too few studies of strategies specific to positive emotion regulation to include them in analyses. As in any structural analysis, the resulting structure is a function of the selected indicators, and so a different set of strategies may have yielded a somewhat different pattern of results. In addition, it is unknown to what extent the structures derived in an exploratory fashion will be replicable to other samples, and this should be tested empirically.

There are also several statistical limitations. Although most of the meta-analytic correlations were based on a moderate to large number of samples, a minority were based on only one to five samples. The precision of these estimates is therefore lower and they should be interpreted more cautiously. It is also possible that these “noisier” correlations may have influenced structural results, although the impact was likely minimal as they constituted a relatively small subset of the full correlation matrix. In addition, the nonpositive definite meta-analytic correlation matrix necessitated the use of estimators in structural analyses that did not provide standard errors or fit indices for exploratory factor analyses. As such, we could not evaluate the precision of the factor loading parameters or the absolute fit of the data for these analyses.<sup>9</sup> We also were not able to weight the individual correlations by sample size in structural analyses, instead using the overall harmonic mean.

Last, and perhaps more importantly, this analysis focused on measures of self-reported habitual use of emotion regulation strategies, as this is a common and simple means of assessing emotion regulation. However, as discussed previously, this type of mea-

<sup>9</sup> However, we note that when determining the optimal factor solution in exploratory factor analysis, interpretability of solutions is generally emphasized over quantitative indicators (i.e., one would not blindly follow rules-of-thumb based on eigenvalues if they yield uninterpretable factors). In addition, fit indices are not available for EFA when using most estimators (maximum likelihood estimators are the only exception) (Brown, 2015).

surement relies on retrospection and does not allow for an assessment of automatic/nonconscious emotion regulation, context-dependent strategy use, temporal unfolding of processes, or potential causal associations among strategies. Furthermore, almost nothing is known about how reported habitual strategy use in these studies maps onto actual use in daily life. To our knowledge, the only available data addressing this issue are from a study from our lab, which found that habitual strategy use was a significant predictor of subsequent daily strategy use in 8 of 11 instances for a number of strategies (i.e., rumination, reappraisal, expressive suppression, behavioral avoidance, experiential avoidance, acceptance) in a clinical sample and an unselected student sample (mean  $\beta$ s = .28 in the clinical sample and .22 in the student sample; Naragon-Gainey, 2016). These findings are consistent with reasonable ecological validity of some dispositional emotion regulation measures, but nonetheless, the results of the current study should not be generalized to extend beyond the information provided by self-reported habitual measures.

### Future Directions

This meta-analysis suggests a number of important areas of focus for the field of emotion regulation. Our results identified an empirical framework for the structure of emotion regulation strategies, but a comprehensive empirical structure of emotion regulation abilities that extend beyond a single instrument has not yet been assessed. Of particular interest will be empirically supported models that combine multiple strategies and abilities to illustrate how these constructs interact to yield successful and/or adaptive emotion regulation. In addition, while this study examined covariances among habitual emotion regulation strategies, an important next step would be to examine covariances among momentary emotion regulation strategies in an intensive longitudinal modeling approach. This would allow exploration of the within-person structure of emotion regulation strategies; that is, how do these strategies covary as people actually use them on specific occasions in their daily lives? Our study examined measures that assess strategies that are *often* used in order to regulate emotions, but these measures do not address the explicit activation of an emotion regulation goal. It is important that future studies clarify the role of emotion regulation goals. Does restricting assessment of strategy use to instances when one wanted to influence one's emotions affect the structure of emotion regulation strategy use? Or do we find a similar structure regardless, perhaps suggesting that the use of these strategies *implies* an emotion regulation goal, even if it is not consciously available? Last, future studies should assess the utility and validity of this structure by examining the associations of each factor with relevant outcomes (e.g., psychopathology, social functioning, decision-making). Ideally, the factors should be incrementally informative, relative to one another and to related constructs, with regard to important outcomes. We hope this meta-analysis provides a foundation upon which such examinations may be built.

### References

\* References marked with an asterisk indicate studies included in the meta-analysis.

Abela, J. R., Aydin, C. M., & Auerbach, R. P. (2007). Responses to depression in children: Reconceptualizing the relation among response

styles. *Journal of Abnormal Child Psychology*, 35, 913–927. <http://dx.doi.org/10.1007/s10802-007-9143-2>

\*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. <http://dx.doi.org/10.1023/A:1019873015594>

\*Adams, L. J. (2009). *A confirmatory factor analysis of the Difficulties in Emotion Regulation Scale* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses database. (Accession No. 2010-99060-495)

\*Adams, P., Abela, J. R. Z., & Hankin, B. L. (2007). Factorial categorization of depression-related constructs in early adolescents. *Journal of Cognitive Psychotherapy*, 21, 123–139. <http://dx.doi.org/10.1891/088983907780851540>

\*Adams, R. L. (2011). *Examining the effects of mindfulness-based stress Reduction (MBSR) training on working adults* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses database. (Accession No. 2011-99220-430)

\*Aguirre, M. G. (2008). *An examination of the role of meaning in post-traumatic growth following bereavement* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses database. (Accession No. 2009-99080-272)

Aldao, A. (2013). The future of emotion regulation research: Capturing context. *Perspectives on Psychological Science*, 8, 155–172. <http://dx.doi.org/10.1177/1745691612459518>

\*Aldao, A. (2015). Emotion regulation strategies in undergraduates. Unpublished raw data.

Aldao, A., & Dixon-Gordon, K. L. (2014). Broadening the scope of research on emotion regulation strategies and psychopathology. *Cognitive Behaviour Therapy*, 43, 22–33. <http://dx.doi.org/10.1080/16506073.2013.816769>

\*Aldao, A., & Nolen-Hoeksema, S. (2010). Specificity of cognitive emotion regulation strategies: A transdiagnostic examination. *Behaviour Research and Therapy*, 48, 974–983. <http://dx.doi.org/10.1016/j.brat.2010.06.002>

Aldao, A., & Nolen-Hoeksema, S. (2012). The influence of context on the implementation of adaptive emotion regulation strategies. *Behaviour Research and Therapy*, 50(7–8), 493–501. <http://dx.doi.org/10.1016/j.brat.2012.04.004>

Aldao, A., & Nolen-Hoeksema, S. (2013). One versus many: Capturing the use of multiple emotion regulation strategies in response to an emotion-eliciting stimulus. *Cognition and Emotion*, 27, 753–760. <http://dx.doi.org/10.1080/02699931.2012.739998>

Aldao, A., Nolen-Hoeksema, S., & Schweizer, S. (2010). Emotion-regulation strategies across psychopathology: A meta-analytic review. *Clinical Psychology Review*, 30, 217–237. <http://dx.doi.org/10.1016/j.cpr.2009.11.004>

\*Allan, L. C. (2010). *Rumination and reflection: An investigation of self-focus, metacognition, and coping styles in depression and anxiety* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses database. (Accession No. 2011-99040-366)

\*Allan, N. P., Macatee, R. J., Norr, A. M., & Schmidt, N. B. (2014). Direct and interactive effects of distress tolerance and anxiety sensitivity on generalized anxiety and depression. *Cognitive Therapy and Research*, 38, 530–540. <http://dx.doi.org/10.1007/s10608-014-9623-y>

\*Alloy, L. B., Abramson, L. Y., Flynn, M., Liu, R. T., Grant, D. A., Jager-Hyman, S., & Whitehouse, W. G. (2009). Self-focused cognitive styles and bipolar spectrum disorders: Concurrent and prospective associations. *International Journal of Cognitive Therapy*, 2, 354–372. <http://dx.doi.org/10.1521/ijct.2009.2.4.354>

\*Amstadter, A. B., & Vernon, L. L. (2008). A preliminary examination of thought suppression, emotion regulation, and coping in a trauma exposed sample. *Journal of Aggression, Maltreatment & Trauma*, 17, 279–295. <http://dx.doi.org/10.1080/10926770802403236>



- \*Andrews, T., Martin, G., Hasking, P., & Page, A. (2013). Predictors of continuation and cessation of nonsuicidal self-injury. *Journal of Adolescent Health, 53*, 40–46. <http://dx.doi.org/10.1016/j.jadohealth.2013.01.009>
- \*Appleton, A. A., Buka, S. L., Loucks, E. B., Gilman, S. E., & Kubzansky, L. D. (2013). Divergent associations of adaptive and maladaptive emotion regulation strategies with inflammation. *Health Psychology, 32*, 748–756. <http://dx.doi.org/10.1037/a0030068>
- \*Arditte, K. A., & Joormann, J. (2011). Emotion regulation in depression: Reflection predicts recovery from a major depressive episode. *Cognitive Therapy and Research, 35*, 536–543. <http://dx.doi.org/10.1007/s10608-011-9389-4>
- \*Argus, G., & Thompson, M. (2008). Perceived social problem solving, perfectionism, and mindful awareness in clinical depression: An exploratory study. *Cognitive Therapy and Research, 32*, 745–757. <http://dx.doi.org/10.1007/s10608-006-9102-1>
- \*Arndt, J. E., Høglund, W. L. G., & Fujiwara, E. (2013). Desirable responding mediates the relationship between emotion regulation and anxiety. *Personality and Individual Differences, 55*, 147–151. <http://dx.doi.org/10.1016/j.paid.2013.02.022>. [10.1177/1073191105283504](https://doi.org/10.1177/1073191105283504)
- Arnou, B. A., Spangler, D., Klein, D. N., & Burns, D. D. (2004). Rumination and distraction among chronic depressives in treatment: A structural equation analysis. *Cognitive Therapy and Research, 28*, 67–83. <http://dx.doi.org/10.1023/B:COTR.0000016931.37807.ab>
- \*Baer, R. A., Smith, G. T., & Allen, K. B. (2004). Assessment of mindfulness by self-report: The Kentucky inventory of mindfulness skills. *Assessment, 11*, 191–206. <http://dx.doi.org/10.1177/1073191104268029>
- \*Baer, R. A., Smith, G. T., Hopkins, J., Krietemeyer, J., & Toney, L. (2006). Using self-report assessment methods to explore facets of mindfulness. *Assessment, 13*, 27–45.
- \*Bagby, R. M., Rector, N. A., Segal, Z. V., Joffe, R. T., Levitt, A. J., Kennedy, S. H., & Levitan, R. D. (1999). Rumination and distraction in major depression: Assessing response to pharmacological treatment. *Journal of Affective Disorders, 55*(2–3), 225–229. [http://dx.doi.org/10.1016/S0165-0327\(99\)00015-4](http://dx.doi.org/10.1016/S0165-0327(99)00015-4)
- Bardeen, J. R., Tull, M. T., Dixon-Gordon, K. L., Stevens, E. N., & Gratz, K. L. (2015). Attentional control as a moderator of the relationship between difficulties accessing effective emotion regulation strategies and distress tolerance. *Journal of Psychopathology and Behavioral Assessment, 37*, 79–84. <http://dx.doi.org/10.1007/s10862-014-9433-2>
- \*Bariola, E., Hughes, E. K., & Gullone, E. (2012). Relationships between parent and child emotion regulation strategy use: A brief report. *Journal of Child and Family Studies, 21*, 443–448.
- \*Barnes, S. M., & Lynn, S. J. (2010). Mindfulness skills and depressive symptoms: A longitudinal study. *Imagination, Cognition and Personality, 30*, 77–91. <http://dx.doi.org/10.2190/IC.30.1.e>
- Behar, E., DiMarco, I. D., Hekler, E. B., Mohlman, J., & Staples, A. M. (2009). Current theoretical models of generalized anxiety disorder (GAD): Conceptual review and treatment implications. *Journal of Anxiety Disorders, 23*, 1011–1023. <http://dx.doi.org/10.1016/j.janxdis.2009.07.006>
- Belzer, K. D., & D’Zurilla, T. J. (1999). *Psychometric properties of the Catastrophic Worry Questionnaire*. Unpublished data, Department of Psychology, State University of New York at Stony Brook.
- \*Belzer, K. D., D’Zurilla, T. J., & Maydeu-Olivares, A. (2002). Social problem solving and trait anxiety as predictors of worry in a college student population. *Personality and Individual Differences, 33*, 573–585. [http://dx.doi.org/10.1016/S0191-8869\(01\)00173-8](http://dx.doi.org/10.1016/S0191-8869(01)00173-8)
- \*Bender, J., Jr. (2008). *Emotion regulation deficits in older adults with GAD* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses database. (Accession No. 2010–99040-172)
- \*Bennett, S. A., Beck, J. G., & Clapp, J. D. (2009). Understanding the relationship between posttraumatic stress disorder and trauma cognitions: The impact of thought control strategies. *Behaviour Research and Therapy, 47*, 1018–1023. <http://dx.doi.org/10.1016/j.brat.2009.07.015>
- \*Benazon, N. (1998). *Predicting negative partner attitudes toward depressed person: An empirical evaluation of three theories* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses database. (Accession No. 1998-95018-002)
- Berking, M., & Schwarz, J. (2014). Affect regulation training. In J. J. Gross & J. J. Gross (Eds.), *Handbook of emotion regulation* (2nd ed., pp. 529–547). New York, NY: Guilford Press.
- Berking, M., & Wupperman, P. (2012). Emotion regulation and mental health: Recent findings, current challenges, and future directions. *Current Opinion in Psychiatry, 25*, 128–134. <http://dx.doi.org/10.1097/YCO.0b013e3283503669>
- Berking, M., Wupperman, P., Reichardt, A., Pejic, T., Dippel, A., & Znoj, H. (2008). Emotion-regulation skills as a treatment target in psychotherapy. *Behaviour Research and Therapy, 46*, 1230–1237. <http://dx.doi.org/10.1016/j.brat.2008.08.005>
- Berking, M., & Znoj, H. (2008). Entwicklung und validierung eines fragebogens zur standardisierten Selbsteinschätzung emotionaler Kompetenzen (SEK-27) [Development and validation of a self-report measure for the assessment of Emotion Regulation Skills (SEK-27)]. *Zeitschrift für Psychiatrie, Psychologie und Psychotherapie, 56*, 141–153. <http://dx.doi.org/10.1024/1661-4747.56.2.141>
- \*Bird, T., Mansell, W., Dickens, C., & Tai, S. (2013). Is there a core process across depression and anxiety? *Cognitive Therapy and Research, 37*, 307–323. <http://dx.doi.org/10.1007/s10608-012-9475-2>
- \*Bjornsson, A., Carey, G., Hauser, M., Karris, A., Kaufmann, V., Sheets, E., & Craighead, W. E. (2010). The effects of experiential avoidance and rumination on depression among college students. *International Journal of Cognitive Therapy, 3*, 389–401. <http://dx.doi.org/10.1521/ijct.2010.3.4.389>
- Bloch, L., Moran, E. K., & Kring, A. M. (2010). On the need for conceptual and definitional clarity in emotion regulation research on psychopathology. In A. M. Kring & D. M. Sloan (Eds.), *Emotion regulation and psychopathology: A transdiagnostic approach to etiology and treatment* (pp. 88–104). New York, NY: Guilford Press.
- \*Boden, M. T., Westermann, S., McRae, K., Kuo, J., Alvarez, J., Kulkarni, M. R., . . . Bonn-Miller, M. O. (2013). Emotion regulation and post-traumatic stress disorder: A prospective investigation. *Journal of Social and Clinical Psychology, 32*, 296–314. <http://dx.doi.org/10.1521/jscp.2013.32.3.296>
- Bonanno, G. A., & Burton, C. L. (2013). Regulatory flexibility: An individual differences perspective on coping and emotion regulation. *Perspectives on Psychological Science, 8*, 591–612. <http://dx.doi.org/10.1177/1745691613504116>
- Bond, F. W., Hayes, S. C., Baer, R. A., Carpenter, K. C., Guenole, N., Orcutt, H. K., . . . Zettle, R. D. (2011). Preliminary psychometric properties of the Acceptance and Action Questionnaire-II: A revised measure of psychological inflexibility and experiential avoidance. *Behavior Therapy, 42*, 676–688. <http://dx.doi.org/10.1016/j.beth.2011.03.007>
- \*Borders, A., Earleywine, M., & Jajodia, A. (2010). Could mindfulness decrease anger, hostility, and aggression by decreasing rumination? *Aggressive Behavior, 36*, 28–44. <http://dx.doi.org/10.1002/ab.20327>
- Borenstein, M., Hedges, L. V., Higgins, J. P. T., & Rothstein, H. R. (2009). *Introduction to meta-analysis*. Chichester, UK: Wiley and Sons. <http://dx.doi.org/10.1002/9780470743386>
- Borenstein, M., Hedges, L., Higgins, J., Rothstein, H., & Englewood, N. J. (2007). *Comprehensive meta-analysis: A computer program for meta-analysis (version 2.2)*. [computer software]. Englewood, NJ: Biostat Inc.
- Borkovec, T. D., Alcaine, O. M., & Behar, E. (2004). Avoidance theory of worry and generalized anxiety disorder. In R. G. Heimberg, C. L. Turk, D. S. Mennin, R. G. Heimberg, C. L. Turk, & D. S. Mennin (Eds.),

- Generalized anxiety disorder: Advances in research and practice* (pp. 77–108). New York, NY: Guilford Press.
- Boulanger, J. L., Hayes, S. C., & Pistorello, J. (2010). Experiential avoidance as a functional contextual concept. In A. M. Kring & D. M. Sloan (Eds.), *Emotion regulation and psychopathology: A transdiagnostic approach to etiology and treatment* (pp. 107–136). New York, NY: Guilford Press.
- Brans, K., Koval, P., Verduyn, P., Lim, Y. L., & Kuppens, P. (2013). The regulation of negative and positive affect in daily life. *Emotion, 13*, 926–939. <http://dx.doi.org/10.1037/a0032400>
- Brinker, J. K., & Dozois, D. J. (2009). Ruminative thought style and depressed mood. *Journal of Clinical Psychology, 65*, 1–19. <http://dx.doi.org/10.1002/jclp.20542>
- \*Britton, P. C. (2004). The relation of coping strategies to alcohol consumption and alcohol-related consequences in a college sample. *Addiction Research & Theory, 12*, 103–114. <http://dx.doi.org/10.1080/16066350310001613062>
- \*Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology, 84*, 822–848. <http://dx.doi.org/10.1037/0022-3514.84.4.822>
- Brown, T. A. (2015). *Confirmatory factor analysis for applied research* (2nd ed.). New York, NY: Guilford Press.
- Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 136–162). Beverly Hills, CA: Sage.
- \*Bullis, J. R., Bøe, H. J., Asnaani, A., & Hofmann, S. G. (2014). The benefits of being mindful: Trait mindfulness predicts less stress reactivity to suppression. *Journal of Behavior Therapy and Experimental Psychiatry, 45*, 57–66. <http://dx.doi.org/10.1016/j.jbtep.2013.07.006>
- \*Caldwell, J. G., & Shaver, P. R. (2012). Exploring the cognitive-emotional pathways between adult attachment and ego-resiliency. *Individual Differences Research, 10*, 141–152.
- \*Caldwell, J. G., & Shaver, P. R. (2015). Promoting attachment-related mindfulness and compassion: A wait-list-controlled study of women who were mistreated during childhood. *Mindfulness, 6*, 624–636. <http://dx.doi.org/10.1007/s12671-014-0298-y>
- \*Calmes, C. A., & Roberts, J. E. (2007). Repetitive thought and emotional distress: Rumination and worry as prospective predictors of depressive and anxious symptomatology. *Cognitive Therapy and Research, 31*, 343–356. <http://dx.doi.org/10.1007/s10608-006-9026-9>
- Campbell-Sills, L., & Barlow, D. H. (2007). Incorporating emotion regulation into conceptualizations and treatments of anxiety and mood disorders. In J. J. Gross (Ed.), *Handbook of emotion regulation* (pp. 542–559). New York, NY: Guilford Press.
- \*Cardaciotto, L. (2005). *Assessing mindfulness: The development of a bi-dimensional measure of awareness and acceptance* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses database. (Accession No. 2005-99024-239)
- Cardaciotto, L., Herbert, J. D., Forman, E. M., Moitra, E., & Farrow, V. (2008). The assessment of present-moment awareness and acceptance: The Philadelphia Mindfulness Scale. *Assessment, 15*, 204–223. <http://dx.doi.org/10.1177/1073191107311467>
- Carl, J. R., Soskin, D. P., Kerns, C., & Barlow, D. H. (2013). Positive emotion regulation in emotional disorders: A theoretical review. *Clinical Psychology Review, 33*, 343–360. <http://dx.doi.org/10.1016/j.cpr.2013.01.003>
- \*Carter, J. A. (2011). *Worry and rumination: Measurement invariance across gender* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses database. (Accession No. 2011-99160-414)
- \*Carvalho, J. P., & Hopko, D. R. (2011). Behavioral theory of depression: Reinforcement as a mediating variable between avoidance and depression. *Journal of Behavior Therapy and Experimental Psychiatry, 42*, 154–162. <http://dx.doi.org/10.1016/j.jbtep.2010.10.001>
- Carver, C. S. (1997). You want to measure coping but your protocol's too long: Consider the brief COPE. *International Journal of Behavioral Medicine, 4*, 92–100. [http://dx.doi.org/10.1207/s15327558ijbm0401\\_6](http://dx.doi.org/10.1207/s15327558ijbm0401_6)
- \*Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology, 56*, 267–283. <http://dx.doi.org/10.1037/0022-3514.56.2.267>
- \*Castaneda, J. O. (2005). *Understanding the construct of and reasons for worry* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses database. (Accession No. 2005-99012-348)
- Chadwick, P., Hember, M., Mead, S., Lilley, B., & Dagnon, D. (2005). *Responding mindfully to unpleasant thoughts and images: Reliability and validity of the Mindfulness Questionnaire*. Unpublished manuscript.
- \*Chambers, R., Gullone, E., Hassed, C., Knight, W., Garvin, T., & Allen, N. (2015). Mindful emotion regulation predicts recovery in depressed youth. *Mindfulness, 6*, 523–534. <http://dx.doi.org/10.1007/s12671-014-0284-4>
- \*Chang, E. C. (2004). Distinguishing between ruminative and distractive responses in dysphoric college students: Does indication of past depression make a difference? *Personality and Individual Differences, 36*, 845–855. [http://dx.doi.org/10.1016/S0191-8869\(03\)00157-0](http://dx.doi.org/10.1016/S0191-8869(03)00157-0)
- \*Chapman, A. L., Specht, M. W., & Cellucci, T. (2005). Borderline personality disorder and deliberate self-harm: Does experiential avoidance play a role? *Suicide and Life-Threatening Behavior, 35*, 388–399. <http://dx.doi.org/10.1521/suli.2005.35.4.388>
- \*Cheavens, J. S., & Heiy, J. (2011). The differential roles of affect and avoidance in major depressive and borderline personality disorder symptoms. *Journal of Social and Clinical Psychology, 30*, 441–457. <http://dx.doi.org/10.1521/jscp.2011.30.5.441>
- Chiesa, A., Serretti, A., & Jakobsen, J. C. (2013). Mindfulness: Top-down or bottom-up emotion regulation strategy? *Clinical Psychology Review, 33*, 82–96. <http://dx.doi.org/10.1016/j.cpr.2012.10.006>
- \*Chopko, B. A., & Schwartz, R. C. (2009). The relation between mindfulness and posttraumatic growth: A study of first responders to trauma-inducing incidents. *Journal of Mental Health Counseling, 31*, 363–376. <http://dx.doi.org/10.17744/mehc.31.4.9w6lkh4v66423385>
- Chorpita, B. F., Tracey, S. A., Brown, T. A., Collica, T. J., & Barlow, D. H. (1997). Assessment of worry in children and adolescents: An adaptation of the Penn State Worry Questionnaire. *Behaviour Research and Therapy, 35*, 569–581. [http://dx.doi.org/10.1016/S0005-7967\(96\)00116-7](http://dx.doi.org/10.1016/S0005-7967(96)00116-7)
- \*Ciarrochi, J., Kashdan, T. B., Leeson, P., Heaven, P., & Jordan, C. (2011). On being aware and accepting: A one-year longitudinal study into adolescent well-being. *Journal of Adolescence, 34*, 695–703. <http://dx.doi.org/10.1016/j.adolescence.2010.09.003>
- \*Ciesla, J., Reilly, L., Dickson, K., Emanuel, A., & Updegraff, J. (2012). Dispositional mindfulness moderates the effects of stress among adolescents: Rumination as a mediator. *Journal of Clinical Child and Adolescent Psychology, 41*, 760–770. <http://dx.doi.org/10.1080/15374416.2012.698724>
- \*Clarke, P. B. (2012). *The relationship between wellness, emotion regulation, and relapse in adult outpatient substance abuse clients* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses database. (Accession No. 2013-99080-138)
- \*Coffey, K. A., Hartman, M., & Fredrickson, B. L. (2010). Deconstructing mindfulness and constructing mental health: Understanding mindfulness and its mechanisms of action. *Mindfulness, 1*, 235–253. <http://dx.doi.org/10.1007/s12671-010-0033-2>
- \*Cohn, A. M., Jakupcak, M., Seibert, L. A., Hildebrandt, T. B., & Zeichner, A. (2010). The role of emotion dysregulation in the association between men's restrictive emotionality and use of physical aggression. *Psychology of Men & Masculinity, 11*, 53–64. <http://dx.doi.org/10.1037/a0018090>
- Cole, P. M., Martin, S. E., & Dennis, T. A. (2004). Emotion regulation as a scientific construct: Methodological challenges and directions for child

- development research. *Child Development*, 75, 317–333. <http://dx.doi.org/10.1111/j.1467-8624.2004.00673.x>
- \*Coles, M. E., & Heimberg, R. G. (2005). Thought control strategies in generalized anxiety disorder. *Cognitive Therapy and Research*, 29, 47–56. <http://dx.doi.org/10.1007/s10608-005-1647-x>
- \*Connell, A. M., Patton, E., Klostermann, S., & Hughes-Scalise, A. (2013). Attention bias in youth: Associations with youth and mother's depressive symptoms moderated by emotion regulation and affective dynamics during family interactions. *Cognition and Emotion*, 27, 1522–1534. <http://dx.doi.org/10.1080/02699931.2013.803459>
- Conway, M., Csank, P. A., Holm, S. L., & Blake, C. K. (2000). On assessing individual differences in rumination on sadness. *Journal of Personality Assessment*, 75, 404–425. [http://dx.doi.org/10.1207/S15327752JPA7503\\_04](http://dx.doi.org/10.1207/S15327752JPA7503_04)
- \*Cogle, J. R., Timpano, K. R., & Goetz, A. R. (2012). Exploring the unique and interactive roles of distress tolerance and negative urgency in obsessions. *Personality and Individual Differences*, 52, 515–520. <http://dx.doi.org/10.1016/j.paid.2011.11.017>
- \*Cribb, G., Moulds, M. L., & Carter, S. (2006). Rumination and experiential avoidance in depression. *Behaviour Change*, 23, 165–176. <http://dx.doi.org/10.1375/bech.23.3.165>
- \*Curtiss, J., & Klemanski, D. H. (2014). Factor analysis of the five facet mindfulness questionnaire in a heterogeneous clinical sample. *Journal of Psychopathology and Behavioral Assessment*, 36, 683–694. <http://dx.doi.org/10.1007/s10862-014-9429-y>
- \*Das, P. M. (2005). *The effects of optimism and coping strategies on quality of life for women with systemic lupus erythematosus* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses database. (Accession No. 2005-99022-261)
- \*Davey, G. C. (1993a). A comparison of three cognitive appraisal strategies: The role of threat devaluation in problem-focused coping. *Personality and Individual Differences*, 14, 535–546. [http://dx.doi.org/10.1016/0191-8869\(93\)90146-T](http://dx.doi.org/10.1016/0191-8869(93)90146-T)
- \*Davey, G. C. (1993b). A comparison of three worry questionnaires. *Behaviour Research and Therapy*, 31, 51–56. [http://dx.doi.org/10.1016/0005-7967\(93\)90042-S](http://dx.doi.org/10.1016/0005-7967(93)90042-S)
- \*de Frias, C. M. (2014). Memory compensation in older adults: The role of health, emotion regulation, and trait mindfulness. *The Journals of Gerontology: Series B: Psychological Sciences and Social Sciences*, 69, 678–685. <http://dx.doi.org/10.1093/geronb/gbt064>
- \*de Jong-Meyer, R., Beck, B., & Riede, K. (2009). Relationships between rumination, worry, intolerance of uncertainty and metacognitive beliefs. *Personality and Individual Differences*, 46, 547–551. <http://dx.doi.org/10.1016/j.paid.2008.12.010>
- \*de Lisle, S., Dowling, N. A., & Allen, J. S. (2014). Mechanisms of action in the relationship between mindfulness and problem gambling behaviour. *International Journal of Mental Health and Addiction*, 12, 206–225.
- \*Dennis, T. A. (2007). Interactions between emotion regulation strategies and affective style: Implications for trait anxiety versus depressed mood. *Motivation and Emotion*, 31, 200–207. <http://dx.doi.org/10.1007/s11031-007-9069-6>
- \*Desrosiers, A., Vine, V., Klemanski, D. H., & Nolen-Hoeksema, S. (2013). Mindfulness and emotion regulation in depression and anxiety: Common and distinct mechanisms of action. *Depression and Anxiety*, 30, 654–661. <http://dx.doi.org/10.1002/da.22124>
- \*De Vlieger, P., Crombez, G., & Eccleston, C. (2006). Worrying about chronic pain. An examination of worry and problem solving in adults who identify as chronic pain sufferers. *Pain*, 120(1–2), 138–144. <http://dx.doi.org/10.1016/j.pain.2005.10.022>
- \*D'Hudson, G., & Saling, L. L. (2010). Worry and rumination in older adults: Differentiating the processes. *Aging & Mental Health*, 14, 524–534. <http://dx.doi.org/10.1080/13607861003713141>
- \*Dickens, C., Coventry, P., Khara, A., Bower, P., Mansell, W., & Bakerly, N. D. (2012). Perseverative negative cognitive processes are associated with depression in people with long-term conditions. *Chronic Illness*, 8, 102–111. <http://dx.doi.org/10.1177/1742395311433058>
- Dickson, K. S., Ciesla, J. A., & Reilly, L. C. (2012). Rumination, worry, cognitive avoidance, and behavioral avoidance: Examination of temporal effects. *Behavior Therapy*, 43, 629–640. <http://dx.doi.org/10.1016/j.beth.2011.11.002>
- Dixon-Gordon, K. L., Aldao, A., & De Los Reyes, A. (2015). Emotion regulation in context: Examining the spontaneous use of strategies across emotional intensity and type of emotion. *Personality and Individual Differences*, 86, 271–276. <http://dx.doi.org/10.1016/j.paid.2015.06.011>
- \*Driscoll, K. A. (2005). *Children's response styles and risk for depression and anxiety: Developmental and sex differences*. Retrieved from ProQuest Dissertations & Theses Database. (Accession No. 2006-99010-284)
- \*Drwal, J. (2008). The relationship of negative mood regulation expectancies with rumination and distraction. *Psychological Reports*, 102, 709–717. <http://dx.doi.org/10.2466/PRO.102.3.709-717>
- \*Dvorak, R. D., Arens, A. M., Kuvaas, N. J., Williams, T. J., & Kilwein, T. M. (2013). Problematic alcohol use, trauma history, and PTSD symptom level: A path analysis. *Journal of Dual Diagnosis*, 9, 281–291. <http://dx.doi.org/10.1080/15504263.2013.835694>
- \*Dvorak, R. D., Sargent, E. M., Kilwein, T. M., Stevenson, B. L., Kuvaas, N. J., & Williams, T. J. (2014). Alcohol use and alcohol-related consequences: Associations with emotion regulation difficulties. *The American Journal of Drug and Alcohol Abuse*, 40, 125–130. <http://dx.doi.org/10.3109/00952990.2013.877920>
- D'Zurilla, T. J., Nezu, A. M., & Maydeu-Olivares, A. (1996). *Social Problem-Solving Inventory-Revised test manual*. Unpublished manuscript.
- \*Eastbrook, J. M., Flynn, J. J., & Hollenstein, T. (2014). Internalizing symptoms in female adolescents: Associations with emotional awareness and emotion regulation. *Journal of Child and Family Studies*, 23, 487–496. <http://dx.doi.org/10.1007/s10826-012-9705-y>
- Egger, M., Smith, G., Schneider, M., & Minder, C. (1997). Bias in meta-analysis detected by a simple, graphical test. *British Medical Journal*, 315, 629–634. <http://dx.doi.org/10.1136/bmj.315.7109.629>
- \*Ehring, T., & Quack, D. (2010). Emotion regulation difficulties in trauma survivors: The role of trauma type and PTSD symptom severity. *Behavior Therapy*, 41, 587–598. <http://dx.doi.org/10.1016/j.beth.2010.04.004>
- Eisenberg, N., & Spinrad, T. L. (2004). Emotion-related regulation: Sharpening the definition. *Child Development*, 75, 334–339. <http://dx.doi.org/10.1111/j.1467-8624.2004.00674.x>
- \*Erskine, J. A. K., Kvavilashvili, L., & Kornbrot, D. E. (2007). The predictors of thought suppression in young and old adults: Effects of rumination, anxiety, and other variables. *Personality and Individual Differences*, 42, 1047–1057. <http://dx.doi.org/10.1016/j.paid.2006.09.016>
- \*Evans, D. R., & Segerstrom, S. C. (2011). Why do mindful people worry less? *Cognitive Therapy and Research*, 35, 505–510. <http://dx.doi.org/10.1007/s10608-010-9340-0>
- \*Feldman, G., Dunn, E., Stemke, C., Bell, K., & Greeson, J. (2014). Mindfulness and rumination as predictors of persistence with a distress tolerance task. *Personality and Individual Differences*, 56, 154–158. <http://dx.doi.org/10.1016/j.paid.2013.08.040>
- Feldman, G. C., Hayes, A. M., Kumar, S. M., & Greeson, J. M. (2004). *Development, factor structure, and Initial Validation of the Cognitive and Affective Mindfulness Scale*. Unpublished manuscript.
- \*Feldman, G., Hayes, A., Kumar, S., Greeson, J., & Laurenceau, J. (2007). Mindfulness and emotion regulation: The development and initial validation of the Cognitive and Affective Mindfulness Scale-Revised

- (CAMS-R). *Journal of Psychopathology and Behavioral Assessment*, 29, 177–190. <http://dx.doi.org/10.1007/s10862-006-9035-8>
- \*Fergus, T. A. (2013). Repetitive thought and health anxiety: Tests of specificity. *Journal of Psychopathology and Behavioral Assessment*, 35, 366–374. <http://dx.doi.org/10.1007/s10862-013-9340-y>
- \*Fergus, T. A., Valentiner, D. P., McGrath, P. B., Gier-Lonsway, S., & Jencius, S. (2013). The cognitive attentional syndrome: Examining relations with mood and anxiety symptoms and distinctiveness from psychological inflexibility in a clinical sample. *Psychiatry Research*, 210, 215–219. <http://dx.doi.org/10.1016/j.psychres.2013.04.020>
- \*Fernandez, A. C., Wood, M. D., Stein, L. R., & Rossi, J. S. (2010). Measuring mindfulness and examining its relationship with alcohol use and negative consequences. *Psychology of Addictive Behaviors*, 24, 608–616. <http://dx.doi.org/10.1037/a0021742>
- \*Field, A. P., & Cartwright-Hatton, S. (2008). Shared and unique cognitive factors in social anxiety. *International Journal of Cognitive Therapy*, 1, 206–222. <http://dx.doi.org/10.1521/ijct.2008.1.3.206>
- \*Firfer, D. R. (2006). *Uses of rumination and distraction frequency and intensity to predict depression symptoms*. Retrieved from ProQuest Dissertations & Theses Database. (Accession No. 2008-99060-399)
- \*Flett, G. L., Coulter, L.-M., Hewitt, P. L., & Nepon, T. (2011). Perfectionism, rumination, worry, and depressive symptoms in early adolescents. *Canadian Journal of School Psychology*, 26, 159–176. <http://dx.doi.org/10.1177/0829573511422039>
- \*Flouri, E., & Mavroveli, S. (2013). Adverse life events and emotional and behavioural problems in adolescence: The role of coping and emotion regulation. *Stress & Health: Journal of the International Society for the Investigation of Stress*, 29, 360–368. <http://dx.doi.org/10.1002/smi.2478>
- \*Flouri, E., & Panourgia, C. (2014). Negative automatic thoughts and emotional and behavioural problems in adolescence. *Child and Adolescent Mental Health*, 19, 46–51. <http://dx.doi.org/10.1111/camh.12004>
- \*Flynn, J. J., Hollenstein, T., & Mackey, A. (2010). The effect of suppressing and not accepting emotions on depressive symptoms: Is suppression different for men and women? *Personality and Individual Differences*, 49, 582–586. <http://dx.doi.org/10.1016/j.paid.2010.05.022>
- \*Fresco, D. M., Frankel, A. N., Mennin, D. S., Turk, C. L., & Heimberg, R. G. (2002). Distinct and overlapping features of rumination and worry: The relationship of cognitive production to negative affective states. *Cognitive Therapy and Research*, 26, 179–188. <http://dx.doi.org/10.1023/A:1014517718949>
- \*Fresco, D. M., Moore, M. T., van Dulmen, M. H., Segal, Z. V., Ma, S. H., Teasdale, J. D., & Williams, J. M. (2007). Initial psychometric properties of the experiences questionnaire: Validation of a self-report measure of decentering. *Behavior Therapy*, 38, 234–246. <http://dx.doi.org/10.1016/j.beth.2006.08.003>
- Frydenberg, E., & Lewis, R. (1993). *The Adolescent Coping Scale: Administrator's manual*. Melbourne, Australia: Australian Council for Educational Research.
- \*Furr, T. (2008). *Experiential avoidance and test anxiety* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses database. (Accession No. 2008–99240-169)
- \*Gámez, W., Chmielewski, M., Kotov, R., Ruggero, C., & Watson, D. (2011). Development of a measure of experiential avoidance: The Multidimensional Experiential Avoidance Questionnaire. *Psychological Assessment*, 23, 692–713. <http://dx.doi.org/10.1037/a0023242>
- Garland, E. L., Farb, N. A. S., Goldin, P., & Fredrickson, B. L. (2015). Mindfulness broadens awareness and builds Eudaimonic meaning: A process model of mindful positive emotion regulation. *Psychological Inquiry*, 26, 293–314. <http://dx.doi.org/10.1080/1047840X.2015.1064294>
- \*Garland, E. L., & Roberts-Lewis, A. (2013). Differential roles of thought suppression and dispositional mindfulness in posttraumatic stress symptoms and craving. *Addictive Behaviors*, 38, 1555–1562. <http://dx.doi.org/10.1016/j.addbeh.2012.02.004>
- \*Garland, E. L., Roberts-Lewis, A., Kelley, K., Tronnier, C., & Hanley, A. (2014). Cognitive and affective mechanisms linking trait mindfulness to craving among individuals in addiction recovery. *Substance Use & Misuse*, 49, 525–535. <http://dx.doi.org/10.3109/10826084.2014.850309>
- Garnefski, N., Kraaij, V., & Spinhoven, P. (2001). Negative life events, cognitive emotion regulation and emotional problems. *Personality and Individual Differences*, 30, 1311–1327. [http://dx.doi.org/10.1016/S0191-8869\(00\)00113-6](http://dx.doi.org/10.1016/S0191-8869(00)00113-6)
- \*Geiger, P. J., Peters, J. R., Sauer-Zavala, S. E., & Baer, R. A. (2013). Relationships among maladaptive cognitive content, dysfunctional cognitive processes, and borderline personality features. *Journal of Personality Disorders*, 27, 457–464. [http://dx.doi.org/10.1521/pedi\\_2013\\_27\\_097](http://dx.doi.org/10.1521/pedi_2013_27_097)
- \*Gerolimatos, L. A., & Edelstein, B. A. (2012). Anxiety-related constructs mediate the relation between age and health anxiety. *Aging & Mental Health*, 16, 975–982. <http://dx.doi.org/10.1080/13607863.2012.688192>
- \*Gerzina, H. A., & Porfeli, E. J. (2012). Mindfulness as a predictor of positive reappraisal and burnout in standardized patients. *Teaching and Learning in Medicine*, 24, 309–314. <http://dx.doi.org/10.1080/10401334.2012.715255>
- Gill, A. H., Papageorgiou, C., Gaskell, S. L., & Wells, A. (2013). Development and preliminary validation of the Thought Control Questionnaire for Adolescents (TCQ-A). *Cognitive Therapy and Research*, 37, 242–255. <http://dx.doi.org/10.1007/s10608-012-9465-4>
- \*Goldstein, B. I. (2001). *Coping style and attributional style as mediators of alcohol use and depression among young adults* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses database. (Accession No. 2001-95020-102)
- \*Goodall, K., Trejnowska, A., & Darling, S. (2012). The relationship between dispositional mindfulness, attachment security and emotion regulation. *Personality and Individual Differences*, 52, 622–626. <http://dx.doi.org/10.1016/j.paid.2011.12.008>
- \*Goring, H. J., & Papageorgiou, C. (2008). Rumination and worry: Factor analysis of self-report measures in depressed participants. *Cognitive Therapy and Research*, 32, 554–566. <http://dx.doi.org/10.1007/s10608-007-9146-x>
- \*Gorski, J., & Young, M. A. (2002). Sociotropy/autonomy, self-construal, response style, and gender in adolescents. *Personality and Individual Differences*, 32, 463–478. [http://dx.doi.org/10.1016/S0191-8869\(01\)00048-4](http://dx.doi.org/10.1016/S0191-8869(01)00048-4)
- \*Gortner, E.-M. (2005). *The mental and physical well-being of formerly depressed college students: A preventive intervention study* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses database. (Accession No. 2006–99012-314)
- \*Gousse, A. (2011). *Eating disturbances in women starting university: The contribution of mindfulness and experiential avoidance* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses database. (Accession No. 2012-99080-555)
- \*Gratz, K. L., & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the difficulties in emotion regulation scale. *Journal of Psychopathology and Behavioral Assessment*, 26, 41–54. <http://dx.doi.org/10.1023/B:JOBA.0000007455.08539.94>
- Gratz, K. L., Weiss, N. H., & Tull, M. T. (2015). Examining emotion regulation as an outcome, mechanism, or target of psychological treatments. *Current Opinion in Psychology*, 3, 85–90. <http://dx.doi.org/10.1016/j.copsy.2015.02.010>
- Greco, L. A., Baer, R. A., & Smith, G. T. (2011). Assessing mindfulness in children and adolescents: Development and validation of the Child and Adolescent Mindfulness Measure (CAMM). *Psychological Assessment*, 23, 606–614. <http://dx.doi.org/10.1037/a0022819>
- Greco, L. A., Lambert, W., & Baer, R. A. (2008). Psychological inflexibility in childhood and adolescence: Development and evaluation of the

- Avoidance and Fusion Questionnaire for Youth. *Psychological Assessment*, 20, 93–102. <http://dx.doi.org/10.1037/1040-3590.20.2.93>
- Greucci, A., & Sanfey, A. G. (2014). Emotion regulation and decision making. In J. J. Gross & J. J. Gross (Eds.), *Handbook of emotion regulation* (2nd ed., pp. 140–153). New York, NY: Guilford Press.
- Greenglass, E. R., Schwarzer, R., & Taubert, S. (1999). The Proactive Coping Inventory (PCI): A multidimensional research instrument. Retrieved from <http://userpage.fu-berlin.de/~health/greenpci.htm>
- \*Gresham, D., & Gullone, E. (2012). Emotion regulation strategy use in children and adolescents: The explanatory roles of personality and attachment. *Personality and Individual Differences*, 52, 616–621. <http://dx.doi.org/10.1016/j.paid.2011.12.016>
- Gross, J. J. (1998). The emerging field of emotion regulation: An integrative review. *Review of General Psychology*, 2, 271–299. <http://dx.doi.org/10.1037/1089-2680.2.3.271>
- Gross, J. J. (2014). *Handbook of emotion regulation* (2nd ed.). New York, NY: Guilford Press.
- Gross, J. J. (2015). The extended process model of emotion regulation: Elaborations, applications, and future directions. *Psychological Inquiry*, 26, 130–137. <http://dx.doi.org/10.1080/1047840X.2015.989751>
- Gross, J. J., & Jazaieri, H. (2014). Emotion, emotion regulation, and psychopathology: An affective science perspective. *Clinical Psychological Science*, 2, 387–401. <http://dx.doi.org/10.1177/2167702614536164>
- \*Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology*, 85, 348–362. <http://dx.doi.org/10.1037/0022-3514.85.2.348>
- Gross, J. J., & Thompson, R. A. (2007). Emotion regulation: Conceptual foundations. In J. J. Gross (Ed.), *Handbook of emotion regulation* (pp. 3–24). New York, NY: Guilford Press.
- \*Gruber, J., Eidelman, P., & Harvey, A. G. (2008). Transdiagnostic emotion regulation processes in bipolar disorder and insomnia. *Behaviour Research and Therapy*, 46, 1096–1100. <http://dx.doi.org/10.1016/j.brat.2008.05.004>
- \*Hawley, L. L., Schwartz, D., Bieling, P. J., Irving, J., Corcoran, K., Farb, N. S., . . . Segal, Z. V. (2014). Mindfulness practice, rumination and clinical outcome in mindfulness-based treatment. *Cognitive Therapy and Research*, 38, 1–9. <http://dx.doi.org/10.1007/s10608-013-9586-4>
- Hayes, S. C., Strosahl, K. D., & Wilson, K. G. (2012). *Acceptance and commitment therapy: The process and practice of mindful change* (2nd ed.). New York, NY: Guilford Press.
- Hayes, S. C., Strosahl, K. D., Wilson, K. G., Bissett, R. T., Pistorello, J., Toarmino, D., . . . McCurry, S. M. (2004). Measuring experiential avoidance: A preliminary test of a working model. *The Psychological Record*, 54, 553–578.
- Heppner, P. P., & Petersen, C. H. (1982). The development and implications of a personal problem solving inventory. *Journal of Counseling Psychology*, 29, 66–75. <http://dx.doi.org/10.1037/0022-0167.29.1.66>
- \*Hertel, P. T., & Gerstle, M. (2003). Depressive deficits in forgetting. *Psychological Science*, 14, 573–578. [http://dx.doi.org/10.1046/j.0956-7976.2003.psci\\_1467.x](http://dx.doi.org/10.1046/j.0956-7976.2003.psci_1467.x)
- \*Herzberg, K. N., Sheppard, S. C., Forsyth, J. P., Credé, M., Earleywine, M., & Eifert, G. H. (2012). The Believability of Anxious Feelings and Thoughts Questionnaire (BAFT): A psychometric evaluation of cognitive fusion in a nonclinical and highly anxious community sample. *Psychological Assessment*, 24, 877–891. <http://dx.doi.org/10.1037/a0027782>
- \*Hill, A. P., & Davis, P. A. (2014). Perfectionism and emotion regulation in coaches: A test of the 2 × 2 model of dispositional perfectionism. *Motivation and Emotion*, 38, 715–726. <http://dx.doi.org/10.1007/s11031-014-9404-7>
- \*Hilt, L. M., McLaughlin, K. A., & Nolen-Hoeksema, S. (2010). Examination of the response styles theory in a community sample of young adolescents. *Journal of Abnormal Child Psychology*, 38, 545–556. <http://dx.doi.org/10.1007/s10802-009-9384-3>
- \*Hinterman, C., Burns, L., Hopwood, D., & Rogers, W. (2012). Mindfulness: Seeking a more perfect approach to coping with life's challenges. *Mindfulness*, 3, 275–281. <http://dx.doi.org/10.1007/s12671-012-0091-8>
- \*Hofmann, S. G., & Kashdan, T. B. (2010). The affective style questionnaire: Development and psychometric properties. *Journal of Psychopathology and Behavioral Assessment*, 32, 255–263. <http://dx.doi.org/10.1007/s10862-009-9142-4>
- \*Holt, M. P. (2013). *Dispositional mindfulness and cardiovascular functioning under stress: Predictions of social evaluative stress reactivity and recovery* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses database. (Accession No. 2013–99060-157)
- \*Hong, R. Y. (2007). Worry and rumination: Differential associations with anxious and depressive symptoms and coping behavior. *Behaviour Research and Therapy*, 45, 277–290. <http://dx.doi.org/10.1016/j.brat.2006.03.006>
- \*Hong, R. Y. (2013). From dispositional traits to psychopathological symptoms: Social-cognitive vulnerabilities as intervening mechanisms. *Journal of Psychopathology and Behavioral Assessment*, 35, 407–420. <http://dx.doi.org/10.1007/s10862-013-9350-9>
- \*Hood, K. (2006). *Rumination and distraction as predictors of response and relapse following cognitive therapy or pharmacotherapy for major depression* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses database. (Accession No. 2007-99014-083)
- \*Hoopes, J. B. (2009). *Acceptance and interpersonal functioning: Testing mindfulness models of empathy* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses database. (Accession No. 2010-99060-476)
- Horn, J. L. (1965). A rationale and test for the number of factors in factor analysis. *Psychometrika*, 30, 179–185. <http://dx.doi.org/10.1007/BF02289447>
- \*Hotovy, L. A. (1997). *The effects of rumination and distraction on interpersonal problem-solving* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses database. (Accession No. 1998-95022-130)
- \*Hsu, S. H., Collins, S. E., & Marlatt, G. A. (2013). Examining psychometric properties of distress tolerance and its moderation of mindfulness-based relapse prevention effects on alcohol and other drug use outcomes. *Addictive Behaviors*, 38, 1852–1858. <http://dx.doi.org/10.1016/j.addbeh.2012.11.002>
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6, 1–55. <http://dx.doi.org/10.1080/10705519909540118>
- \*Huang, K., Szabó, M., & Han, J. (2009). The relationship of low distress tolerance to excessive worrying and cognitive avoidance. *Behaviour Change*, 26, 223–234. <http://dx.doi.org/10.1375/behc.26.4.223>
- \*Hughes, E. K., Gullone, E., & Watson, S. D. (2011). Emotional functioning in children and adolescents with elevated depressive symptoms. *Journal of Psychopathology and Behavioral Assessment*, 33, 335–345. <http://dx.doi.org/10.1007/s10862-011-9220-2>
- \*Hughes, M. E., Alloy, L. B., & Cogswell, A. (2008). Repetitive thought in psychopathology: The relation of rumination and worry to depression and anxiety symptoms. *Journal of Cognitive Psychotherapy*, 22, 271–288. <http://dx.doi.org/10.1891/0889-8391.22.3.271>
- \*Hwang, J. (2006). *A processing model of emotion regulation: Insights from the attachment system* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses database. (Accession No. 2006–99020-194)
- Ietsugu, T., Crane, C., Hackmann, A., Brennan, K., Gross, M., Crane, R. S., . . . Barnhofer, T. (2015). Gradually getting better: Trajectories of change in rumination and anxious worry in mindfulness-based cognitive

- therapy for prevention of relapse to recurrent depression. *Mindfulness*, 6, 1088–1094. <http://dx.doi.org/10.1007/s12671-014-0358-3>
- \*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: Theory, Research, and Treatment*, 3, 415–422. <http://dx.doi.org/10.1037/a0023703>
- \*Jaffe, M., Gullone, E., & Hughes, E. K. (2010). The roles of temperamental dispositions and perceived parenting behaviours in the use of two emotion regulation strategies in late childhood. *Journal of Applied Developmental Psychology*, 31, 47–59. <http://dx.doi.org/10.1016/j.appdev.2009.07.008>
- Jeffries, E. R., McLeish, A. C., Kraemer, K. M., Avallone, K. M., & Fleming, J. B. (2016). The role of distress tolerance in the use of specific emotion regulation strategies. *Behavior Modification*, 40, 439–451. <http://dx.doi.org/10.1177/0145445515619596>
- \*Jimenez, S. (2008). *The role of self-acceptance, negative mood regulation, and ruminative brooding on mindfulness and depressive symptoms: A longitudinal, randomized controlled trial of mindfulness meditation vs. relaxation training* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses database. (Accession No. 2009–99040-338)
- \*Joormann, J., & Gotlib, I. H. (2010). Emotion regulation in depression: Relation to cognitive inhibition. *Cognition and Emotion*, 24, 281–298. <http://dx.doi.org/10.1080/02699930903407948>
- \*Jose, P. E., & Schurer, K. (2010). Cultural differences in coping among New Zealand adolescents. *Journal of Cross-Cultural Psychology*, 41, 3–18. <http://dx.doi.org/10.1177/0022022109348783>
- \*Judah, M. R., Grant, D. M., Mills, A. C., & Lechner, W. V. (2014). Factor structure and validation of the attentional control scale. *Cognition and Emotion*, 28, 433–451. <http://dx.doi.org/10.1080/02699931.2013.835254>
- \*Kahan, T. L., & Sullivan, K. T. (2012). Assessing metacognitive skills in waking and sleep: A psychometric analysis of the Metacognitive, Affective, Cognitive Experience (MACE) Questionnaire. *Consciousness and Cognition: An International Journal*, 21, 340–352. <http://dx.doi.org/10.1016/j.concog.2011.11.005>
- Kanter, J. W., Mulick, P. S., Busch, A. M., Berlin, K. S., & Martell, C. R. (2007). The Behavioral Activation for Depression Scale (BADs): Psychometric properties and factor structure. *Journal of Psychopathology and Behavioral Assessment*, 29, 191–202. <http://dx.doi.org/10.1007/s10862-006-9038-5>
- \*Kashdan, T. B., Barrios, V., Forsyth, J. P., & Steger, M. F. (2006). Experiential avoidance as a generalized psychological vulnerability: Comparisons with coping and emotion regulation strategies. *Behaviour Research and Therapy*, 44, 1301–1320. <http://dx.doi.org/10.1016/j.brat.2005.10.003>
- \*Kashdan, T. B., Elhai, J. D., & Breen, W. E. (2008). Social anxiety and disinhibition: An analysis of curiosity and social rank appraisals, approach-avoidance conflicts, and disruptive risk-taking behavior. *Journal of Anxiety Disorders*, 22, 925–939. <http://dx.doi.org/10.1016/j.janxdis.2007.09.009>
- \*Keough, M. E., Riccardi, C. J., Timpano, K. R., Mitchell, M. A., & Schmidt, N. B. (2010). Anxiety symptomatology: The association with distress tolerance and anxiety sensitivity. *Behavior Therapy*, 41, 567–574. <http://dx.doi.org/10.1016/j.beth.2010.04.002>
- \*Khalsa, S. K. S. (1998). *Gender differences in problem-solving style and their relationship to symptoms of depression* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses database. (Accession No. 1999–95010-042)
- \*Kim, H. (2011). *The relationships among styles of mindfulness engagement, components of emotion regulation, and heart rate variability*. (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses database. (Accession No. 2012-99120-212)
- Koole, S. L. (2009). The psychology of emotion regulation: An integrative review. *Cognition and Emotion*, 23, 4–41. <http://dx.doi.org/10.1080/02699930802619031>
- \*Krause, E. D., Mendelson, T., & Lynch, T. R. (2003). Childhood emotional invalidation and adult psychological distress: The mediating role of emotional inhibition. *Child Abuse & Neglect*, 27, 199–213. [http://dx.doi.org/10.1016/S0145-2134\(02\)00536-7](http://dx.doi.org/10.1016/S0145-2134(02)00536-7)
- Kring, A. M., & Sloan, D. M. (Eds.). (2010). *Emotion regulation and psychopathology: A transdiagnostic approach to etiology and treatment*. New York, NY: Guilford Press.
- \*Kwon, H., Yoon, K. L., Joormann, J., & Kwon, J.-H. (2013). Cultural and gender differences in emotion regulation: Relation to depression. *Cognition and Emotion*, 27, 769–782. <http://dx.doi.org/10.1080/02699931.2013.792244>
- \*Lam, S., Dickerson, S. S., Zoccola, P. M., & Zaldivar, F. (2009). Emotion regulation and cortisol reactivity to a social-evaluative speech task. *Psychoneuroendocrinology*, 34, 1355–1362. <http://dx.doi.org/10.1016/j.psyneuen.2009.04.006>
- \*Land, L. N., Rochlen, A. B., & Vaughn, B. K. (2011). Correlates of adult attachment avoidance: Men's avoidance of intimacy in romantic relationships. *Psychology of Men & Masculinity*, 12, 64–76. <http://dx.doi.org/10.1037/a0019928>
- \*Lanteigne, D. M., Flynn, J. J., Eastabrook, J. M., & Hollenstein, T. (2014). Discordant patterns among emotional experience, arousal, and expression in adolescence: Relations with emotion regulation and internalizing problems. *Canadian Journal of Behavioural Science/Revue Canadienne Des Sciences Du Comportement*, 46, 29–39. <http://dx.doi.org/10.1037/a0029968>
- \*Latzman, R. D., & Masuda, A. (2013). Examining mindfulness and psychological inflexibility within the framework of Big Five personality. *Personality and Individual Differences*, 55, 129–134. <http://dx.doi.org/10.1016/j.paid.2013.02.019>
- \*Lavender, J. M., Gratz, K. L., & Tull, M. T. (2011). Exploring the relationship between facets of mindfulness and eating pathology in women. *Cognitive Behaviour Therapy*, 40, 174–182. <http://dx.doi.org/10.1080/16506073.2011.555485>
- Leahy, R. L. (2002). A model of emotional schemas. *Cognitive and Behavioral Practice*, 9, 177–190. [http://dx.doi.org/10.1016/S1077-7229\(02\)80048-7](http://dx.doi.org/10.1016/S1077-7229(02)80048-7)
- \*Lecce, S. (2008). *Attachment and subjective well-being: The mediating role of emotional processing and regulation* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses database. (Accession No. 2008-99240-243)
- \*Lee, D. J., Witte, T. K., Weathers, F. W., & Davis, M. T. (2015). Emotion regulation strategy use and posttraumatic stress disorder: Associations between multiple strategies and specific symptom clusters. *Journal of Psychopathology and Behavioral Assessment*, 37, 533–544. <http://dx.doi.org/10.1007/s10862-014-9477-3>
- \*Lee, J. K., Orsillo, S. M., Roemer, L., & Allen, L. B. (2010). Distress and avoidance in generalized anxiety disorder: Exploring the relationships with intolerance of uncertainty and worry. *Cognitive Behaviour Therapy*, 39, 126–136. <http://dx.doi.org/10.1080/16506070902966918>
- Levenson, R. W., Haase, C. M., Bloch, L., Holley, S. R., & Seider, B. H. (2014). Emotion regulation in couples. In J. J. Gross & J. J. Gross (Eds.), *Handbook of emotion regulation* (2nd ed., pp. 267–283). New York, NY: Guilford Press.
- 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. <http://dx.doi.org/10.1037/a0019712>
- \*Linden, W., Hogan, B. E., Rutledge, T., Chawla, A., Lenz, J. W., & Leung, D. (2003). There is more to anger coping than “in” or “out.” *Emotion*, 3, 12–29. <http://dx.doi.org/10.1037/1528-3542.3.1.12>

- Lipsey, M. W., & Wilson, D. B. (2001). *Practical meta-analysis*. Thousand Oaks, CA: Sage.
- \*Liu, Y., Prati, L. M., Perrewé, P. L., & Brymer, R. A. (2010). Individual differences in emotion regulation, emotional experiences at work, and work-related outcomes: A two-study investigation. *Journal of Applied Social Psychology, 40*, 1515–1538. <http://dx.doi.org/10.1111/j.1559-1816.2010.00627.x>
- \*Liverant, G. I., Kamholz, B. W., Sloan, D. M., & Brown, T. A. (2011). Rumination in clinical depression: A type of emotional suppression? *Cognitive Therapy and Research, 35*, 253–265. <http://dx.doi.org/10.1007/s10608-010-9304-4>
- \*Llewellyn, N., Dolcos, S., Jordan, A. D., Rudolph, K. D., & Dolcos, F. (2013). Reappraisal and suppression mediate the contribution of regulatory focus to anxiety in healthy adults. *Emotion, 13*, 610–615. <http://dx.doi.org/10.1037/a0032568>
- \*Lloyd, T., & Hastings, R. P. (2008). Psychological variables as correlates of adjustment in mothers of children with intellectual disabilities: Cross-sectional and longitudinal relationships. *Journal of Intellectual Disability Research, 52*, 37–48.
- \*Lougheed, J. P., & Hollenstein, T. (2012). A limited repertoire of emotion regulation strategies is associated with internalizing problems in adolescence. *Social Development, 21*, 704–721. <http://dx.doi.org/10.1111/j.1467-9507.2012.00663.x>
- \*Luberto, C. M., McLeish, A. C., Robertson, S. A., Avallone, K. M., Kraemer, K. M., & Jeffries, E. R. (2014). The role of mindfulness skills in terms of distress tolerance: A pilot test among adult daily smokers. *The American Journal on Addictions, 23*, 184–188. <http://dx.doi.org/10.1111/j.1521-0391.2013.12096.x>
- \*Luberto, C. M., McLeish, A. C., Zvolensky, M. J., & Baer, R. A. (2011). Mindfulness skills and anxiety-related cognitive processes among young adult daily smokers: A pilot test. *Mindfulness, 2*, 129–136. <http://dx.doi.org/10.1007/s12671-011-0052-7>
- MacDermott, S. T., Gullone, E., Allen, J. S., King, N. J., & Tonge, B. (2010). The Emotion Regulation Index for Children and Adolescents (ERICA): A psychometric investigation. *Journal of Psychopathology and Behavioral Assessment, 32*, 301–314. <http://dx.doi.org/10.1007/s10862-009-9154-0>
- \*MacKenzie, M. B., & Kocovski, N. L. (2010). Self-reported acceptance of social anxiety symptoms: Development and validation of the Social Anxiety–Acceptance and Action Questionnaire. *International Journal of Behavioral Consultation and Therapy, 6*, 214–232. <http://dx.doi.org/10.1037/h0100909>
- \*Magidson, J. F., Linstead, A. R., Seitz-Brown, C. J., Anderson, K. E., Lindberg, B., Wilson, A., & Daughters, S. B. (2013). Rumination mediates the relationship between distress tolerance and depressive symptoms among substance users. *Cognitive Therapy and Research, 37*, 456–465. <http://dx.doi.org/10.1007/s10608-012-9488-x>
- \*Mance, M. (2007). *Worry, experiential avoidance, and negative affect: A test of a conceptual model* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses database. (Accession No. 2008–99080-224)
- \*Manfredi, C., Caselli, G., Rovetto, F., Rebecchi, D., Ruggiero, G. M., Sassaroli, S., & Spada, M. M. (2011). Temperament and parental styles as predictors of ruminative brooding and worry. *Personality and Individual Differences, 50*, 186–191. <http://dx.doi.org/10.1016/j.paid.2010.09.023>
- \*Manicavasagar, V., Perich, T., & Parker, G. (2012). Cognitive predictors of change in cognitive behaviour therapy and mindfulness-based cognitive therapy for depression. *Behavioural and Cognitive Psychotherapy, 40*, 227–232. <http://dx.doi.org/10.1017/S1352465811000634>
- Markon, K. E., Krueger, R. F., & Watson, D. (2005). Delineating the structure of normal and abnormal personality: An integrative hierarchical approach. *Journal of Personality and Social Psychology, 88*, 139–157. <http://dx.doi.org/10.1037/0022-3514.88.1.139>
- \*Marks, A. D. G., Sobanski, D. J., & Hine, D. W. (2010). Do dispositional rumination and/or mindfulness moderate the relationship between life hassles and psychological dysfunction in adolescents? *Australian and New Zealand Journal of Psychiatry, 44*, 831–838. <http://dx.doi.org/10.3109/00048674.2010.487478>
- \*Martin, R. C., & Dahlen, E. R. (2007). Anger response styles and reaction to provocation. *Personality and Individual Differences, 43*, 2083–2094. <http://dx.doi.org/10.1016/j.paid.2007.06.022>
- \*Martin, L. M., Plumb-Villardaga, J. C., & Timko, C. A. (2014). Examining the relationship amongst varieties of interpersonal valuing and mindfulness processes in eating pathology. *Mindfulness, 5*, 111–123. <http://dx.doi.org/10.1007/s12671-012-0156-8>
- \*Mathew, K. L., Whitford, H. S., Kenny, M. A., & Denson, L. A. (2010). The long-term effects of mindfulness-based cognitive therapy as a relapse prevention treatment for major depressive disorder. *Behavioural and Cognitive Psychotherapy, 38*, 561–576. <http://dx.doi.org/10.1017/S135246581000010X>
- \*Masuda, A., Anderson, P. L., & Sheehan, S. T. (2009). Mindfulness and mental health among African American college students. *Complementary Health Practice Review, 14*, 115–127. <http://dx.doi.org/10.1177/1533210110363893>
- \*Masuda, A., Price, M., & Latzman, R. D. (2012). Mindfulness moderates the relationship between disordered eating cognitions and disordered eating behaviors in a non-clinical college sample. *Journal of Psychopathology and Behavioral Assessment, 34*, 107–115. <http://dx.doi.org/10.1007/s10862-011-9252-7>
- \*Masuda, A., & Tully, E. C. (2012). The role of mindfulness and psychological flexibility in somatization, depression, anxiety, and general psychological distress in a nonclinical college sample. *Journal of Evidence-Based Complementary & Alternative Medicine, 17*, 66–71. <http://dx.doi.org/10.1177/2156587211423400>
- \*Matsumoto, D., Yoo, S. H., & Nakagawa, S., & the 37 members of the Multinational Study of Cultural Display Rules. (2008). Culture, emotion regulation, and adjustment. *Journal of Personality and Social Psychology, 94*, 925–937. <http://dx.doi.org/10.1037/0022-3514.94.6.925>
- \*Maugherman, A. S. (1999). *The effects of distraction and dysphoria on social problem-solving ability* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses database. (Accession No. 2000–95002-107)
- \*McCaughy, T. (2009). *Individual and situational factors associated with social barriers for persons with mobility impairment* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses database. (Accession No. 2010–99210-286)
- \*McCracken, L. M., Barker, E., & Chilcot, J. (2014). Decentering, rumination, cognitive defusion, and psychological flexibility in people with chronic pain. *Journal of Behavioral Medicine, 37*, 1215–1225. <http://dx.doi.org/10.1007/s10865-014-9570-9>
- \*McCracken, L. M., & Zhao-O'Brien, J. (2010). General psychological acceptance and chronic pain: There is more to accept than the pain itself. *European Journal of Pain, 14*, 170–175. <http://dx.doi.org/10.1016/j.ejpain.2009.03.004>
- \*McEvoy, P. M., & Brans, S. (2013). Common versus unique variance across measures of worry and rumination: Predictive utility and mediational models for anxiety and depression. *Cognitive Therapy and Research, 37*, 183–196. <http://dx.doi.org/10.1007/s10608-012-9448-5>
- \*McHugh, R., Reynolds, E., Leyro, T., & Otto, M. (2013). An examination of the association of distress intolerance and emotion regulation with avoidance. *Cognitive Therapy and Research, 37*, 363–367. <http://dx.doi.org/10.1007/s10608-012-9463-6>
- \*McKee, L., Zvolensky, M. J., Solomon, S. E., Bernstein, A., & Leenfeldner, E. (2007). Emotional-vulnerability and mindfulness: A preliminary test of associations among negative affectivity, anxiety sensitivity, and mindfulness skills. *Cognitive Behaviour Therapy, 36*, 91–100. <http://dx.doi.org/10.1080/16506070601119>

- McIntosh, W. D., & Martin, L. L. (1992). The cybernetics of happiness: The relation of goal attainment, rumination, and affect. In M. S. Clarke (Ed.), *Review of personality and social psychology* (Vol. 14, pp. 222–246). Newbury Park, CA: Sage.
- \*McKay, D., & Greisberg, S. (2002). Specificity of measures of thought control. *The Journal of Psychology: Interdisciplinary and Applied*, *136*, 149–160. <http://dx.doi.org/10.1080/00223980209604146>
- McLaughlin, K. A., Borkovec, T. D., & Sibrava, N. J. (2007). The effects of worry and rumination on affect states and cognitive activity. *Behavior Therapy*, *38*, 23–38. <http://dx.doi.org/10.1016/j.beth.2006.03.003>
- McLaughlin, K. A., Mennin, D. S., & Farach, F. J. (2007). The contributory role of worry in emotion generation and dysregulation in generalized anxiety disorder. *Behaviour Research and Therapy*, *45*, 1735–1752. <http://dx.doi.org/10.1016/j.brat.2006.12.004>
- \*Melka, S. E., Lancaster, S. L., Bryant, A. R., & Rodriguez, B. F. (2011). Confirmatory factor and measurement invariance analyses of the emotion regulation questionnaire. *Journal of Clinical Psychology*, *67*, 1283–1293. <http://dx.doi.org/10.1002/jclp.20836>
- \*Memedovic, S., Grisham, J. R., Denson, T. F., & Moulds, M. L. (2010). The effects of trait reappraisal and suppression on anger and blood pressure in response to provocation. *Journal of Research in Personality*, *44*, 540–543. <http://dx.doi.org/10.1016/j.jrp.2010.05.002>
- \*Mennin, D. S., McLaughlin, K. A., & Flanagan, T. J. (2009). Emotion regulation deficits in generalized anxiety disorder, social anxiety disorder, and their co-occurrence. *Journal of Anxiety Disorders*, *23*, 866–871. <http://dx.doi.org/10.1016/j.janxdis.2009.04.006>
- Meyer, T. J., Miller, M. L., Metzger, R. L., & Borkovec, T. D. (1990). Development and validation of the Penn State Worry Questionnaire. *Behaviour Research and Therapy*, *28*, 487–495. [http://dx.doi.org/10.1016/0005-7967\(90\)90135-6](http://dx.doi.org/10.1016/0005-7967(90)90135-6)
- \*Mitchell, L., Mogg, K., & Bradley, B. P. (2012). Relationships between insomnia, negative emotionality and attention control. *Sleep and Biological Rhythms*, *10*, 237–243. <http://dx.doi.org/10.1111/j.1479-8425.2012.00567.x>
- \*Moore, M. N., Salk, R. H., Van Hulle, C. A., Abramson, L. Y., Hyde, J. S., Lemery-Chalfant, K., & Goldsmith, H. H. (2013). Genetic and environmental influences on rumination, distraction, and depressed mood in adolescence. *Clinical Psychological Science*, *1*, 316–322. <http://dx.doi.org/10.1177/2167702612472884>
- \*Moore, S. A., Zoellner, L. A., & Mollenholt, N. (2008). Are expressive suppression and cognitive reappraisal associated with stress-related symptoms? *Behaviour Research and Therapy*, *46*, 993–1000. <http://dx.doi.org/10.1016/j.brat.2008.05.001>
- Moos, R. H., Cronkite, R. C., & Finney, J. W. (1992). *Health and daily living form manual* (2nd ed.). Palo Alto, CA: Mind Garden.
- \*Moulds, M. L., Kandris, E., Starr, S., & Wong, A. C. M. (2007). The relationship between rumination, avoidance and depression in a non-clinical sample. *Behaviour Research and Therapy*, *45*, 251–261. <http://dx.doi.org/10.1016/j.brat.2006.03.003>
- Muthén, L. K., & Muthén, B. O. (1998–2015). *Mplus user's guide* (7th ed.). Los Angeles, CA: Author.
- Naragon-Gainey, K. (2010). Meta-analysis of the relations of anxiety sensitivity to the depressive and anxiety disorders. *Psychological Bulletin*, *136*, 128–150. <http://dx.doi.org/10.1037/a0018055>
- \*Naragon-Gainey, K. (2015). [Emotion regulation and psychopathology]. Unpublished raw data.
- Naragon-Gainey, K. (2016). *The correspondence of self-reported dispositional emotion regulation and daily-diary emotion regulation strategy use*. Manuscript in preparation.
- \*Nikčević, A. V., Caselli, G., Green, D., & Spada, M. M. (2014). Negative recurrent thinking as a moderator of the relationship between perceived stress and depressive symptoms. *Journal of Rational-Emotive & Cognitive-Behavior Therapy*, *32*, 248–256. Advance online publication. <http://dx.doi.org/10.1007/s10942-014-0192-5>
- Nolen-Hoeksema, S., & Morrow, J. (1991). A prospective study of depression and posttraumatic stress symptoms after a natural disaster: The 1989 Loma Prieta Earthquake. *Journal of Personality and Social Psychology*, *61*, 115–121. <http://dx.doi.org/10.1037/0022-3514.61.1.115>
- Nolen-Hoeksema, S., Morrow, J., & Fredrickson, B. L. (1993). Response styles and the duration of episodes of depressed mood. *Journal of Abnormal Psychology*, *102*, 20–28. <http://dx.doi.org/10.1037/0021-843X.102.1.20>
- \*Norr, A. M., Allan, N. P., Macatee, R. J., Keough, M. E., & Schmidt, N. B. (2014). The effects of an anxiety sensitivity intervention on anxiety, depression, and worry: Mediation through affect tolerances. *Behavior Research and Therapy*, *59*, 12–19. <http://dx.doi.org/10.1016/j.brat.2014.05.011>
- \*Norr, A. M., Oglesby, M. E., Capron, D. W., Raines, A. M., Korte, K. J., & Schmidt, N. B. (2013). Evaluating the unique contribution of intolerance of uncertainty relative to other cognitive vulnerability factors in anxiety psychopathology. *Journal of Affective Disorders*, *151*, 136–142. <http://dx.doi.org/10.1016/j.jad.2013.05.063>
- Osman, A., Gutierrez, P. M., Downs, W. R., Kopper, B. A., Barrios, F. X., & Haraburda, C. M. (2001). Development and psychometric properties of the Student Worry Questionnaire-30. *Psychological Reports*, *88*, 277–290. <http://dx.doi.org/10.2466/pr0.2001.88.1.277>
- Ottensbreit, N. D., & Dobson, K. S. (2004). Avoidance and depression: The construction of the cognitive-behavioral avoidance scale. *Behaviour Research and Therapy*, *42*, 293–313. [http://dx.doi.org/10.1016/S0005-7967\(03\)00140-2](http://dx.doi.org/10.1016/S0005-7967(03)00140-2)
- \*Ottensbreit, N. D., Dobson, K. S., & Quigley, L. (2014). An examination of avoidance in major depression in comparison to social anxiety disorder. *Behaviour Research and Therapy*, *56*, 82–90. <http://dx.doi.org/10.1016/j.brat.2014.03.005>
- \*Pakenham, K. I., & Samios, C. (2013). Couples coping with multiple sclerosis: A dyadic perspective on the roles of mindfulness and acceptance. *Journal of Behavioral Medicine*, *36*, 389–400. <http://dx.doi.org/10.1007/s10865-012-9434-0>
- \*Palm, K. M., & Strong, D. R. (2007). Using item response theory to examine the White Bear Suppression Inventory. *Personality and Individual Differences*, *42*, 87–98. <http://dx.doi.org/10.1016/j.paid.2006.06.023>
- \*Pang, J., Strodl, E., & Oei, T. S. (2013). The factor structure of the COPE Questionnaire in a sample of clinically depressed and anxious adults. *Journal of Psychopathology And Behavioral Assessment*, *35*, 264–272. <http://dx.doi.org/10.1007/s10862-012-9328-z>
- Parkinson, B., & Totterdell, P. (1999). Classifying affect-regulation strategies. *Cognition and Emotion*, *13*, 277–303. <http://dx.doi.org/10.1080/02699399379285>
- \*Pearson, M. R., Brown, D. B., Bravo, A. J., & Witkiewitz, K. (2015). Staying in the moment and finding purpose: The associations of trait mindfulness, decentering, and purpose in life with depressive symptoms, anxiety symptoms, and alcohol-related problems. *Mindfulness*, *6*, 645–653. <http://dx.doi.org/10.1007/s12671-014-0300-8>
- \*Pepping, C. A., O'Donovan, A., & Davis, P. J. (2014). The differential relationship between mindfulness and attachment in experienced and inexperienced meditators. *Mindfulness*, *5*, 392–399. <http://dx.doi.org/10.1007/s12671-012-0193-3>
- \*Perez, J., Venta, A., Garnaat, S., & Sharp, C. (2012). The difficulties in Emotion Regulation Scale: Factor structure and association with non-suicidal self-injury in adolescent inpatients. *Journal of Psychopathology and Behavioral Assessment*, *34*, 393–404. <http://dx.doi.org/10.1007/s10862-012-9292-7>
- \*Perini, S. J., Abbott, M. J., & Rapee, R. M. (2006). Perception of performance as a mediator in the relationship between social anxiety and negative post-event rumination. *Cognitive Therapy and Research*, *30*, 645–659. <http://dx.doi.org/10.1007/s10608-006-9023-z>



- \*Peters, J. R., Eisenlohr-Moul, T. A., Upton, B. T., & Baer, R. A. (2013). Nonjudgment as a moderator of the relationship between present-centered awareness and borderline features: Synergistic interactions in mindfulness assessment. *Personality and Individual Differences, 55*, 24–28. <http://dx.doi.org/10.1016/j.paid.2013.01.021>
- \*Pietrzak, R. H., Harpaz-Rotem, I., & Southwick, S. M. (2011). Cognitive-behavioral coping strategies associated with combat-related PTSD in treatment-seeking OEF-OIF Veterans. *Psychiatry Research, 189*, 251–258. <http://dx.doi.org/10.1016/j.psychres.2011.07.019>
- \*Purdon, C., & Clark, D. A. (1994). Perceived control and appraisal of obsessional intrusive thoughts: A replication and extension. *Behavioural and Cognitive Psychotherapy, 22*, 269–285. <http://dx.doi.org/10.1017/S1352465800013163>
- Radkovsky, A., McArdle, J. J., Bockting, C. L., & Berking, M. (2014). Successful emotion regulation skills application predicts subsequent reduction of symptom severity during treatment of major depressive disorder. *Journal of Consulting and Clinical Psychology, 82*, 248–262. <http://dx.doi.org/10.1037/a0035828>
- Raes, F., Pommier, E., Neff, K. D., & Van Gucht, D. (2011). Construction and factorial validation of a short form of the Self-Compassion Scale. *Clinical Psychology & Psychotherapy, 18*, 250–255. <http://dx.doi.org/10.1002/cpp.702>
- \*Raza, G. T. (2013). *A randomized trial of single-session mindfulness training in students from diverse racial backgrounds: Repetitive thoughts and modes of mindfulness* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses database. (Accession No. 2013–99160-204)
- \*Reber, C. S., Boden, M. T., Mitragotri, N., Alvarez, J., Gross, J. J., & Bonn-Miller, M. O. (2013). A prospective investigation of mindfulness skills and changes in emotion regulation among military veterans in posttraumatic stress disorder treatment. *Mindfulness, 4*, 311–317. <http://dx.doi.org/10.1007/s12671-012-0131-4>
- \*Rector, N. A., Antony, M. M., Laposa, J. M., Kocovski, N. L., & Swinson, R. P. (2008). Assessing content domains of repetitive thought in the anxiety spectrum: Rumination and worry in nonclinical and clinically anxious samples. *International Journal of Cognitive Therapy, 1*, 352–377. <http://dx.doi.org/10.1521/ijct.2008.1.4.352>
- \*Rewston, C., Clarke, C., Moniz-Cook, E., & Waddington, R. (2007). Distinguishing worry from rumination in older people: A preliminary investigation. *Aging & Mental Health, 11*, 604–611. <http://dx.doi.org/10.1080/13607860701529619>
- \*Reynolds, M., & Wells, A. (1999). The Thought Control Questionnaire—Psychometric properties in a clinical sample, and relationships with PTSD and depression. *Psychological Medicine, 29*, 1089–1099. <http://dx.doi.org/10.1017/S003329179900104X>
- \*Richards, J. M., & Gross, J. J. (2000). Emotion regulation and memory: The cognitive costs of keeping one's cool. *Journal of Personality and Social Psychology, 79*, 410–424. <http://dx.doi.org/10.1037/0022-3514.79.3.410>
- \*Riley, B. (2014). Experiential avoidance mediates the association between thought suppression and mindfulness with problem gambling. *Journal of Gambling Studies, 30*, 163–171. <http://dx.doi.org/10.1007/s10899-012-9342-9>
- \*Ritschel, L. A. (2006). *Does mindfulness matter? Investigating the effectiveness of an outpatient dialectical behavior therapy program* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses database. (Accession No. 2006–99024-240)
- \*Robichaud, M., Dugas, M. J., & Conway, M. (2003). Gender differences in worry and associated cognitive-behavioral variables. *Journal of Anxiety Disorders, 17*, 501–516. [http://dx.doi.org/10.1016/S0887-6185\(02\)00237-2](http://dx.doi.org/10.1016/S0887-6185(02)00237-2)
- \*Robins, C. J., Keng, S.-L., Ekblad, A. G., & Brantley, J. G. (2012). Effects of mindfulness-based stress reduction on emotional experience and expression: A randomized controlled trial. *Journal of Clinical Psychology, 68*, 117–131. <http://dx.doi.org/10.1002/jclp.20857>
- Roger, D., Jarvis, G., & Najarian, B. (1993). Detachment and coping: The construction and validation of a new scale for measuring coping strategies. *Personality and Individual Differences, 15*, 619–626. [http://dx.doi.org/10.1016/0191-8869\(93\)90003-L](http://dx.doi.org/10.1016/0191-8869(93)90003-L)
- \*Rosenthal, M. Z., Cheavens, J. S., Lynch, T. R., & Follette, V. (2006). Thought suppression mediates the relationship between negative mood and PTSD in sexually assaulted women. *Journal of Traumatic Stress, 19*, 741–745. <http://dx.doi.org/10.1002/jts.20162>
- \*Rosenthal, M. Z., Cukrowicz, K. C., Cheavens, J. S., & Lynch, T. R. (2006). Self-punishment as a regulation strategy in borderline personality disorder. *Journal of Personality Disorders, 20*, 232–246. <http://dx.doi.org/10.1521/pedi.2006.20.3.232>
- Rosenthal, R. (1979). The “file drawer problem” and tolerance for null results. *Psychological Bulletin, 86*, 638–641. <http://dx.doi.org/10.1037/0033-2909.86.3.638>
- \*Rude, S. S., Maestas, K. L., & Neff, K. (2007). Paying attention to distress: What's wrong with rumination? *Cognition and Emotion, 21*, 843–864. <http://dx.doi.org/10.1080/02699930601056732>
- \*Rusk, N., Tamir, M., & Rothbaum, F. (2011). Performance and learning goals for emotion regulation. *Motivation and Emotion, 35*, 444–460. <http://dx.doi.org/10.1007/s11031-011-9229-6>
- \*Salsman, N. L., & Linehan, M. M. (2012). An investigation of the relationships among negative affect, difficulties in emotion regulation, and features of borderline personality disorder. *Journal of Psychopathology and Behavioral Assessment, 34*, 260–267. <http://dx.doi.org/10.1007/s10862-012-9275-8>
- \*Salters-Pedneault, K., Roemer, L., Tull, M. T., Rucker, L., & Mennin, D. S. (2006). Evidence of broad deficits in emotion regulation associated with chronic worry and generalized anxiety disorder. *Cognitive Therapy and Research, 30*, 469–480. <http://dx.doi.org/10.1007/s10608-006-9055-4>
- \*Santanello, A. W., & Gardner, F. L. (2007). The role of experiential avoidance in the relationship between maladaptive perfectionism and worry. *Cognitive Therapy and Research, 31*, 319–332. <http://dx.doi.org/10.1007/s10608-006-9000-6>
- \*Santos, V. M. (2007). *Improving mood through acceptance of emotional experience* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses database. (Accession No. 2008-99050-135)
- Schäfer, J. O., Naumann, E., Holmes, E. A., Tuschen-Caffier, B., & Samson, A. C. (2016). Emotion regulation strategies in depressive and anxiety symptoms in youth: A meta-analytic review. *Journal of Youth and Adolescence, 46*, 261–276. <http://dx.doi.org/10.1007/s10964-016-0585-0>
- Schirda, B., Valentine, T. R., Aldao, A., & Prakash, R. S. (2016). Age-related differences in emotion regulation strategies: Examining the role of contextual factors. *Developmental Psychology, 52*, 1370–1380. <http://dx.doi.org/10.1037/dev0000194>
- \*Schmaling, K. B., Dimidjian, S., Katon, W., & Sullivan, M. (2002). Response styles among patients with minor depression and dysthymia in primary care. *Journal of Abnormal Psychology, 111*, 350–356. <http://dx.doi.org/10.1037/0021-843X.111.2.350>
- \*Schmalz, J. E., & Murrell, A. R. (2010). Measuring experiential avoidance in adults: The Avoidance and Fusion Questionnaire. *International Journal of Behavioral Consultation and Therapy, 6*, 198–213. <http://dx.doi.org/10.1037/h0100908>
- \*Schutte, N. S., Manes, R. R., & Malouff, J. M. (2009). Antecedent-focused emotion regulation, response modulation and well-being. *Current Psychology, 28*, 21–31. <http://dx.doi.org/10.1007/s12144-009-9044-3>
- \*Schwartz, J. J., & Koenig, L. J. (1996). Response styles & negative affect among adolescents. *Cognitive Therapy and Research, 20*, 13–36. <http://dx.doi.org/10.1007/BF02229241>

- \*Scott, V. B., Jr., & McIntosh, W. D. (1999). The development of a trait measure of ruminative thought. *Personality and Individual Differences*, 26, 1045–1056. [http://dx.doi.org/10.1016/S0191-8869\(98\)00208-6](http://dx.doi.org/10.1016/S0191-8869(98)00208-6)
- \*Segerstrom, S. C., Tsao, J. C. I., Alden, L. E., & Craske, M. G. (2000). Worry and rumination: Repetitive thought as a concomitant and predictor of negative mood. *Cognitive Therapy and Research*, 24, 671–688. <http://dx.doi.org/10.1023/A:1005587311498>
- \*Selby, E. A., Anestis, M. D., & Joiner, T. E. (2008). Understanding the relationship between emotional and behavioral dysregulation: Emotional cascades. *Behaviour Research and Therapy*, 46, 593–611. <http://dx.doi.org/10.1016/j.brat.2008.02.002>
- Seligowski, A. V., & Orcutt, H. K. (2015). Examining the structure of emotion regulation: A factor-analytic approach. *Journal of Clinical Psychology*, 71, 1004–1022. <http://dx.doi.org/10.1002/jclp.22197>
- \*Seriki, K. K. (2010). *The role of cognitive processes and personality traits in different types of rumination* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses database. (Accession No. 2011–99060-129)
- \*Sexton, K. A., & Dugas, M. J. (2008). The cognitive avoidance questionnaire: Validation of the English translation. *Journal of Anxiety Disorders*, 22, 355–370. <http://dx.doi.org/10.1016/j.janxdis.2007.04.005>
- Sharma, L., Markon, K. E., & Clark, L. A. (2014). Toward a theory of distinct types of “impulsive” behaviors: A meta-analysis of self-report and behavioral measures. *Psychological Bulletin*, 140, 374–408. <http://dx.doi.org/10.1037/a0034418>
- Sheppes, G., Scheibe, S., Suri, G., & Gross, J. J. (2011). Emotion-regulation choice. *Psychological Science*, 22, 1391–1396. <http://dx.doi.org/10.1177/0956797611418350>
- Sheppes, G., Scheibe, S., Suri, G., Radu, P., Blechert, J., & Gross, J. J. (2014). Emotion regulation choice: A conceptual framework and supporting evidence. *Journal of Experimental Psychology: General*, 143, 163–181. <http://dx.doi.org/10.1037/a0030831>
- \*Short, M. M., & Mazmanian, D. (2013). Perfectionism and negative repetitive thoughts: Examining a multiple mediator model in relation to mindfulness. *Personality and Individual Differences*, 55, 716–721. <http://dx.doi.org/10.1016/j.paid.2013.05.026>
- \*Shusterman, A., Feld, L., Baer, L., & Keuthen, N. (2009). Affective regulation in trichotillomania: Evidence from a large-scale internet survey. *Behaviour Research and Therapy*, 47, 637–644. <http://dx.doi.org/10.1016/j.brat.2009.04.004>
- \*Siegle, G. J., Moore, P. M., & Thase, M. E. (2004). Rumination: One construct, many features in healthy individuals, depressed individuals, and individuals with lupus. *Cognitive Therapy and Research*, 28, 645–668. <http://dx.doi.org/10.1023/B:COTR.0000045570.62733.9f>
- \*Silberstein, L. R., Tirch, D., Leahy, R. L., & McGinn, L. (2012). Mindfulness, psychological flexibility and emotional schemas. *International Journal of Cognitive Therapy*, 5, 406–419. <http://dx.doi.org/10.1521/ijct.2012.5.4.406>
- \*Simon, N. M., Pollack, M. H., Ostacher, M. J., Zalta, A. K., Chow, C. W., Fischmann, D., . . . Otto, M. W. (2007). Understanding the link between anxiety symptoms and suicidal ideation and behaviors in outpatients with bipolar disorder. *Journal of Affective Disorders*, 97, 91–99. <http://dx.doi.org/10.1016/j.jad.2006.05.027>
- Simons, J. S., & Gaher, R. M. (2005). The Distress Tolerance Scale: Development and validation of a self-report measure. *Motivation and Emotion*, 29, 83–102. <http://dx.doi.org/10.1007/s11031-005-7955-3>
- \*Sirois, F. M., & Tosti, N. (2012). Lost in the moment? An investigation of procrastination, mindfulness, and well-being. *Journal of Rational-Emotive & Cognitive-Behavior Therapy*, 30, 237–248. <http://dx.doi.org/10.1007/s10942-012-0151-y>
- Skinner, E. A., Edge, K., Altman, J., & Sherwood, H. (2003). Searching for the structure of coping: A review and critique of category systems for classifying ways of coping. *Psychological Bulletin*, 129, 216–269. <http://dx.doi.org/10.1037/0033-2909.129.2.216>
- \*Sorg, S., Vögele, C., Furka, N., & Meyer, A. H. (2012). Perseverative thinking in depression and anxiety. *Frontiers in Psychology*, 3, 20–20. <http://dx.doi.org/10.3389/fpsyg.2012.00020>
- \*Spaapen, D. L., Waters, F., Brummer, L., Stopa, L., & Bucks, R. S. (2014). The emotion regulation questionnaire: Validation of the ERQ-9 in two community samples. *Psychological Assessment*, 26, 46–54. <http://dx.doi.org/10.1037/a0034474>
- \*Starr, L. R., & Davila, J. (2012). Responding to anxiety with rumination and hopelessness: Mechanism of anxiety-depression symptom co-occurrence. *Cognitive Therapy and Research*, 36, 321–337. <http://dx.doi.org/10.1007/s10608-011-9363-1>
- \*Stavosky, J. M. (1993). *An investigation of the proposed model of the constructs mediating the relationship of gender and worry* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses database. (Accession No. 1996–72558-001)
- Sukhodolsky, D. G., Golub, A., & Cromwell, E. N. (2001). Development and validation of the Anger Rumination Scale. *Personality and Individual Differences*, 31, 689–700. [http://dx.doi.org/10.1016/S0191-8869\(00\)00171-9](http://dx.doi.org/10.1016/S0191-8869(00)00171-9)
- \*Sumida, E. (2010). *Clarifying the relationship between emotion regulation, gender, and depression* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses database. (Accession No. 2011–99100-144)
- \*Swartz, R. A., & McElwain, N. L. (2012). Preservice teachers’ emotion-related regulation and cognition: Associations with teachers’ responses to children’s emotions in early childhood classrooms. *Early Education and Development*, 23, 202–226. <http://dx.doi.org/10.1080/10409289.2012.619392>
- \*Szwedo, D. E. (2012). *The development of emotion regulation strategies during adolescence and their associations with youths’ psychological adjustment in early adulthood* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses database. (Accession No. 2013–99020-037)
- Tallis, F., Eysenck, M. W., & Mathews, A. (1992). A questionnaire for the measurement of nonpathological worry. *Personality and Individual Differences*, 13, 161–168. [http://dx.doi.org/10.1016/0191-8869\(92\)90038-Q](http://dx.doi.org/10.1016/0191-8869(92)90038-Q)
- \*Tamagawa, R., Giese-Davis, J., Specia, M., Doll, R., Stephen, J., & Carlson, L. E. (2013). Trait mindfulness, repression, suppression, and self-reported mood and stress symptoms among women with breast cancer. *Journal of Clinical Psychology*, 69, 264–277. <http://dx.doi.org/10.1002/jclp.21939>
- \*Tanner, M. A., Travis, F., Gaylord-King, C., Haaga, D. F., Grosswald, S., & Schneider, R. H. (2009). The effects of the transcendental meditation program on mindfulness. *Journal of Clinical Psychology*, 65, 574–589. <http://dx.doi.org/10.1002/jclp.20544>
- \*Taylor, K. N., Graves, A., & Stopa, L. (2009). Strategic cognition in paranoia: The use of thought control strategies in a non-clinical population. *Behavioural and Cognitive Psychotherapy*, 37, 25–38. <http://dx.doi.org/10.1017/S1352465808005006>
- Thompson, R. A. (1994). Emotion regulation: A theme in search of definition. In N. A. Fox (Ed.), *The development of emotion regulation and dysregulation: Biological and behavioral aspects. Monographs of the Society for Research in Child Development* (Vol. 59, pp. 25–52; Serial No. 240). <http://dx.doi.org/10.1111/j.1540-5834.1994.tb01276.x>
- \*Thompson, B. L., & Waltz, J. (2010). Mindfulness and experiential avoidance as predictors of posttraumatic stress disorder avoidance symptom severity. *Journal of Anxiety Disorders*, 24, 409–415. <http://dx.doi.org/10.1016/j.janxdis.2010.02.005>
- Tracy, J., Klonsky, E. D., & Proudfit, G. H. (2014). How affective science can inform clinical science: An introduction to the special series on emotions and psychopathology. *Clinical Psychological Science*, 2, 371–386. <http://dx.doi.org/10.1177/2167702614537627>
- Trapnell, P. D., & Campbell, J. D. (1999). Private self-consciousness and the five-factor model of personality: Distinguishing rumination from

- reflection. *Journal of Personality and Social Psychology*, 76, 284–304. <http://dx.doi.org/10.1037/0022-3514.76.2.284>
- \*Traylor, S. L. (2012). *Cognition, emotion regulation and alcohol consumption in college students* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses database. (Accession No. 2013–99140-571)
- Tull, M. T., & Aldao, A. (2015). Editorial overview: New directions in the science of emotion regulation. *Current Opinion in Psychology*, 3, iv–x. <http://dx.doi.org/10.1016/j.copsyc.2015.03.009>
- \*Tull, M. T., Barrett, H. M., McMillan, E. S., & Roemer, L. (2007). A preliminary investigation of the relationship between emotion regulation difficulties and posttraumatic stress symptoms. *Behavior Therapy*, 38, 303–313. <http://dx.doi.org/10.1016/j.beth.2006.10.001>
- \*Tull, M. T., & Roemer, L. (2007). Emotion regulation difficulties associated with the experience of uncued panic attacks: Evidence of experiential avoidance, emotional nonacceptance, and decreased emotional clarity. *Behavior Therapy*, 38, 378–391. <http://dx.doi.org/10.1016/j.beth.2006.10.006>
- \*Turner, B. J., Chapman, A. L., & Layden, B. K. (2012). Intrapersonal and interpersonal functions of non suicidal self-injury: Associations with emotional and social functioning. *Suicide and Life-Threatening Behavior*, 42, 36–55. <http://dx.doi.org/10.1111/j.1943-278X.2011.00069.x>
- \*Umezawa, Y., Lu, Q., You, J., Kagawa-Singer, M., Leake, B., & Maly, R. C. (2012). Belief in divine control, coping, and race/ethnicity among older women with breast cancer. *Annals of Behavioral Medicine*, 44, 21–32. <http://dx.doi.org/10.1007/s12160-012-9358-5>
- \*Uphill, M. A., Lane, A. M., & Jones, M. V. (2012). Emotion regulation questionnaire for use with athletes. *Psychology of Sport and Exercise*, 13, 761–770. <http://dx.doi.org/10.1016/j.psychsport.2012.05.001>
- \*Valdez, C. E., & Lilly, M. M. (2012). Thought control: Is it ability, strategies, or both that predicts posttraumatic symptomatology in victims of interpersonal trauma? *Journal of Psychopathology and Behavioral Assessment*, 34, 531–541. <http://dx.doi.org/10.1007/s10862-012-9300-y>
- \*Vickers, K. S., & Vogeltanz-Holm, N. D. (2003). The effects of rumination and distraction tasks on psychophysiological responses and mood in dysphoric and nondysphoric individuals. *Cognitive Therapy and Research*, 27, 331–348. <http://dx.doi.org/10.1023/A:1023970501448>
- \*Voon, D., Hasking, P., & Martin, G. (2014a). Change in emotion regulation strategy use and its impact on adolescent nonsuicidal self-injury: A three-year longitudinal analysis using latent growth modeling. *Journal of Abnormal Psychology*, 123, 487–498. <http://dx.doi.org/10.1037/a0037024>
- \*Voon, D., Hasking, P., & Martin, G. (2014b). The roles of emotion regulation and ruminative thoughts in non-suicidal self-injury. *British Journal of Clinical Psychology*, 53, 95–113. <http://dx.doi.org/10.1111/bjc.12030>
- \*Vorous, M. A. (2009). *The effects of experiential avoidance and distress tolerance on self-harm in individuals diagnosed with borderline personality disorder*. Retrieved from ProQuest Dissertations & Theses database. (Accession No. 2009-99180-330)
- \*Vujanovic, A. A., Bonn-Miller, M. O., Bernstein, A., McKee, L. G., & Zvolensky, M. J. (2010). Incremental validity of mindfulness skills in relation to emotional dysregulation among a young adult community sample. *Cognitive Behaviour Therapy*, 39, 203–213. <http://dx.doi.org/10.1080/16506070903441630>
- \*Wallace, J. C., Edwards, B. D., Shull, A., & Finch, D. M. (2009). Examining the consequences in the tendency to suppress and reappraise emotions on task-related job performance. *Human Performance*, 22, 23–43. <http://dx.doi.org/10.1080/08959280802540957>
- \*Wang, X. (2007). A model of the relationship of sex-role orientation to social problem-solving. *Sex Roles*, 57(5–6), 397–408. <http://dx.doi.org/10.1007/s11199-007-9285-2>
- \*Watkins, E. (2004). Appraisals and strategies associated with rumination and worry. *Personality and Individual Differences*, 37, 679–694. <http://dx.doi.org/10.1016/j.paid.2003.10.002>
- Watkins, E., & Baracaia, S. (2001). Why do people ruminate in dysphoric moods? *Personality and Individual Differences*, 30, 723–734. [http://dx.doi.org/10.1016/S0191-8869\(00\)00053-2](http://dx.doi.org/10.1016/S0191-8869(00)00053-2)
- Watkins, E., & Moulds, M. (2005). Positive beliefs about rumination in depression - a replication and extension. *Personality and Individual Differences*, 39, 73–82. <http://dx.doi.org/10.1016/j.paid.2004.12.006>
- \*Watkins, E. R., & Moulds, M. L. (2009). Thought control strategies, thought suppression, and rumination in depression. *International Journal of Cognitive Therapy*, 2, 235–251. <http://dx.doi.org/10.1521/ijct.2009.2.3.235>
- \*Watson, D., & Hubbard, B. (1996). Adaptational style and dispositional structure: Coping in the context of the five-factor model. *Journal of Personality*, 64, 737–774. <http://dx.doi.org/10.1111/j.1467-6494.1996.tb00943.x>
- \*Watson, E. B. (2007). *Emotion regulation in affluent adolescents: Investigating the relationship between regulation and functioning* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses database. (Accession No. 2008–99061-091)
- Watson, M., & Greer, S. (1983). Development of a questionnaire measure of emotional control. *Journal of Psychosomatic Research*, 27, 299–305. [http://dx.doi.org/10.1016/0022-3999\(83\)90052-1](http://dx.doi.org/10.1016/0022-3999(83)90052-1)
- Webb, T. L., Miles, E., & Sheeran, P. (2012). Dealing with feeling: A meta-analysis of the effectiveness of strategies derived from the process model of emotion regulation. *Psychological Bulletin*, 138, 775–808. <http://dx.doi.org/10.1037/a0027600>
- Wegner, D. M., & Zanakos, S. (1994). Chronic thought suppression. *Journal of Personality*, 62, 615–640. <http://dx.doi.org/10.1111/j.1467-6494.1994.tb00311.x>
- \*Weinrib, A. Z. (2011). *Investigating experiential avoidance as a mechanism of action in a mindfulness intervention* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses database. (Accession No. 2012–99080-024)
- \*Weinstock, L. M., & Gruber, J. (2015). [The Brown-Yale Emotions Study (B-YES)]. Unpublished raw data.
- \*Weiss, N. H., Tull, M. T., Davis, L. T., Dehon, E. E., Fulton, J. J., & Gratz, K. J. (2012). Examining the association between emotion regulation difficulties and probable posttraumatic stress disorder within a sample of African Americans. *Cognitive Behaviour Therapy*, 41, 5–14. <http://dx.doi.org/10.1080/16506073.2011.621970>
- \*Wells, A., & Carter, K. E. P. (2009). Maladaptive thought control strategies in generalized anxiety disorder, major depressive disorder, and nonpatient groups and relationships with trait anxiety. *International Journal of Cognitive Therapy*, 2, 224–234. <http://dx.doi.org/10.1521/ijct.2009.2.3.224>
- \*Wells, A., & Davies, M. I. (1994). The Thought Control Questionnaire: A measure of individual differences in the control of unwanted thoughts. *Behaviour Research and Therapy*, 32, 871–878. [http://dx.doi.org/10.1016/0005-7967\(94\)90168-6](http://dx.doi.org/10.1016/0005-7967(94)90168-6)
- \*Wendling, H. M. (2012). *The relation between psychological flexibility and the Buddhist practices of meditation, nonattachment, and self-compassion*. Retrieved from ProQuest Dissertations & Theses database. (Accession No. 2013-99100-438)
- \*Wenzlaff, R. M., & Luxton, D. D. (2003). The role of thought suppression in depressive rumination. *Cognitive Therapy and Research*, 27, 293–308. <http://dx.doi.org/10.1023/A:1023966400540>
- Wenzlaff, R. M., & Wegner, D. M. (2000). Thought suppression. *Annual Review of Psychology*, 51, 59–91. <http://dx.doi.org/10.1146/annurev.psych.51.1.59>
- \*Whiting, S. E., May, A. C., Rudy, B. M., & Davis, T. E., III. (2014). Strategies for the control of unwanted thoughts in adolescents: The adolescent thought control questionnaire (TCQ-A). *Journal of Psycho-*

- pathology and Behavioral Assessment*, 36, 276–287. <http://dx.doi.org/10.1007/s10862-013-9369-y>
- \*Whitmer, A. J., & Banich, M. T. (2012). Repetitive thought and reversal learning deficits. *Cognitive Therapy and Research*, 36, 714–721. <http://dx.doi.org/10.1007/s10608-011-9409-4>
- \*Wiggins, K. T. (2012). *Mindfulness and emotion in relationships: Emotion regulation, empathy, and affect as mediators of the association between mindfulness and relationship satisfaction*. Retrieved from ProQuest Dissertations & Theses database. (Accession No. 2013-99161-049)
- \*Williams, A. D. (2012). Distress tolerance and experiential avoidance in compulsive acquisition behaviours. *Australian Journal of Psychology*, 64, 217–224. <http://dx.doi.org/10.1111/j.1742-9536.2012.00055.x>
- \*Williams, J. C. (2010). *Construct validation of experiential acceptance: A multitrait-monomethod approach* (Doctoral dissertation). Retrieved from ProQuest Dissertations & Theses database. (Accession No. 2011-99100-136)
- \*Williams, V., Ciarrochi, J., & Deane, F. P. (2010). On being mindful, emotionally aware, and more resilient: Longitudinal pilot study of police recruits. *Australian Psychologist*, 45, 274–282. <http://dx.doi.org/10.1080/00050060903573197>
- \*Wilson, C., & Hall, M. (2012). Thought control strategies in adolescents: Links with OCD symptoms and meta-cognitive beliefs. *Behavioural and Cognitive Psychotherapy*, 40, 438–451. <http://dx.doi.org/10.1017/S135246581200001X>
- \*Wilson, L. C., & Scarpa, A. (2012). The mediating role of peritraumatic dissociation and thought control strategies on posttraumatic stress in women survivors of child sexual and physical abuse. *Journal of Aggression, Maltreatment & Trauma*, 21, 477–494. <http://dx.doi.org/10.1080/10926771.2012.669821>
- Wilson, T. D., & Gilbert, D. T. (2008). Explaining away: A model of affective adaptation. *Perspectives on Psychological Science*, 3, 370–386. <http://dx.doi.org/10.1111/j.1745-6924.2008.00085.x>
- \*Wilson, V. R. (2012). *Attachment, experiential avoidance, and mindfulness in the narrative disclosure task*. Retrieved from ProQuest Dissertations & Theses database. (Accession No. 2012-99240-498)
- \*Wisco, B. E., Pineles, S. L., Shipherd, J. C., & Marx, B. P. (2013). Attentional interference by threat and post-traumatic stress disorder: The role of thought control strategies. *Cognition and Emotion*, 27, 1314–1325. <http://dx.doi.org/10.1080/02699931.2013.775109>
- Wolgast, M., Lundh, L. G., & Viborg, G. (2011). Cognitive reappraisal and acceptance: An experimental comparison of two emotion regulation strategies. *Behaviour Research and Therapy*, 49, 858–866. <http://dx.doi.org/10.1016/j.brat.2011.09.011>
- \*Wong, Q. J., & Moulds, M. L. (2011). The relationship between the maladaptive self-beliefs characteristic of social anxiety and avoidance. *Journal of Behavior Therapy and Experimental Psychiatry*, 42, 171–178. <http://dx.doi.org/10.1016/j.jbtep.2010.11.004>
- Wothke, W. (1993). Nonpositive definite matrices in structural modeling. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (pp. 256–293). Newbury Park, CA: Sage.
- \*Yoon, K. L., Maltby, J., & Joormann, J. (2013). A pathway from neuroticism to depression: Examining the role of emotion regulation. *Anxiety, Stress, & Coping*, 26, 558–572. <http://dx.doi.org/10.1080/10615806.2012.734810>
- \*Zalta, A. K., & Chambless, D. L. (2008). Exploring sex differences in worry with a cognitive vulnerability model. *Psychology of Women Quarterly*, 32, 469–482. <http://dx.doi.org/10.1111/j.1471-6402.2008.00459.x>
- \*Ziegert, D. I., & Kistner, J. A. (2002). Response styles theory: Downward extension to children. *Journal of Clinical Child and Adolescent Psychology*, 31, 325–334. [http://dx.doi.org/10.1207/S15374424JCCP3103\\_04](http://dx.doi.org/10.1207/S15374424JCCP3103_04)
- Zimmer-Gembeck, M. J., & Skinner, E. A. (2011). The development of coping across childhood and adolescence: An integrative review and critique of research. *International Journal of Behavioral Development*, 35, 1–17. <http://dx.doi.org/10.1177/0165025410384923>
- \*Zlomke, K. R., & Hahn, K. S. (2010). Cognitive emotion regulation strategies: Gender differences and associations to worry. *Personality and Individual Differences*, 48, 408–413. <http://dx.doi.org/10.1016/j.paid.2009.11.007>
- Zvolensky, M. J., Leyro, T. M., Bernstein, A., & Vujanovic, A. A. (2011). Historical perspectives, theory, and measurement of distress tolerance. In M. J. Zvolensky, A. Bernstein, A. A. Vujanovic, M. J. Zvolensky, M. J. Zvolensky, A. Bernstein, & A. A. Vujanovic (Eds.), *Distress tolerance: Theory, research, and clinical applications* (pp. 3–27). New York, NY: Guilford Press.

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