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Emotion Dysregulation

Natasha H. Bailen and Renee J. Thompson

Depressive disorders are characterized by extensive *emotion dysregulation*, defined as a pattern of emotional experience or expression that interferes with goal-directed activity (R. A. Thompson, 2019). The two cardinal symptoms of major depressive disorder (MDD) involve persistent negative emotion and blunted positive emotion (American Psychiatric Association, 2013). Consistent with this model, research using a variety of methodologies has found that adults with MDD experience elevated negative affect and diminished positive affect compared with healthy controls (e.g., Nelson et al., 2020). These symptoms are often associated with severe functional, social, and occupational impairment (American Psychiatric Association, 2013).

The full picture of emotion dysregulation in MDD is complex. Dysregulated emotion is theorized not only to be a symptom of depression (i.e., a feature that indicates the presence of the disorder) but also a risk factor (i.e., a feature that precedes the development of the disorder) and a “scar” (i.e., a feature that remains after remission). Various forms of dysregulated emotion precede the development and predict the maintenance of depressive episodes and symptoms. For instance, elevated emotional instability has been shown to precede the onset of depressive episodes (Eldesouky et al., 2018). In addition, individuals in full remission from depressive episodes show diminished positive emotion and elevated negative emotion as compared with healthy controls (Barge-Schaapveld & Nicolson, 2002). Positive bidirectional associations have been established between depressive symptoms and rumination (e.g., Whisman et al., 2020).

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In this chapter, we examine the role of emotion dysregulation as a risk factor for depression. Because the focus of the book is on risk factors, other than briefly noting established cross-sectional findings, we focus on longitudinal studies to evaluate which aspects of emotion dysregulation precede changes in depressive symptoms, MDD onset, and MDD recurrence. We then point to evidence that emotion dysregulation can be successfully targeted in treatment and discuss the extent to which different aspects of emotion dysregulation change over the course of leading treatments for depression, focusing on emotional awareness, emotional experience, and emotion regulation strategies. As an exhaustive literature review on these topics is beyond the scope of the chapter, we synthesize the longitudinal research and highlight notable patterns. We present a case example of the role of emotion dysregulation in treatment for depression. Finally, we summarize the evidence for emotion dysregulation as a risk factor for depression that changes over the course of treatment, review limitations of the existing literature, and provide directions for future research.

DEFINITIONAL AND CONCEPTUAL ISSUES

Emotion Dysregulation

Emotion dysregulation has been defined in different ways throughout the literature, and the specific emotional phenomena encompassed by the term vary widely. For instance, Cole et al. (2017) identified four types of dysregulated emotion, including (a) ineffective regulation attempts that result in persistent emotional states, (b) interference of emotions with appropriate behavioral responses, (c) context-inappropriate emotional experience or expression, and (d) emotional changes that are unusually fast or slow. Gratz and Roemer (2004) identified facets of emotion dysregulation that touch on (a) poor awareness of and attention to emotions, (b) poor emotional clarity, (c) rejection of one's own emotional states, (d) poor impulse control in response to emotions, (e) poor concentration and goal pursuit in the face of emotional distress, and (f) poor use of emotion regulation strategies. A taxonomy of emotional disturbances (Berenbaum et al., 2003) includes (a) deficits or excesses in pleasant or unpleasant emotion, (b) emotional reactivity, and (c) emotional disconnections (e.g., disconnect between subjective experience and expressions, low emotional clarity). Finally, the framework by Gross and Jazaieri (2014) includes disturbances in (a) emotional intensity and reactivity, (b) emotional duration, (c) emotion frequency, and (d) emotion type.

Several similarities can be seen across models of emotion dysregulation. For instance, most models describe emotional experiences that are experienced in atypical or maladaptive quantities and contexts as forms of dysregulation. Multiple models also consider specific strategies used to modify emotional experience as well as the awareness one has of their own emotional experience. In efforts to circumscribe the boundaries of emotion dysregulation for

our purposes, we took commonalities into consideration and arrived at the following three parsimonious categories of emotion dysregulation: (a) deficiencies in the awareness of emotion (e.g., emotional clarity and attention to emotions), (b) disturbance of the experience of emotion (i.e., emotional intensity, reactivity, instability, variability, and inertia), and (c) unhelpful patterns in the use of emotion regulation strategies.

Relation to Psychopathology

In this chapter, we examine emotion dysregulation as it relates to the changes in depressive symptom scores (e.g., as assessed using self-report measures) and the onset and recurrence of clinical depressive disorders (i.e., MDD, persistent depressive disorder, or dysthymia, as self-reported or assessed via clinical interview). We do not include findings related to bipolar depression or samples in which depression is not differentiated from other diagnoses such as anxiety disorders. We indicate when cited studies make use of clinical samples; in all other instances, the samples were recruited without regard to depression (e.g., community sample).

It is worth noting that emotion dysregulation is not a phenomenon that is specific to depressive pathology. Indeed, it is difficult to find a psychological disorder that is not characterized by dysregulation of emotional experience, awareness, or strategy use. Broadly defined, dysregulated emotion features in bipolar disorder, borderline personality disorder, anxiety disorders, trauma-related disorders, and even many disorders that are widely considered externalizing, such as substance use disorders. Therefore, although this chapter limits its review to emotion dysregulation as a risk factor for depression, it is important to keep in mind that some aspects of emotion dysregulation are transdiagnostic risk factors.

A Note on the Use of Emotion Regulation Strategies

The emotion regulation strategies that are more avoidance based (e.g., expressive suppression, rumination) have traditionally been considered maladaptive, and the strategies that are more approach oriented (e.g., problem solving, acceptance) have traditionally been considered adaptive due to their associations with negative and positive socioemotional outcomes, respectively (e.g., Goldin et al., 2008). However, as many have argued, it is difficult to label any one strategy as categorically maladaptive, or representative of emotion dysregulation, as some putatively maladaptive strategies can be adaptive in certain situations (e.g., suppressing amusement during a funeral). Further, the outcomes of a given strategy can vary by sociodemographic characteristics. For instance, race has been found to moderate the positive association between depressive symptoms and emotional suppression, such that the association was stronger in European American than in Asian American college students (Cheung & Park, 2010). Research indicates that it is not the use of any one strategy that

most reflects emotion dysregulation; it is rather the inflexible, context-insensitive use of emotion regulation strategies (e.g., Westphal et al., 2010). Although in this chapter we review associations between specific strategies and depression, in alignment with more current theorizing, we also incorporate more recent research on emotion regulation flexibility.

Assessment of Emotion Dysregulation

When possible, we refer to specific forms of emotion dysregulation, not to composite emotion dysregulation scores. We also distinguish when experience sampling methodology (ESM) and physiological markers (e.g., cardiac reactivity) are used to assess emotional experience as opposed to trait self-report measures. The use of ESM to collect momentary reports of emotional experiences helps to minimize the retrospective recall bias associated with trait self-reports and with depressive symptomatology (LeMoult & Gotlib, 2019).

EMOTION DYSREGULATION AS A RISK FACTOR FOR DEPRESSION

Emotional Awareness as a Risk Factor

Cross-sectional studies show a link between depression and emotional awareness, which itself is a multifaceted construct that involves the ability to notice and identify one's emotional experience. Low emotional awareness overlaps to some degree with alexithymia, which involves difficulty identifying, understanding, and communicating emotional experiences and is also cross-sectionally associated with depression (Visted et al., 2018). The longitudinal research examining these factors predicting depression has mixed findings. Two studies have found that deficits in general emotional awareness at baseline predicted increases in depressive symptoms over time in adolescents (Kranzler et al., 2016) and adults (Berking et al., 2014). However, baseline alexithymia did not predict the onset of MDD in adults (e.g., Honkalampi et al., 2010). It may be that these results are equivocal because they have examined broad constructs.

Emotional awareness encompasses both emotional clarity and attention to emotion, two related but distinct dimensions that have unique predictive validity (Boden & Thompson, 2017). *Emotional clarity* is the degree to which one can identify, distinguish, and describe one's emotions, whereas *attention to emotion* is the degree to which one notices and thinks about one's emotions (Gohm & Clore, 2000). Research examining the associations between these individual dimensions of emotional awareness and depression seem to provide a more consistent picture than examining emotional awareness more broadly. Deficits in trait emotional clarity prospectively predicted increases in depressive symptoms in adolescents (e.g., Stange et al., 2013) and adults (Berking et al., 2014). Although these findings are promising, more research is needed to examine emotional clarity in clinical samples with respect to the onset and course of MDD.

Preliminary evidence supports the role of attention to emotion in depression. Increased trait attention to emotion was associated with increased depressive symptoms over time in a sample of adolescents (Salguero et al., 2012). Research has also examined people's momentary attention to emotion—an intra-individual variable reflecting the extent to which someone is attending to their emotions at a particular point in time. Average levels of attention to emotion assessed while participants were in a depressive episode predicted their depressive status one year later: those whose MDD was in remission had reported lower levels of attention to emotion than did those who still met criteria for MDD. Importantly, attention to emotion was assessed when participants had current MDD, not one year later when some people's MDD was in remission. The study also included a healthy control group, and their levels of attention to emotion did not differ from those whose MDD was in remission a year later. That is, paying some but not too much attention to emotion was associated with MDD remission.

Increasing one's attention to and clarity about one's emotions is consistent with many depression treatments. Therefore, it might seem counterintuitive that higher attention to emotion is associated with poorer depression outcomes. However, it is important to note that such treatments include psychoeducation about the adaptive nature of emotions and emphasize nonjudgmental attention to emotion. For individuals with depression, negative biases might interact with high attention and clarity to produce negative reactions to one's emotional experience (e.g., "I can't tolerate this sadness," "It's stupid that I feel lonely"), which is quite different from the nonjudgmental clarity and attention encouraged in treatment. Further, as described above, R. J. Thompson et al. (2013) found that it is moderate, but not high, levels of attention to emotion that seem most adaptive for those with MDD at least with regard to the course of their illness.

Emotional Experience as a Risk Factor

Emotion intensity, or the subjective strength of one's emotional experience, has mixed support as a risk factor for depression. Both high negative and low positive emotional intensity assessed via ESM were associated with increases in depressive symptoms in both adults with depression and healthy controls over 6 months (Panaite et al., 2020) and in adolescents at elevated risk of developing externalizing disorders over 12 months (Neumann et al., 2011). However, neither mean negative emotion nor positive emotion assessed via ESM predicted whether people's MDD was in remission 12 months later (R. J. Thompson et al., 2013). Trait emotional intensity did not predict changes in depressive symptoms over 2 months in an unselected adult sample (R. J. Thompson et al., 2011). The predictive value of emotional intensity may be most clearly observed when intensity is assessed using ESM (as opposed to using trait measures) with regard to depressive symptoms (not MDD status). However, additional research is needed to test this assertion.

Emotion reactivity is the strength of one's emotional response to emotion-provoking events or stimuli. Cross-sectional findings in relation to depression tend to differ as a function of study methodology. ESM research shows that emotional reactivity to daily stressors is generally higher in individuals with MDD as compared to controls. In contrast, laboratory research has found that emotional reactivity to positive and negative material is lower in individuals with MDD as compared with controls (van der Stouwe et al., 2019). Findings from longitudinal studies follow the same pattern. ESM studies generally suggest that negative emotion reactivity in response to interpersonal daily stressors is associated with subsequent increases in depressive symptoms (e.g., O'Neill et al., 2004) while laboratory studies have found diminished emotion reactivity is associated with depression risk. For example, cardiac underreactivity to a sadness induction predicted increases in depressive symptoms over 2 years in children (Somers et al., 2015), and low self-reported positive reactivity to a sadness induction predicted recurrence 12 months later in adults with remitted MDD (Lethbridge & Allen, 2008). In another study, low cardiac and behaviorally assessed emotion reactivity to an amusing film was associated with higher likelihood of MDD recurrence (Rottenberg et al., 2002).

A related construct to emotional reactivity is *emotional instability*, or the degree and rate at which emotions fluctuate over time (Houben et al., 2015). Importantly, research has found that emotional reactivity accounts for some, but not all, of the variance of elevated emotional instability that characterizes those with MDD (R. J. Thompson et al., 2012). Researchers assess emotional instability using a variety of methods, such as self-report trait measures and variation of mean levels of momentary emotion assessed via ESM. For the latter, instability is most often computed as the sum of the squared differences between consecutive observations (mean of squared successive differences; MSSD) of momentary emotion. Across these methods, cross-sectional research shows that both depressive symptoms and depressive disorders are associated with heightened emotional instability (for a review, see Houben et al., 2015).

The results from research examining instability predicting depression are relatively inconsistent. Neither positive nor negative emotion instability (Sperry et al., 2020) nor general emotion instability (Eldesouky et al., 2018) prospectively predict increases in depressive symptoms. In contrast, general emotion instability has predicted increased depressive symptoms (R. J. Thompson et al., 2011), and negative emotion instability has predicted increased depressive symptoms (Panaite et al., 2020). The discrepancy between studies could lie in the difference in lengths of measurement periods: Sperry et al. (2020) and Eldesouky et al. (2018) took place over multiple years while R. J. Thompson et al. (2011) and Panaite et al. (2020) took place between 2 and 6 months, suggesting that instability might only be predictive of depressive symptoms within a relatively short time frame. Although trait emotional instability has been found to predict the onset of major depressive episodes in adults (e.g., Eldesouky et al., 2018), instability as assessed by MSSD via ESM did not (Sperry et al., 2020).

Of note, MSSD is a function of both variance and autocorrelation (Jahng et al., 2008), which map onto variability and inertia, respectively. *Emotion variability* is the variance or the average deviation of one's momentary emotions from their average levels across time (Kuppens et al., 2012), whereas *emotional inertia* is the degree to which levels of emotion remain consistent from one moment to the next (Koval & Kuppens, 2012). Consequently, instability as measured by MSSD does not differentiate between these two constructs even though they represent different aspects of emotional experience, and both are cross-sectionally associated with depressive symptoms and diagnosis (see Houben et al., 2015, for a review).

Cross-sectional research finds that those with MDD experience greater emotional variability and inertia, especially regarding negative emotions (see Houben et al., 2015, for a meta-analysis). Although little research has examined emotional variability predicting depression, evidence suggests it predicts increases in depressive symptoms over time in adolescents (Neumann et al., 2011) and community adults (e.g., Panaite et al., 2020) but not in young adults (Sperry et al., 2020). Similarly, increased inertia of negative emotion has been shown to precede increases in depressive symptoms in community adults over periods of 2–6 months (e.g., Panaite et al., 2020). Interestingly, when inertia of negative emotion was examined over a period of 2 to 3 years, it did not significantly predict changes in depressive symptoms (e.g., Sperry et al., 2020). The only study to examine inertia predicting onset of first depressive episodes in adolescents found that inertia of both negative and positive emotion were predictors of depression (Kuppens et al., 2012). This pattern could suggest that inertia of positive emotion is a risk factor specific to adolescents, or specific to the onset of depressive episodes as opposed to symptom increases. Alternatively, results may vary because different methods were used to assess momentary emotion. Kuppens et al. (2012) assessed emotion by independent raters who coded participants' behaviors during an interaction task whereas the other studies assessed participants' self-reports of momentary emotion.

Emotion Regulation Strategy Use as a Risk Factor

In this section, we review research that examines trait or habitual use of emotion regulation strategies using self-report measures, as this methodology characterizes the majority of research on this topic. We focus on the strategies of rumination, cognitive reappraisal, experiential avoidance and acceptance, and expressive suppression because they are most examined with regard to depression. Finally, we review literature that has examined emotion regulation inflexibility as a risk factor for depression.

Rumination

Rumination is defined as repetitive negative thinking about symptoms of distress (Nolen-Hoeksema, 2000), often in an attempt to alleviate that distress. Most of the research linking depression and rumination has been limited to

the brooding, not the reflective pondering, component of rumination, including the studies described below. Cross-sectional research has shown that individuals with current depression report higher rumination than healthy controls (for reviews, see Joormann & Stanton, 2016; Liu & Thompson, 2017; Visted et al., 2018). Longitudinally, rumination predicts increases in depressive symptoms in youth (for a review, see Rood et al., 2009) and adults (e.g., Everaert & Joormann, 2020). Similarly, rumination predicts the onset of MDD in youth (e.g., Abela & Hankin, 2011) and adults (e.g., Nolen-Hoeksema, 2000). For a more comprehensive analysis of rumination as a risk factor for depression, refer to Chapter 13, this volume.

Cognitive Reappraisal

Cognitive reappraisal involves the reinterpretation of a situation or event emotion-eliciting stimulus to change its emotional impact. Cross-sectional research generally shows that individuals with MDD use cognitive reappraisal to a lesser extent than healthy controls (Joormann & Stanton, 2016; Liu & Thompson, 2017; Visted et al., 2018). However, considering the central role of cognitive restructuring in treatments for depression, a surprising dearth of research has examined the longitudinal association between this emotion regulation strategy and depression. In fact, we found only one study showing that greater use of positive cognitive reappraisal was associated with decreases in depressive symptoms in women with breast cancer over 1 month (Wang et al., 2014). The other two studies showed no association between positive cognitive reappraisal and changes in depressive symptoms in an adult sample over 5 months (Everaert & Joormann, 2020) or recovery status in adults with MDD over 6 months (Arditte & Joormann, 2011). Interestingly, the Wang et al. (2014) study was conducted over a briefer period and with participants who had lower levels of psychopathology than the two studies with null findings, so significant findings may be limited to relatively short periods of time among relatively healthy samples.

Experiential Avoidance and Acceptance

Experiential avoidance involves efforts to avoid contact with unwanted internal experiences. Its antithesis, acceptance, is somewhat lower in those with MDD than healthy controls (Joormann & Stanton, 2016; Liu & Thompson, 2017; Visted et al., 2018). Although little research examines experiential avoidance and acceptance predicting changes in depression, existing evidence supports its role as a risk factor of depression. For instance, higher experiential avoidance was associated with higher depressive symptoms 4, 8, and 12 months later in women with borderline personality disorder (Berking et al., 2009). Similarly, higher acceptance prospectively predicted lower depressive symptoms 1 month later in women with breast cancer (Wang et al., 2014). Interestingly, in a sample of community women at elevated risk of developing depression, higher experiential avoidance was associated with higher depressive symptoms among participants who experienced higher

levels of life stress (Shallcross et al., 2010), suggesting that life stress could play a moderating role in this association.

Expressive Suppression

Expressive suppression is when one inhibits the outward expression of emotions. It has traditionally been associated with negative psychological outcomes, including higher depressive symptoms (Aldao et al., 2010) and MDD (Joormann & Stanton, 2016; Liu & Thompson, 2017; Visted et al., 2018). Perhaps surprisingly, there is little evidence that expressive suppression predicts depression (Liu & Thompson, 2017). For example, expressive suppression did not significantly predict depressive symptoms among adolescents over a year (Larsen et al., 2013). In adults with MDD, expressive suppression did not predict MDD recovery status over 6 months (Arditte & Joormann, 2011). The predictive effects may vary by the specific emotion that is suppressed. For example, only suppression of anger, not suppression of anxiety or depressed mood, was associated with depressive symptoms across 3-month chemotherapy treatment among patients with breast cancer (Schlatter & Cameron, 2010). Emotional specificity could explain the null effects in other studies that examine suppression of negative emotion.

Emotion Regulation Flexibility

In addition to trait reports of habitual emotion regulation strategy use, the flexibility or rigidity with which people use different emotion regulation strategies has been the subject of depression theory and research. There is evidence that the effectiveness of specific emotion regulation strategies is not static but instead varies across contexts (e.g., English & Eldesouky, 2020). For instance, cognitive reappraisal is more effective in uncontrollable, as opposed to controllable, situations (e.g., Haines et al., 2016). In an ESM study in which emotion regulation flexibility was operationalized as within-strategy variability (i.e., the variation of use of a single strategy across time) and between-strategy variability (i.e., varied endorsement of different strategies on single occasions), higher levels of both were significantly associated with lower depressive symptoms (Wang et al., 2021). The within-strategy form likely reflects participants choosing the same strategy in different contexts whereas the latter may reflect that people utilize different strategies within a given context.

Since this area of research is relatively new, the field is still trying to discern how best to assess emotion regulation flexibility. Little longitudinal work has explored emotion regulation flexibility predicting changes in depression. However, awareness of the success or failure of a chosen emotion regulation strategy has been associated with decreased depressive symptoms over time, even above and beyond the habitual use of any emotion regulation strategy (e.g., Kato, 2012). Further, the ability to abandon an ineffective coping strategy and devise and implement an alternative strategy were both predictive of decreases in depressive symptoms above and beyond the habitual use of any emotion regulation strategy (Kato, 2020).

INTERVENTIONS

Many leading psychotherapeutic and biological treatments for depressive disorders are theorized to function mechanistically by acting, either directly or indirectly, on the awareness, experience, and regulation of emotion. Therefore, it is vital to have an empirical understanding of whether, and which aspects of, emotion dysregulation are impacted in the manners theorized. In this section, we examine how emotion dysregulation changes over the course of leading treatments for MDD. First, we examine cognitive and behavioral interventions with a focus on cognitive behavior therapy (CBT), which has perhaps the strongest evidence base for treating active MDD and is identified as a frontline treatment in national and international guidelines (Gelenberg et al., 2010). We also examine mindfulness-based therapies with a focus on mindfulness-based cognitive therapy (MBCT), which is an empirically supported treatment to prevent MDD recurrence among those with recurrent MDD (Sipe & Eisendrath, 2012). Then, we review antidepressant medications and their relationship with emotion dysregulation. Within each of these sections, we examine how each intervention is theorized to alleviate depression by way of reducing emotion dysregulation and evidence that either emotion dysregulation is reduced over the course of each intervention or depression is reduced via the reduction of emotion dysregulation, or both. Finally, we discuss recent evidence that the incorporation of more explicit emotion regulation training can improve existing treatments.

Cognitive and Behavioral Interventions

Theorized Role of Emotion Dysregulation

Cognitive and behavioral interventions—including CBT, exposure therapy, behavioral activation, and problem-solving therapy—use cognitive and behavioral strategies to combat low mood. CBT posits that cognition, behavior, and emotion are inextricably linked and mutually reinforcing (e.g., Beck & Haigh, 2014). In nonclinical samples, this association is adaptive. For example, if the end of a friendship is interpreted as a significant loss, that cognitive appraisal might trigger an emotional response of sadness, which might facilitate adaptive behavior to prevent further losses (e.g., attending more closely to other friendships). However, individuals with MDD have negative schematic representations of themselves and the world that are activated by congruent life experiences and lead to biases in information processing. In turn, faulty or unreliable information processing can lead to maladaptive emotional and behavioral responses. Therefore, emotion dysregulation in depression is attributable to faulty information processing in which dysfunctional cognitive schemas, negative biases, and thinking errors lead to emotional and behavioral responses that are not situationally appropriate or helpful (see Chapter 9, this volume).

CBT provides skills to challenge inaccurate or maladaptive beliefs and promote adaptive behaviors. Flexible skill use is emphasized, for not every tool is appropriate for every situation. These changes in beliefs and behaviors are

posited to then lead to more adaptive emotional responses. There are a multitude of reasons that emotional awareness, experience, and strategy use could be expected to change over the course of CBT. For one, CBT for depression often includes explicit psychoeducation about the purpose and adaptive nature of emotions (e.g., Gilson et al., 2009). Along with CBT's focus on logging thoughts and corresponding emotions, psychoeducation is intended in part to build awareness of emotional responses. Behavioral strategies such as activity scheduling (i.e., scheduling and participating in positive activities) and problem solving (i.e., generating possible solutions for a particular issue) are intended to decrease experiential avoidance, an emotion regulation strategy that is regularly associated with increased negative emotion (e.g., Wenzel et al., 2018) and is a risk factor for depression (Berking et al., 2009). Activity scheduling also aims to build more frequent and intense positive emotion. Finally, the core CBT skill of cognitive restructuring is very similar to the emotion regulation strategy of cognitive reappraisal, which is associated with decreased negative emotions, increased positive emotions, and lower depressive symptoms (e.g., Aldao et al., 2010).

Emotion Dysregulation Outcomes

Despite the clear theoretical implications for the impact of cognitive and behavioral treatments on emotion dysregulation, relatively few studies have examined emotion outcomes over the course of CBT. There is limited evidence that emotional awareness and emotional experience change throughout the course of CBT treatment. For instance, community adults with a range of depressive symptoms have shown improved ability to identify and describe feelings (i.e., higher levels of emotional clarity), higher levels of positive emotion, and lower levels of negative emotion after CBT treatment (Baker et al., 2012). Further, over the course of treatment, among patient samples in major depressive episodes, negative emotion intensity and emotional variability have been shown to decrease and positive emotion intensity, emotional awareness, and emotional clarity to increase (e.g., Berking et al., 2013).

A handful of studies have examined the change in emotion regulation strategies over the course of CBT, with some strategies showing significant change. Expressive suppression does not change significantly over the course of CBT in hospital inpatients with MDD (e.g., Forkmann et al., 2014). Similarly, experiential avoidance shows no change with CBT in outpatients with MDD (A-Tjak et al., 2021) or community adults (Baker et al., 2012). In contrast, acceptance of negative emotions has been shown to increase over the course of CBT in hospital inpatients with MDD (e.g., Berking et al., 2013), and preliminary evidence shows that cognitive reappraisal increases as well (Forkmann et al., 2014). There is also some evidence that rumination decreases over the course of both cognitive therapy (Jones et al., 2008) and rumination-focused cognitive therapy (Watkins et al., 2011). Overall, CBT seems to lead to increases in strategies that involve adaptive engagement with one's emotional experience (e.g., acceptance, appraisal) and decreases in strategies that involve maladaptive (i.e., perseverative) engagement (e.g., rumination). However, it does

not necessarily lead to changes in strategies that are used to disengage from one's emotional experience (e.g., avoidance, suppression).

Mindfulness-Based Interventions

Theorized Role of Emotion Dysregulation

Mindfulness-based interventions help patients build mindful awareness of, and attention to, internal experiences, including thoughts, emotions, and physiological sensations (Sipe & Eisendrath, 2012). One such intervention is MBCT, an offshoot of CBT that incorporates elements of mindfulness-based stress reduction and was originally developed to prevent future recurrence in individuals with a history of multiple depressive episodes (Teasdale et al., 2000). Another common mindfulness-based treatment for depression is acceptance and commitment therapy (Hayes et al., 2004). In both interventions, rather than attempting to reappraise negative cognitions to decrease negative emotions as in CBT, patients are encouraged to practice acceptance of negative thoughts and emotions. They are taught that acknowledged and accepted emotions will pass in their own time (Sipe & Eisendrath, 2012).

Mindfulness-based interventions are theorized to target emotion dysregulation in several ways. First, they encourage mindful attention to emotional states and emotional responses, leading to reduced reactivity to internal and external experiences (e.g., Grabovac et al., 2011). Further, by encouraging a present awareness, these interventions minimize experiential avoidance and rumination—emotion regulation strategies whose habitual and inflexible use is associated with depressive symptoms (e.g., Hayes et al., 2004)—and instead build acceptance as a more theoretically adaptive emotion regulation strategy. Mindfulness theory posits that when someone ceases to “feed” a negative emotional response with negative judgment and denial and instead accepts the emotional response, the emotion will eventually pass, theoretically leading to lower emotional intensity and variability over time (Teasdale et al., 2000).

Emotion Dysregulation Outcomes

Limited research examines emotional awareness over the course of mindfulness-based therapies. However, research suggests that MBCT targets several dimensions of emotional experience. Trait and momentary positive emotion intensity has been shown to increase, and trait and momentary negative emotion to decrease, over the course of MBCT for individuals with remitted MDD (e.g., Bakker et al., 2014). Evidence from a randomized controlled trial (RCT) also showed that decreases in emotion reactivity partially mediated decreases in depressive symptoms over the course of MBCT (Britton et al., 2012).

Considerably more research has examined changes in the use of various emotion regulation strategies over the course of mindfulness-based interventions, with a focus on mindfulness (i.e., nonjudgmental awareness and attention to internal experiences; Sipe & Eisendrath, 2012). Indeed, a strong body of research has shown that mindfulness increases among individuals with remitted MDD over the course of MBCT (e.g., van Aalderen et al., 2012). Of note, mindfulness is itself associated with other positive emotion regulation effects,

including decreases in emotion instability, lower reactivity, and increased positive emotion intensity (e.g., Brown & Ryan, 2003). Evidence also supports that acceptance—a component of mindfulness—increases while experiential avoidance—its antithesis—decreases over the course of MBCT (e.g., Hamidian et al., 2016). Rumination is another strategy that has been shown to decrease over the course of MBCT in individuals with current (e.g., van Aalderen et al., 2012) and remitted (e.g., Jones et al., 2008) depressive disorders.

Biological Interventions

Theorized Role of Emotion Dysregulation

Pharmacotherapeutic and neurobiological interventions are often used either in addition or as an alternative to psychotherapy in the treatment of depression. It is theorized that cognitive interventions such as CBT and MBCT target emotion dysregulation in MDD via alterations in “top-down” processing, which is effortful, rational information processing that occurs chiefly via the prefrontal and anterior cingulate cortices (e.g., Bruijniks et al., 2019). Antidepressant medications target emotion regulation by alterations in “bottom-up” processing, which is automatic or implicit information processing via serotonergic pathways in the hippocampus, amygdala, and basal ganglia (e.g., Godlewska & Harmer, 2021). In other words, psychotherapy is theorized to facilitate the effortful, intentional use of adaptive emotion regulation strategies while antidepressant medication decreases automatic emotional reactivity. Both treatments can work extremely well in combination, as CBT increases effortful cognitive control while antidepressants take effect at the level of neurotransmission and neuroplasticity (Godlewska & Harmer, 2021). In support of this theory, increased activation has been observed primarily in the prefrontal cortex and anterior cingulate cortex after CBT for MDD (Goldapple et al., 2004) versus in the limbic system after treatment with a medication (Kennedy et al., 2001).

Emotion Dysregulation Outcomes

Imaging research has explored neuropsychological correlates of emotion regulation before and after antidepressant use (e.g., Stoy et al., 2012) and provided rich insights into how activation in these areas changes with treatment. However, the clinical applicability of these data are limited, in that imaging data cannot convey, for example, which emotions are being felt, how strongly, how well they are understood, or the ways in which they are regulated. However, hardly any studies have examined self-reported emotional awareness, experience, and strategy use before and after treatment. In one rare exception, a large study of adults with MDD showed decreased use of suppression and increased use of reappraisal after 8 weeks of antidepressant treatment (McRae et al., 2014).

Incorporating Emotion Regulation Skills Training Into Psychotherapy

Some research suggests that while effective psychotherapies target emotion dysregulation on their own, they can be enhanced with specialized emotion

regulation training. Greater depressive symptom reductions in CBT enhanced with emotion regulation skills training, in comparison with standard CBT, has been observed in several outpatient samples (e.g., Gratz & Gunderson, 2006). In a controlled trial, inpatients with heterogeneous psychopathology received CBT, and a random subset also received additional emotion regulation skills training (e.g., emotional acceptance, distress tolerance; Berking et al., 2008). Both groups showed improved scores on a general emotion regulation measure (assessing a composite of awareness, experience, and strategies) over the course of treatment, and both reported increased positive emotion and decreased negative emotion. However, participants in the emotion regulation-enhanced group experienced significantly greater changes than patients in the CBT-only group, including their depressive symptoms decreasing to a greater degree. These findings were replicated in an RCT of inpatients with MDD (Berking et al., 2013).

Several offshoots of CBT that target depressive disorders have incorporated a greater emphasis on psychoeducation about emotion and emotion regulation skills training. For instance, affect regulation training (Berking & Lukas, 2015) is a transdiagnostic intervention that teaches seven skills to help at-risk and clinical populations better regulate their emotions: muscle relaxation, breathing relaxation, nonjudgmental awareness of emotions, acceptance and tolerance of emotions, compassionate self-support, analysis of the antecedents and consequences of one's emotional reactions, and active modification of emotions. Similarly, emotion regulation therapy (Mennin & Fresco, 2014) helps patients cultivate mindful attention to and awareness of their emotional experience and fosters the development of new emotion regulation skills. Patients are taught to respond skillfully and flexibly to regulate intense negative emotional experience. Finally, the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders (Allen et al., 2008) was designed to treat a variety of emotional disorders. It focuses on reactions to emotional experience (e.g., emotional non-acceptance; avoidance of emotions) and teaches approach-oriented ways to manage emotional experiences.

CASE EXAMPLE

The following is a description of a case seen by the second author of the chapter. It provides an example of how emotion dysregulation can be targeted in multiple ways to alleviate mood and anxiety symptoms. All potentially identifying information has been altered, and the description of the therapy is limited to what is central to the issue of emotion dysregulation.

The patient was a cisgender White woman in her mid-30s who was referred to the clinic for worsening symptoms of depression in the context of increasing demands and responsibilities at work. During the intake session, the patient reported symptoms that included depressed mood, lack of interest, decreased appetite, insomnia, psychomotor retardation, loss of energy, feelings of worthlessness and excessive and inappropriate guilt, and diminished ability to

concentrate. In particular, she reported that she had lost interest in most hobbies she used to enjoy, including photography and listening to music. Instead, she reported that she spent most of her free time watching YouTube videos and sleeping. She also described mild nonsuicidal self-injury and passive suicidal ideation. The intake evaluation revealed that this was the second such mood episode that the patient had experienced in her lifetime. Of note, she also reported anxiety symptoms, particularly in the context of social situations, such as meeting someone new, having conversations, and speaking with members of the opposite sex. Because of this clinical presentation, *DSM-5* diagnoses of MDD (Recurrent, Moderate) and social anxiety disorder were assigned.

During the first phase of treatment, behavioral activation was used to address the patient's depressive symptoms by incorporating pleasant activities into her schedule to increase frequency and intensity of positive emotion. We—the patient and the therapist—also worked on scheduling regular sleep and mealtimes to decrease biological vulnerability to negative emotions. We discussed distress tolerance strategies to use instead of nonsuicidal self-injury when very intense feelings of sadness, loneliness, and anxiety arose.

Once the patient was regularly meeting her sleeping and eating goals and was refraining from non-suicidal self-injury, we began the second phase of treatment, in which we targeted lingering anxiety and mood symptoms with CBT. The therapist provided the patient with psychoeducation about the adaptive nature and functional utility of emotions, which the patient had never considered, and their associations with thoughts and behaviors. The patient learned to challenge distorted thoughts to help regulate negative and unhelpful emotions. We further focused on the removal of behaviors intended to numb or distract from negative emotions—for example, watching YouTube, avoiding eye contact, scrolling through her phone, and listening to music on headphones. Once the patient had decreased her use of these behaviors, we began to engage in exposures to deliberately evoke and practice tolerating difficult negative emotions. During these exposures, the patient would recall memories that evoked loneliness or sadness and would practice sitting with (i.e., accepting, instead of rejecting) those emotions without the use of safety behaviors. After several weeks, the patient reported significant gains in social and emotional engagement.

Our third and final phase of treatment targeted automatic thoughts and cognitive distortions that left the patient with lingering feelings of “loneliness and inadequacy.” During this phase, we also used acceptance and commitment therapy techniques to clarify her values and use them to guide her behaviors when faced with difficult emotions. At the end of treatment, the patient no longer met full *DSM-5* criteria for any initial diagnosis. Her mood, anxiety symptoms, and overall life satisfaction had significantly improved. Her scores on the Beck Depression Inventory (BDI-II; Beck et al., 1996) had decreased from 42 (severe) to 6 (minimal). Further, by the end of treatment, she had started eating and sleeping more regularly, showed increased work productivity and social engagement, and successfully replaced self-injurious behaviors with more adaptive coping strategies.

Emotion dysregulation was clearly central to the patient's pathology in the above case example. The patient had poor awareness of her emotions, experienced low positive emotion and highly intense negative emotion, and persistently used strategies such as experiential avoidance and suppression that were intended to avoid her emotions. The combined treatment approach served to help the patient to more skillfully (a) understand what emotions were and why she had them (i.e., become more aware, attentive, and clear about them); (b) use strategies to increase the intensity of positive emotion and decrease the intensity of negative emotion during daily life, leading to a longer term pattern of decreased emotion variability, instability, and reactivity; and (c) respond flexibly and adaptively during moments of especially high emotion intensity using skills such as cognitive reappraisal and emotional acceptance.

SUMMARY AND FUTURE DIRECTIONS

Status of Emotion Dysregulation as a Risk Factor for Depression

The evidence indicates that many key aspects of emotion dysregulation are risk factors for depression, including changes in depressive symptoms, MDD onset, and recurrence. Emotional intensity, reactivity, instability, variability, and inertia (particularly of negative affect) have promising evidence for predicting changes in depressive symptomatology. There is also support for the emotion regulation strategies of rumination and experiential avoidance acting as risk factors for depression. Further, recent research suggests that emotion regulation inflexibility use could serve as a warning sign for increases in depressive symptoms.

Methodologies to Study Emotion Dysregulation as a Risk Factor for Depression

Research is needed to disentangle whether any emotion dysregulation variables are specific predictors of depressive disorders versus transdiagnostic predictors of internalizing disorders, or even psychopathology in general. For instance, there is some evidence that attention to emotion predicts both depressive and anxiety symptoms one year later (Salguero et al., 2012). However, no studies to date have identified emotion dysregulation variables that are unique risk factors for depressive disorders. This research will be especially important when comparing risk factors for depressive disorders to those for disorders that show high comorbidity or similar etiology, course, and presentation, such as anxiety and bipolar disorders.

Many existing studies have either focused on negative emotion dysregulation or failed to examine emotion dysregulation separately by valence. Because MDD is defined in part by lack of enjoyment in everyday activities (American Psychiatric Association, 2013), it is a mistake to disregard the role

of positive emotion dysregulation as a potential risk factor for later depression. Indeed, preliminary evidence suggests that positive instability, variability, and inertia could be risk factors for depression. Further research of both positive and negative emotion in relation to later depression will allow us to evaluate differential associations reliably.

We have focused on longitudinal research because the temporal nature of findings (i.e., emotion dysregulation followed by changes in depression) addresses the possibility of risk. However, these findings do not prove causality; it is always possible that an unassessed variable explains or is driving the longitudinal association. We wanted to note that the large existing body of (nonlongitudinal) research using a variety of study designs can provide important insights into potential risk factors. Cross-sectional studies of emotion dysregulation in youth with and without biological and environmental predispositions to depression (e.g., the children of parents with depression) can provide clues as to what emotion dysregulation factors may constitute risk. In addition to these studies, research focusing on individuals with remitted depression (i.e., those at risk for future depression) can also highlight potential risk factors. For instance, those with remitted MDD had higher intensity and variability of negative and positive emotion than did a healthy control group (R. J. Thompson et al., 2021). Future research could examine whether elevated emotion intensity or variability could be a risk factor for MDD recurrence.

Trait and State Assessment of Emotion Dysregulation

Most of the longitudinal research examined in this chapter used trait self-report measures of emotion dysregulation. This method is consistent with how emotion regulation is typically assessed in the broader cross-sectional literature. For instance, research on trait emotion regulation strategy use has typically found that those with MDD more strongly endorse putatively maladaptive emotion regulation strategies and less strongly endorse putatively adaptive strategies than those without MDD (Joormann & Stanton, 2016; Liu & Thompson, 2017; Visted et al., 2018). However, a growing body of research has examined different stages of the emotion regulation process in real time. This research has yielded exciting preliminary findings that are not always consistent with trait emotion regulation research. Although it is beyond the scope of this chapter to cover all such research, we highlight select research that we think has promise for future research on depression risk.

To provide a framework for these ideas, we refer to the extended process model. This model identifies three stages of emotion regulation: identification (i.e., deciding whether to regulate), selection (i.e., choosing a strategy), and implementation (i.e., putting a strategy into effect; Gross, 2015). In laboratory studies assessing the strategy selection stage, participants are often instructed to freely choose any emotion regulation strategy after a negative mood induction. Those with current MDD showed similar levels of selecting cognitive reappraisal (a putatively adaptive strategy) and distraction (a putatively

maladaptive strategy) as did those who were never depressed (e.g., Smoski et al., 2014). These findings contrast with people with MDD, who report lower trait cognitive reappraisal and similar or higher trait distraction than do healthy controls (Joormann & Stanton, 2016; Liu & Thompson, 2017). It is important to see if future research continues to support this discrepant pattern of findings and whether it extends to other emotion regulation strategies assessed in controlled settings like the lab as well as in more naturalistic settings. If this pattern holds, it suggests that individuals with MDD do not have issues with selecting emotion regulation strategies. Trait measures may be capturing another stage of the emotion regulation process, or they may not be accurate reflections of people's emotion regulation. In laboratory research that assesses the implementation stage, participants are often instructed to use a particular emotion regulation strategy after the negative mood induction. Regardless of depression status, participants' moods either similarly improved when instructed to cognitively reappraise or similarly worsened when instructed to ruminate (Joormann & Stanton, 2016; Liu & Thompson, 2017). Although this work has only focused on a handful of emotion regulation strategies, it points to people with MDD being able to successfully implement strategies in a controlled setting for some strategies. Research is still needed to examine whether people with depression can also successfully implement other emotion regulation strategies in controlled settings as well as how successful they are at implementing these in their everyday lives. We expect that people with depression will struggle to successfully select and implement these strategies in their own lives; therefore, identifying the factors that impact their success may help hone treatment targets for depression. Further, longitudinal research is needed to tell whether success in implementing instructed emotion regulation strategies predicts later depression.

Another important avenue for future research is to expand the understanding of negative beliefs about emotion; that is, stable beliefs about the meaning, value, or consequences of one's emotions (e.g., that one's emotions are useless, uncontrollable, or dangerous). Developmental psychologists conceptualize beliefs about emotion as being present from childhood and arising from early experiences, parental modeling, and cultural milieu (e.g., Parker et al., 2012). Clinical theorists suggest that the internalization of negative beliefs about emotion in childhood can lead to emotion dysregulation and later psychopathology, including depression (e.g., Greenberg, 2006). Empirically, the belief that emotions are uncontrollable has been associated with depressive symptoms in community samples longitudinally (e.g., Romero et al., 2014), suggesting that this belief could be a potential risk factor for depression. More longitudinal research, developmental research, and research in samples with remitted MDD are needed on other types of beliefs and in clinical samples to further the understanding of which beliefs might serve as risk factors for the onset, recurrence, and course of depression. Moreover, negative beliefs about emotion may interact with other forms of emotion dysregulation. For example, if one is highly emotionally reactive and holds a

belief that their emotions are dangerous, then one's own emotional reactions might theoretically generate further distress due to their perceived danger. These questions are yet to be explored empirically.

Effect of Treatment Interventions on Emotion Dysregulation

Despite the theoretical and empirical evidence for emotion dysregulation as a risk factor for depression, few treatment studies have examined emotion dysregulation variables as treatment outcomes or as mediators of change in depression across treatment. In RCTs and other treatment studies, change scores on psychopathology and general quality of life measures have often featured as primary outcomes. It is also important to assess change over time of emotion dysregulation variables—including emotional awareness, experience, and strategy use—as outcomes of treatment. This research will allow a clearer understanding of which variables are most successfully targeted in treatment, so that existing treatments can be modified and new treatments developed that emphasize these variables.

There is preliminary evidence that emotion dysregulation is modifiable and successfully targeted by leading treatments. As described previously, it appears that emotional awareness and experience change over the course of CBT, such that emotional awareness and positive emotion intensity increase and negative emotion intensity and variability decrease (e.g., Baker et al., 2012). Further, over the course of CBT, patients' use of emotion regulation strategies involving adaptive engagement with one's emotional experience (e.g., acceptance, appraisal) increases and use of strategies involving maladaptive (i.e., perseverative) engagement (e.g., rumination) decrease (e.g., Berking et al., 2013; Jones et al., 2008). Evidence also demonstrates that emotion dysregulation changes over the course of MBCT, that negative emotion intensity and emotion reactivity decrease while positive emotion intensity increases, and that patients more often use approach-oriented strategies such as mindfulness and acceptance rather than rumination (e.g., Bakker et al., 2014; Britton et al., 2012; van Aalderen et al., 2012). Finally, there is promising evidence that adaptations of CBT that incorporate explicit training in emotion regulation provide incremental value in decreasing emotion dysregulation and alleviating depression (e.g., Berking et al., 2008).

However, theory tells us that other factors should change over the course of each treatment, but for which we do not yet have an empirical grasp. For instance, despite the central role of cognitive restructuring in CBT, and despite strong cross-sectional evidence that MDD involves an underutilization of cognitive reappraisal (see Dryman & Heimberg, 2018, for a review), only one existing study has examined changes in cognitive reappraisal over the course of CBT (Forkmann et al., 2014). Without studies such as these, we cannot know whether treatments shown to be effective in treating depression are successful for the suggested reason. Targeted longitudinal research is needed to test theorized treatment mechanisms, including emotion dysregulation as a longitudinal mediator of depression outcomes.

Significant evidence from imaging studies shows that pharmacotherapeutic treatment facilitates functional changes in the brain related to emotion processing. However, little research examines self-reported emotional awareness, experience, and strategy use before and after a course of antidepressants. To our knowledge, the exception to this rule showed an increase in cognitive reappraisal and a decrease in suppression over the course of an antidepressant regimen (McRae et al., 2014). More research, and particularly regarding emotional awareness and experience, is needed to flesh out the clinical picture regarding the effects of biological interventions on emotion dysregulation.

Ultimately, more longitudinal research must be conducted to disclose which aspects of emotion dysregulation are unique risk factors for depression and to inform which aspects are best targeted by different interventions. As unique and modifiable risk factors are identified, treatment protocols can be fine-tuned to ensure that they emphasize the identified risk factors. On the other hand, if key modifiable risk factors appear to be largely transdiagnostic, treatments such as the Unified Protocol for Emotional Disorders could be employed for more efficient and comprehensive treatment. Given the picture that is slowly but clearly emerging—that emotion dysregulation is an important risk factor for depression—it will be essential for future research to continue to probe and refine our understanding of these issues.

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