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Examining Emotion Regulation as an Outcome, Mechanism, or Target of Psychological Treatments

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Abstract

This paper reviews the extant literature on emotion regulation (ER) in psychological interventions. First, we review current conceptualizations of ER, highlighting a model with established clinical utility (particularly with regard to the development of new interventions and modification of existing interventions). Next, we review the literature on the effects of psychological interventions on ER, from traditional cognitive-behavioral and acceptance-based behavioral interventions that do not target ER directly to treatments that directly target ER as one component of a larger or more comprehensive treatment, as well as the preliminary research examining ER as a mechanism of change in these treatments. Finally, extant data on three treatments developed specifically to address ER are reviewed, with an emphasis on the ER-specific treatment with the most empirical support to date (emotion regulation group therapy).

Introduction

Research has increasingly identified emotion regulation (ER) difficulties as a mechanism underlying multiple forms of psychopathology and clinically relevant behaviors [1]. This research suggests the importance of developing interventions that focus specifically on improving ER, as well as evaluating whether the positive effects of existing interventions are due to improvements in ER. Although several treatments have been developed specifically to target ER, the research in this area is limited. Thus, this paper reviews the extant literature on the effects of psychological interventions on ER, from traditional cognitive-behavioral and acceptance-based behavioral interventions that do not target ER directly to treatments that explicitly target ER as one component of a larger or more

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comprehensive treatment. Then, extant data on three treatments developed specifically to address ER are reviewed.

A Clinically-useful Conceptualization of ER

As demonstrated throughout the articles in this Special Issue, there are numerous conceptual and operational definitions of ER in the literature and no consensus amongst researchers as to the most useful definition [1,2]. Indeed, due to the breadth and diversity of extant definitions of ER, it is likely that their utility differs depending on the research question at hand (e.g., consequences of specific ER strategies vs. characteristic ways of regarding and/or responding to emotional experience).

For example, definitions focused on classifying ER strategies as either adaptive or maladaptive [3–5] are particularly well-suited for experimental laboratory studies examining the positive and negative short- and long-term consequences of various ER strategies. Although these definitions and the research that stems from them can inform clinical work and psychoeducation of clients (in terms of the expected consequences of different strategies in general), their clinical utility may be limited. Specifically, given the contextually-dependent nature of adaptive ER strategies (as the adaptiveness of any specific ER strategy can only be evaluated in the context of the individual's goals and situational demands) [6–8], definitions that focus exclusively on putatively adaptive and maladaptive ER strategies may have limited utility with regard to treatment development and modification. For example, although cognitive reappraisal is generally considered an adaptive ER strategy [9], studies have shown that treatment approaches that rely largely on this strategy may be less effective for certain disorders than approaches that take a more flexible approach and target the function (vs. form) of thoughts and behaviors [10]. In addition, given the extensive literature indicating that efforts to control, suppress, or avoid emotions may have paradoxical effects [11–13], definitions of ER that emphasize the control and/or reduction of negative emotions [3,14–16] may confound processes that undermine regulation with those that promote adaptive ER. Not only may these definitions have limited clinical utility, they may actually interfere with effective treatment.

One definition that stems from the developmental literature on ER and was developed specifically to be clinically useful and inform treatment development and modification is KL Gratz and L Roemer's [17] definition. Consistent with research on the functionality of emotions [7,8,18,19] and paradoxical consequences of efforts to avoid or control emotions [11,12], this definition focuses on adaptive ways of responding to emotional distress, including the awareness, understanding, and acceptance of emotions, ability to control impulsive behaviors and engage in goal-directed behaviors when experiencing negative emotions, flexible use of situationally appropriate strategies to modulate the intensity and duration of emotional responses in order to meet individual goals and situational demands, and a willingness to experience negative emotions in pursuit of desired goals [1,17,20]. This is the definition that will be used here.

Impact of Psychological Interventions on Emotion Regulation

Most of the research on the effects of psychological interventions on ER examines cognitive behavioral and acceptance-based behavioral interventions that do not target ER directly or that directly target ER as one component of a larger or more comprehensive treatment.

Treatments that do not target ER directly

Consistent with the consensus that ER is a transdiagnostic mechanism underlying numerous psychiatric difficulties and maladaptive behaviors [1,2], psychological treatments for a variety of clinical difficulties have been found to have positive effects on various aspects of ER, even if not targeted directly. For example, cognitive behavioral and acceptance-based behavioral treatments for borderline personality disorder (BPD), eating disorders, deliberate self-harm, and trichotillomania that do not focus explicitly on targeting ER have been found to improve overall ER [21–25], as well as the specific ER dimensions of: emotional awareness [21,23,24], acceptance [21,23,24,26], and clarity [21,23,24]; the ability to control behaviors in the context of emotional distress [21,24]; and access to effective strategies for modulating emotional arousal [21,24]. Moreover, these improvements in ER were found to mediate improvements in BPD symptoms [22], trichotillomania severity [26], eating disorder symptoms [21], deliberate self-harm [24], and hopelessness [22]. Both traditional cognitive-behavioral treatments and acceptance-based behavioral treatments for depression and social anxiety disorder have also been found to result in changes in the frequency of specific ER strategies (e.g., cognitive reappraisal, expressive suppression, rumination) [23,27–31]. Moreover, changes in the frequency of these strategies related to reductions in symptoms of depression [27] and social anxiety in cognitive-behavioral treatments for these disorders [28–31].

These studies suggest that there are numerous ways to address ER in treatment, and that improvement in ER may be one mechanism underlying effective or efficacious treatments for clinical difficulties in general. Nonetheless, these studies are limited in their ability to connect specific interventions with changes in specific dimensions of ER or to inform the development or selection of interventions that may be most likely to improve ER. Furthermore, given that what constitutes an adaptive or maladaptive ER strategy can only be determined in context [6,32], the clinical implications of findings that changes in specific ER strategies are one outcome of a treatment remain unclear.

Treatments that target ER as one part of a larger treatment

Research on treatments that directly target ER as one component of a larger or more comprehensive treatment (including dialectical behavior therapy [DBT; 33], acceptance-based behavioral therapy [ABBT] for generalized anxiety disorder [GAD; 34], skills training in affect and interpersonal regulation [STAIR] plus modified prolonged exposure [PE; 35], and the unified protocol [UP; 36]) add to the literature on the impact of psychological interventions on ER by elucidating the utility of targeting ER directly. Although the focus on ER is likely most evident within DBT, there is surprisingly little research examining changes in ER following the empirically-supported version of this treatment among female outpatients with BPD [37,38]. Only two studies to date have examined any ER-related

outcome, and both of these examined experiential avoidance (a construct that overlaps with ER as defined here, but is also distinct [1,13]). Nonetheless, these studies provide evidence for the positive effects of DBT on experiential avoidance [39], as well as preliminary support for change in experiential avoidance as a mediator of the effects of DBT on depression symptoms [40].

Providing more support for the utility of DBT in promoting adaptive ER, modifications of DBT for the treatment of co-occurring BPD and substance use disorders [SUD; 41], binge eating disorder [42–44], trichotillomania [45], and depressive or anxiety disorders [46*] have been found to result in significant improvements in overall ER [41–43,46*], as well as the specific ER dimensions of emotional clarity [41], acceptance [45], and awareness [41]; the ability to control behaviors when distressed [41,46*]; and access to effective strategies for modulating emotions [41,42,44–46*]. Furthermore, preliminary evidence provides support for ER as one mechanism of change in these treatments, as improvements in ER following two of these treatments (DBT for co-occurring BPD-SUD and a DBT enhanced cognitive-behavioral treatment for trichotillomania) have been associated with improvements in substance use frequency [41] and trichotillomania severity [45], respectively.

STAIR plus modified PE for childhood abuse-related PTSD has also been found to have positive effects on two dimensions of ER: emotional clarity and modulation [35]. Moreover, results provide preliminary support for ER as an active ingredient and mechanism of change in this treatment, as improvements in emotion modulation during STAIR predicted improvement in PTSD symptoms during modified PE [35].

ABBT for GAD also targets ER directly in the context of a larger focus on promoting acceptance, mindfulness, and willingness. Results of an RCT revealed positive effects of this treatment on overall ER, as well as emotional acceptance [47]. Similarly, the UP targets several dimensions of ER in the context of providing an exposure-based treatment for mood and anxiety disorders. Results of a preliminary study examining UP treatment completers found large improvements in ER strategies and emotional acceptance from pre- to post-treatment, as well as significant correlations between these improvements and changes in depression and anxiety over the course of treatment [48]. Moreover, evidence from a single-case study provides suggestive support for mindfulness (a construct that overlaps with ER as defined here; [49]) and the ER strategy of reappraisal as possible mechanisms of change in this treatment, with changes in each relating to and preceding changes in depression [50*].

Although the aforementioned studies provide support for the utility of treatments that target ER in promoting ER and related clinical outcomes, they have limitations for the development and selection of targeted ER treatments, and the specific interventions most likely to improve ER remain unclear. For example, there is great variability in the form, focus, and amount of both the ER training provided in these treatments and their other (non-ER related) active elements. Thus, it is not clear which components of treatment are actually targeting ER or necessary to improve ER. Indeed, several treatments that target ER directly do not report significant effects for important ER dimensions [e.g., 42,45,46*], suggesting that these particular treatments may not target ER sufficiently (i.e., provide the sufficient

dose or breadth of ER skills). Further, it remains unclear if changes in ER are necessary for or underlie changes in other clinically-relevant outcomes. Finally, the comprehensiveness of some of these treatments (and focus on multiple treatment targets in addition to ER) limits their utility as transdiagnostic ER treatments, as they are unlikely to target ER as directly and efficiently as interventions focused on this mechanism alone.

Treatments developed to target ER specifically

The most rigorous evidence for the benefit of targeting ER in treatment comes from studies examining treatments that were developed specifically to target ER. Currently, we are aware of three such treatments, which vary in their level of empirical support. Emotion regulation therapy [51] was developed to treat GAD by promoting adaptive ER. Based on an ER model of the pathogenesis of GAD, this integrative treatment combines components of cognitive-behavioral therapy (CBT) with emotion-focused interventions. Although preliminary results suggest positive effects of this treatment on GAD severity, worry, anxiety and depression symptoms, and quality of life [52], there are currently no published studies on the efficacy of this treatment or its utility in promoting adaptive ER.

Another treatment developed specifically to target ER is emotion regulation skills training, which was designed to enhance traditional inpatient CBT for depression by focusing specifically on ER. Currently, one preliminary open trial and one RCT provide some support for the utility of this ER skills training in improving inpatient outcomes, finding greater improvements in both putatively adaptive ER strategies and depression symptoms following the enhanced (vs. traditional) CBT in the open trial [53] and greater improvements in some ER strategies (i.e., emotional acceptance and modulation) but not overall ER strategies in the RCT [54]. Moreover, changes in ER strategies over the course of treatment were significantly associated with changes in depression symptoms in the open trial [53]. Notably, however, no studies have specifically examined ER as a mechanism of change in this treatment, and follow-up data on the maintenance of treatment gains following treatment are unavailable. Further, findings that the addition of this ER skills training to inpatient CBT did not have a significant effect on all ER strategies suggest that this intervention may not target all relevant dimensions of ER or provide a sufficient dose of ER training.

To date, the ER treatment with the most empirical support is a 14-week, acceptance-based emotion regulation group therapy (ERGT) for women with self-harm and BPD. Developed to treat self-harm by targeting its underlying mechanism of ER difficulties, this ERGT teaches clients more adaptive ways of responding to their emotions [55–57**], systematically targeting each of the proposed dimensions of ER described above [17]. ERGT draws from two acceptance-based behavioral therapies, acceptance and commitment therapy [11] and DBT [33], and emphasizes the following themes: (a) the potentially paradoxical effects of emotional avoidance, (b) the emotion-regulating consequences of emotional acceptance and willingness, and (c) the importance of controlling behaviors when emotions are present, rather than controlling emotions themselves. ERGT differs from DBT by virtue of its exclusive, targeted focus on ER (as defined here, with an emphasis on emotional acceptance) and integration of ACT and DBT to this end, as well as the absence of a focus on emotional change strategies [55, 57**].

To date, three studies have provided support for the utility of this ERGT in promoting adaptive ER among women with BPD, including an open trial [56] and two randomized controlled trials [RCTs; 55,57**]. The first, a small RCT, found that the addition of this ERGT to participants' ongoing outpatient therapy had positive effects on ER, experiential avoidance, self-harm, BPD symptoms, and symptoms of depression, anxiety, and stress [55]. Moreover, participants in the treatment condition evidenced significant changes over time on all outcome measures and reached normative levels of functioning on most. The second, an open trial examining the utility of this ERGT within a more diverse and underserved setting, found significant improvements from pre- to post-treatment in ER, experiential avoidance, self-harm and other self-destructive behaviors, BPD, depression, anxiety, and stress symptoms, and social and vocational impairment [56].

Finally, the most recent study, a larger RCT and uncontrolled 9-month follow-up, provided further evidence for the efficacy of this ERGT (relative to a treatment as usual only waitlist condition), revealing positive effects of this treatment on ER, self-harm and other self-destructive behaviors (including substance abuse, disordered eating behaviors, risky sexual behavior, and suicidal behaviors), BPD symptoms, depression and stress symptoms, and overall quality of life within a conservative intent-to-treat sample [57**]. Moreover, findings from the 9-month follow-up period provide preliminary support for the durability of treatment gains, as all improvements observed from pre- to post-treatment were maintained or further improved upon at follow-up, including additional significant improvements from post-treatment through 9-month follow-up for ER, experiential avoidance, self-harm, BPD symptoms, and quality of life [57**].

Notably, results also provide growing support for ER as a mechanism of change in this treatment. Specifically, across both the initial RCT and open trial samples, changes in ER over the course of this ERGT mediated the observed reductions in self-harm frequency [58]. Additionally, findings from the most recent RCT revealed that improvements in ER over the course of treatment mediated the observed reductions in BPD cognitive and affective symptoms during treatment and predicted further improvements in self-harm during the 9-month follow-up [59**].

Finally, providing support for the transportability and potential broader applicability of this ERGT, findings from a recent study examining predictors of response to this ERGT revealed relatively few significant predictors of treatment response (despite examining a wide range of patient characteristics that could potentially influence treatment response [60]). Of particular importance, both demographic variables and characteristics of participants' ongoing therapy in the community had minimal impact on treatment response [60]. These findings provide further support for the transportability of this treatment and its utility across a wide range of patients.

Conclusion

Research suggests that many cognitive-behavioral and acceptance-based behavioral interventions may influence ER, and that changes in ER over the course of these treatments are related to changes in numerous clinically-relevant outcomes. Much of this research

precludes conclusions about the precise interventions necessary and sufficient to improve ER, examining the impact of treatments that either do not target ER directly or target ER as part of a larger or more comprehensive treatment. As such, these studies are limited in their ability to inform the development or selection of interventions that may be most likely to facilitate adaptive ER. Treatments developed specifically to target ER have more utility in this regard, and may have transdiagnostic applicability. In particular, evidence suggests that an acceptance-based ERGT may efficiently and efficaciously improve ER among patients with heightened ER difficulties.

Future research in this area would benefit from the more systematic and regular examination of mechanisms of change in treatments, both those that have been found to influence ER and those developed specifically to target ER (either solely or in part). Moreover, research examining the active ingredients of more comprehensive treatments (e.g., DBT) is needed. Finally, research examining ER in treatment (as both a mechanism and an outcome) needs to incorporate physiological and neurological indices of ER [61**,62].

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* of special interest

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Highlights

- Emotion regulation (ER) underlies psychopathology and clinically relevant behaviors
- Treatments that do not directly target ER have positive effects on aspects of ER
- Treatments developed specifically to target ER may have transdiagnostic utility
- ER may be one mechanism of change underlying numerous efficacious treatments