

Emotion and Emotion Regulation: A Map for Psychotherapy Researchers

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Never before has the pace of research on emotion and emotion regulation been as vigorous as it is today. This news is welcomed by researchers who study psychological therapies and who believe that emotion and emotion regulation processes are fundamental to normal and abnormal functioning. However, one unwelcome consequence of this otherwise happy state of affairs is that therapy researchers now face an array of bewildering decisions about what to measure and why. What is needed is a map that will help researchers make wise decisions in this domain. In this spirit, we locate Sloan and Kring's (2007) important review of available emotion and emotion regulation measures within the wider field of affective constructs and the broader problem space of psychotherapy research. Where appropriate, we illustrate our points with examples from our own work, and highlight the payoffs and challenges of integrating affective and clinical science.

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For many centuries, emotions were regarded as mysterious, even impenetrable to scientific inquiry. It was left to poets to marvel at their power. In recent years, however, psychological research on emotion and emotion regulation has come of age. An abundance of new measurement tools are now available that have the potential to facilitate scientific work on the role of emotions in psychopathology (Davidson, Scherer, & Goldsmith, 2003; Gross, 2007; Rottenberg & Johnson, 2007).

Sloan and Kring's (2007) timely review promises to bring some of these measurement tools into broader use among the community of clinical scientists interested in psychotherapy research. However, an awareness of these tools is only the first step of many toward successful application. The journey from basic emotion research to clinical application is treacherous, requiring travel through tangled thickets and uncertain terrain.

What is needed is a map that will help researchers make wise choices in this domain. In this spirit, we locate Sloan and Kring's (2007) important review of available emotion and emotion regulation measures within the wider field of affective constructs and the broader problem space of psychotherapy research. In the first two sections, we argue that emotion and emotion regulation are broad labels for complex sets of processes. An awareness of this fact forces researchers to prioritize what they want to assess in psychotherapy. In the third section, we sketch four research foci for applying emotion/emotion regulation within psychotherapy research.

EMOTION

Before one can select a specific measure of emotion to use in an applied context, one must know what one wants to assess, and that this quarry is actually *emotion*,

rather than a related construct. Unfortunately, considerable confusion has clouded the use of emotion-related constructs, with different investigators employing their own, often idiosyncratic, definitions and operationalizations of terms, such as affect, emotion, and mood. Here, in situating and setting bounds around the construct *emotion*, we build upon the definition offered by Sloan and Kring (2007).

In our view, emotion is a special case of affect, which is the broadest superordinate category that encompasses all valenced states (Scherer, 1984). Emotion, as articulated by a number of prior theorists (e.g., Ekman, 1992; Frijda, 1986), is a relatively brief and referential form of affect. That is, emotion generation arises when an external or internal event signals to the individual that something important may be at stake. When attended to and evaluated in certain ways, these emotion cues trigger a loosely coupled set of response tendencies that involve experiential, behavioral, and central and peripheral physiological systems. Emotional responses prepare an organism for situationally appropriate actions that have generally facilitated the survival of species and individuals over evolutionary time (Tooby & Cosmides, 1990). In this way, emotions can be distinguished from moods, which are also complex multisystem affective responses. Relative to emotions, moods are generally thought to be longer, slower moving, and less tied to specific objects or elicitors (Watson, 2000). In one commonly used meteorological analogy, emotional reactions are like storms, whereas moods are like seasonal climate change.

Our work on major depressive disorder (MDD) illustrates the value of carefully differentiating between affect-related constructs. MDD is a devastating psychiatric condition whose description in the *Diagnostic and Statistical Manual of Mental Disorders* (4th edition, text revision; American Psychiatric Association, 2000) includes symptoms that encompass deficient positive affect (e.g., anhedonia) and/or excessive negative affect (e.g., sadness and guilt) that last for a minimum of 2 weeks. Bowing to the centrality of affect in MDD, researchers have variously labeled this condition as an *affective disorder*, a *mood disorder*, or as an *emotional disorder*. The unexplicated use of these different core terms has obscured the most basic of issues: What exactly *is it* that is disordered in MDD?

Although it might be assumed that depression enhances all forms of negative affect, a series of laboratory

studies has revealed that depression involves persistent negative mood but does *not* appear to enhance negative emotions (e.g., Rottenberg, Gross, & Gotlib, 2005). Consistent definition (and operationalization) of affect-related terms has thus sharpened our understanding of a core affective deficit in MDD (Rottenberg, 2005), a step that has implications for what is assessed in psychotherapy and how this disabling disorder is treated (e.g., techniques to invigorate appropriate emotional reactivity).

Emotion is not only distinct from other affective constructs, but it is also a highly differentiated phenomenon itself. As noted by Sloan and Kring (2007), emotions may be conceptualized as varying along dimensions, such as valence and activation, or as differing in kind (e.g., fear versus disgust versus sadness). In addition, whether conceptualized in dimensional or discrete terms, emotions are differentiated cross-sectionally into different response components—among them emotion experience, behavior, and physiology. Because these response components are loosely coupled, and because behavioral and physiological changes can occur outside of awareness, changes (or a lack of change) in one response domain (e.g., experience) do not always predict changes (or a lack of change) in another response domain (e.g., behavior). Consistent with this position, there is growing evidence that implicit and explicit measures of emotion are often poorly correlated (Egloff, Wilhelm, Neubauer, Mauss, & Gross, 2002).

An additional layer of complexity is that emotions are differentiated temporally. It is increasingly recognized that emotional impulses have a variable temporal trajectory (across emotions, people, and situations), bringing into relief the notion of affective chronometry (Davidson, 1998), a term that signals the emerging scientific interest in characterizing the variability of the emotion waveform by decomposing it into a number of temporal sub-components, such as latency, rise time, magnitude, duration, and offset. The ways that psychopathology alters the temporal features of emotion are only beginning to be understood, but this idea has important implications for psychotherapy research, as it suggests that different disorders may present distinct targets for intervention that present along the unfolding timeline of an emotional response.

EMOTION REGULATION

As with *emotion*, the term *emotion regulation* has long been a source of confusion (Gross, 1998a). Even to this day,

there remains an unfortunate degree of misunderstanding about what emotion regulation is (and isn't) and what effects—if any—it has on important outcomes. We share Sloan and Kring's (2007) starting point that *emotion regulation* refers to attempts individuals make to influence which emotions they have, when they have them, and how these emotions are experienced and expressed. This is an extraordinarily rich domain, since emotion regulatory efforts may involve the up- or down-regulation of various aspects of negative or positive emotions (Gross, 1998a). Indeed, although emotion regulation may often be a deliberate process (which might be assessed with self-report questionnaires), we have recently developed empirical evidence that emotion regulation can operate automatically (Mauss, Cook, & Gross, 2007) and that implicit assessments of emotion regulatory goals can predict reactivity to laboratory emotion elicitors (Mauss, Evers, Wilhelm, & Gross, 2006).

It is also important to bear in mind that emotion regulation is only one of several forms of affect regulation, each of which may be of potential interest in the context of psychotherapy. More specifically, emotion regulation may be profitably distinguished from three other forms of affect regulation: coping, mood regulation, and psychological defense (for a more detailed exposition of these differences, see Gross, 1998b). *Coping* refers to the organism's efforts to manage its relations with an environment that taxes its ability to respond (Lazarus & Folkman, 1984). Coping and emotion regulation overlap, but coping includes nonemotional actions taken to achieve nonemotional goals (e.g., studying hard to pass an important exam), while emotion regulation is concerned with emotions in whatever context they may arise. *Mood regulation* refers to attempts to alter a second important class of affective responses, which, as alluded to above, are typically of longer duration, lesser intensity, and are less likely to involve responses to specific "objects" than emotions (Watson, 2000). Thus, the focus in mood regulation research is typically the activities people engage in to reduce negative mood states (e.g., running, sleeping well). A third type of affect regulation is *psychological defense*, long a focus of psychodynamic theorizing and research. As with coping, the domain of psychological defense overlaps with the domain of emotion regulation, but defenses typically refer to relatively stable characteristics of an individual that operate outside of awareness to

decrease the subjective experience of anxiety and other negative affects.

Even if we try to restrict ourselves to the domain of emotion regulation, psychotherapy researchers face a bustling marketplace filled with "off the-rack" measurement solutions. *Caveat emptor!* Before signing on to a measure of emotion regulation, one must do more than simply read its label. Different researchers often use different terms to describe the same thing, and worse yet, different things are often described by the same term (for a discussion of this point, see Block, 1996). Moreover, given the richness and the heterogeneity of this domain, the search for a global measure of "emotion regulation" is unlikely to be fruitful. With no one-size-fits-all solution, and a widening menu of assessment options, it is well-near impossible to choose sensibly without carefully defining the more proximal aspect of emotion regulation that one is interested in. Given that a vast number of processes are involved in decreasing, maintaining, or increasing one or more aspects of emotion—changing one's job to closing one's eyes to calling one's mother to keeping a stiff upper lip—how should we prioritize among the potentially limitless number of processes involved in regulating emotions?

Our approach has been to undertake a conceptual analysis of the processes underlying diverse emotion regulatory acts, arguing that emotion regulatory acts may be seen as having their primary impact at different points along the timeline of the unfolding emotion generative process (e.g., antecedent versus response focused; Gross, 2001). In particular, as Sloan and Kring (2007) indicate, we have suggested a modal model that specifies a sequence of processes involved in emotion generation, each of which is a potential target for regulation, highlighting five points at which individuals can regulate their emotions. These five points represent five families of emotion regulation processes: situation selection, situation modification, attentional deployment, cognitive change, and response modulation.

Importantly for psychotherapy researchers, and supporting the differentiated measurement of emotion regulation, there is growing evidence that different forms of emotion regulation appear to have a divergent impact on affect and well-being. For example, cognitive reappraisal and suppression (which are uncorrelated in everyday life) have been found to decrease the behavioral expression of

negative emotion, but only reappraisal decreases subjective distress (Gross, 1998b). There is also growing evidence that patients' affective deficits might be linked to the use of specific emotion regulatory strategies. For example, patients with diagnosed mood and anxiety disorders who viewed a negative film reported a greater use of suppression than control participants (a strategy that was associated with dysphoria), but did not endorse greater use of other emotion regulation strategies (Campbell-Sills, Barlow, Brown, & Hofmann, 2006). These findings—and many others—all point to the conclusion that emotion regulation should be studied in a way that respects the variations between different emotion regulatory acts.

EMOTION, EMOTION REGULATION, AND PSYCHOTHERAPY RESEARCH

To this point, our message has been sobering: Measuring emotion and emotion regulation can turn into a wild goose chase without significant up-front theoretical and methodological investments. Given that data-gathering resources are finite in any research context—and particularly so within constraints of psychotherapy sessions—there is an inevitable trade-off between bandwidth (measuring lots of things not very deeply) and fidelity (measuring a few things with much greater depth). In our view, the management of this trade-off should ultimately be driven by the question that assessment of emotion/emotion regulation might answer, an issue that has received surprisingly little consideration.

Although measures of emotion and emotion regulation can be used to address questions in many psychotherapy contexts, such as the role of emotion in family members (e.g., expressed emotion) or dyads (e.g., spousal interaction), perhaps the modal context is assessing emotion/emotion regulation in an individual patient/client who is being treated (Sloan and Kring focus on this context). Even within the modal context, these measurements can be used to address a broad range of questions. Here, we briefly sketch four potential foci for emotion/emotion regulation as (a) a diagnostic feature or correlate, (b) a predictor, (c) a mediator, and (d) an outcome.

Emotion and Emotion Regulation as Diagnostic Features or Correlates

Measures of emotion and emotion regulation have not been incorporated into formal diagnostic procedures,

despite the fact that the diagnostic criteria for many disorders refer to affective features (e.g., affective instability for borderline personality disorder). One complexity in mapping emotion and emotion regulation to disorders is that any given symptom profile (e.g., major depression) represents a final common pathway that may reflect abnormalities in emotional reactivity (e.g., low threshold for responding to negative cues), abnormalities in emotion regulation (e.g., rumination), or some combination of problems in both domains (Rottenberg & Gross, 2003). Nevertheless, unless one has a good system-by-system description of what is wrong with a person affectively, it is difficult to know (a) what to try to fix in therapy; (b) how to measure things as treatment progresses; and (c) how to generate intelligent predictions about what should change in therapy. In this respect, good descriptive psychopathology is a necessary foundation for progress across all other foci.

Emotion and Emotion Regulation as Predictors

A second problem area in which emotion and emotion regulation measures can be applied is the prediction of the course of mental disorders. For example, in our own work, we have found that greater emotional reactivity to sad material (Rottenberg, Salomon, Gross, & Gotlib, 2005) and to amusing material (Rottenberg, Kasch, Gross, & Gotlib, 2002) predicts a more benign subsequent course of MDD. Prospective links between emotion and outcome make good sense within a functionalist perspective on emotion (Ekman, 1992), which posits that emotions represent dynamic adjustments to environmental challenges and opportunities. Nevertheless, we do not yet know which aspects of emotion and which assessment contexts (e.g., laboratory versus naturalistic assessments) are predictive of illness course, and for which disorders.

Emotion and Emotion Regulation as Mediators

A third problem area involves the use of emotion/emotion regulation to understand the process of change during successful psychotherapy. Psychotherapy research has become increasingly focused on determining mechanisms of action and how those mechanisms relate to enduring recovery (i.e., relapse prevention). Specific and nonspecific factors implicated in treatment efficacy may have their basis in affective processes. Based on improved knowledge about the process of change in psychotherapy, affective science can be used to create novel therapies that are

more tailored to match the characteristics of the disorder (Farach & Mennin, 2007) or the psychological characteristics of the patient (Strauman et al., 2006).

Emotion and Emotion Regulation as Outcomes

Fourth, and finally, emotion may be studied in psychotherapy research as an outcome. The evidence suggests that treatments may have uneven effects across systems of emotional response, so that some aspects are “normalized,” and some aspects remain deviant (e.g., Alpers, Wilhelm, & Roth, 2005). To the extent that certain emotion regulatory strategies are theorized to be more adaptive (e.g., reappraisal), it can be hypothesized that psychologically based treatments lead clients to adopt more adaptive emotion regulatory strategies. Direct empirical evidence that treatment in fact alters emotion regulation is currently slim. Demonstrating how emotion regulation is changed by therapy is clearly among the most important avenues for future research.

CONCLUDING COMMENT

As Sloan and Kring (2007) so nicely demonstrate, a wide variety of measures of emotion/emotion regulation are now available to psychotherapy researchers. Knowing about these measurement tools represents an important first step toward their successful use. However, if we are to successfully integrate affective and clinical science, navigating the sometimes rocky territory ahead will require the forging of strong mutual partnerships between affective and clinical scientists. In our view, both parties stand to gain by the further integration of affective and clinical science, a synthesis that promises to enrich understanding of both adaptive and maladaptive emotional functioning. We believe that this synthesis is necessary if we are to build a foundation for rethinking etiology and intervention, steps that promise new hope for relieving human misery.

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