

Emotion Coming of Age

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Viewing emotion regulation as a process that occurs during the generation of emotion and with the aim of self-maintenance rather than self-control is emphasized. In a self-maintenance view, the cognitive system is seen as receiving information from the emotion system as well as influencing it, and self-maintenance is seen as occurring (largely below conscious awareness) by means of dynamic processes that involve both self- and other regulation. It is suggested that the field has yet to pay adequate attention to implicit and relational processes of regulation. An issue of major clinical significance is the importance of generating theory and research to help understand to what extent automatic emotion processes can be changed through deliberate conscious cognitive processes of self-control and to what extent they can only be changed through more implicit processes based on new emotional and/or relational experiences.

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As the articles in this special issue attest to, emotion is finally coming of age. Affect, as many of the authors suggest, serves a function—it aids survival, and affect regulation is a key human motive. People seek emotions because what emotion makes them feel—the conscious feelings of such things as pain and pleasure—aids survival by promoting approach and avoidance and other action tendencies. Generally, people seek to feel positive feelings and to avoid negative ones because this has promoted survival. As pointed out by a number of the authors in this special issue, regulation of emotion in its broadest sense goes beyond controlling too much emotion, to encompass having the emotions we want and not having the emotions we do not want.

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Affect is both self- and other regulated, although the articles in this special edition do not pay as much attention to other regulation as I think is merited. People both *self-organize* and *relate to others* in order to regulate their affects. Although children develop emotional competence by learning to self-regulate their affect in more socially accepted ways, according to the culture in which they mature, much emotion regulation also comes from internalizing the empathy and affective attunement of parents, especially in the early years. Good parenting involves parents acting as good emotion coaches, characterized by positive attitudes toward emotion, the provision of empathy and validation, as well as the promotion of skill acquisition (Gottman, Katz, & Hooven, 1997; Greenberg, 2002). From infancy onward the dyadic regulation of affect is crucial to healthy development (Fosha, 2000; Schore, 1994; Sroufe, 1996). Adults also seek connection because it helps them feel safe and promotes security (Bowlby, 1973; Shaver, Hazan, & Bradshaw, 1988), and they seek understanding or empathic mirroring from others because it makes them feel valued (Stern, 1985). Coupling and interpersonal connection thus are primary regulators of affect (Greenberg & Goldman, in press) as well as more explicit social learning.

EMOTION REGULATION

Much research has been done on what has been labeled a two-factor, or self-control, view of emotion regulation. In this view one system is seen as generating emotion and another is seen as subsequently regulating emotion (Campos, Frankel, & Camras, 2004). However, within a broader one-factor, self-maintenance view, emotion regulation is seen as being intrinsic to the experience of generating emotion and rather than self-control, emotion regulation is seen as *an integral aspect of the generation of emotion* and coterminous with it. In this view affective and cognitive processes act as a dynamic system to mutually regulate each other and the majority of this process occurs automatically out of awareness. As noted by Suveg, Southam-Gerow, Goodman, and Kendall (2007), emotion thus is both inherently regulated and regulatory.

Affective neuroscience, as Mennin and Farach (2007) and Zeman, Klimes-Dougan, Cassano, and Adrian (2007) suggest, supports a dynamic systems view of emotion regulation as integrated with emotion generation rather than a conscious control view (cf. Cozolino, 2002).

Seeing the complexity of brain functioning involved in affect generation, the regulation of emotion is best viewed as being embedded in a rapid, dynamic cascade of effects moving up and down the different subcortical and cortical areas rather than as a two-factor linear process. Instead of cognitive control of emotion in regulation we have massive feedback loops in which different parts of the brain interact with each other, leading to synchronization, a coherence that results in self-organization of the entire brain.

The more that executive, or controlled cognitive processes are involved in regulation, the more prefrontal involvement there is. The more that implicit, automatic, affective experience guides processing, the more subcortical and limbic system are involved. The orbitofrontal area operates as mediator between subcortical and cortical areas and as the integrator of affective and cognitive emotion regulation processes. Neuro-anatomical studies support a view that suggests that *implicit* regulatory processes probably occur out of conscious control in the orbitofrontal cortex, which takes over the early amygdala and lower-level right hemispheric functioning, in more complex processing (Lane & Nadel, 2000; Schore, 1994). Evidence from affective neuroscience also indicates the possibility that there is both *implicit* more affective, right hemispheric regulation and explicit more cognitive, left hemispheric, affect regulation (Schore, 1994). Unconscious quick processing is mediated more by the right hemisphere and conscious, more slow and serial processing more by the left (Davidson, 2000; Markowitsch, 1998). Functions such as emotional social self-regulation appear to require an enhanced activation of the right side of the brain (Tucker, 1981). Looking at emotion regulation in a broader, dynamic system view, we thus see that much affect regulation occurs implicitly through right hemispheric processes, and is not verbally mediated. This processing is highly relational, and is most directly affected by processes such as the automatic generation of self-soothing and self-compassion, and relational communication through facial expression, vocal quality, and eye contact.

Emotion regulation thus has to be considered as not only involving higher-level cortical and left hemispheric executive cognitive strategies and skill learning, but also as involving earlier subcortical and right hemispheric affective levels of information processing. Essential affective self-regulatory processes then are involved in

self-maintenance, rather than self-control, and these occur largely below conscious awareness. As Sloan and Kring (2007) note, Gratz and Roemer (2004) have developed a multidimensional measure of emotion regulation that gets closer to assessing both self-control and self-maintenance perspectives.

These differing views of emotion regulation have implications for treatment. Strategies to regulate emotion suggested by the two-factor, self-control view involve higher levels of cognitive executive involvement and people are seen as being able to change the way they feel by consciously changing the way they think. In addition, when emotion regulation is viewed as the control of too much disruptive emotion or too much of the wrong type of emotion, therapy has been seen as needing to modify these emotions. Clinical work, then, views dysfunction as resulting from faulty learning and skill deficit and has focused on teaching skills to control emotion and on changing the cognitive system to modify undesirable emotion (Beck, 1976). This has led to approaches, such as anger management, based on control and constraint of emotions and skill training. This view is consistent with intervention in which teaching and collection of contradictory evidence are viewed as major forms of intervention with the goal of promoting cognitive change and skill learning enhanced by practice to change behavior.

In a one-factor, self-maintenance view the cognitive system, however, is seen as *receiving information* from the emotion system as well as influencing it, and emotion is seen as guiding cognition and action. In this view the issue of interest, in understanding both function and dysfunction, then becomes how people synthesize adaptive responses to the world rather than how they control dysregulated responses. The emotion system is seen as being able to be transformed or regulated by processes other than cognition, such as by other emotions and by relational attachment (Greenberg, 2002). Self-maintenance and enhancement, rather than self-control, is the goal and the affective processes involved occur largely below conscious awareness. When emotion regulation is seen as an aspect of emotion generation, dysfunction is viewed as due to avoidance, suppression, or motivated lack of awareness of emotion and clinical work focuses on clarifying which emotions one allows into awareness. Here emotion regulation also is viewed as the having of desired emotions at adaptive levels, at the right time, and therapy is based

on the *acceptance or facilitation of particular emotions*. Approaches adopting a one-factor view emphasize approaching and accessing previously avoided emotion and being able to tolerate, accept, validate, and understand them as well as utilize adaptive emotions and transform maladaptive emotions (Greenberg & Watson, 2006).

An issue of major clinical significance then is generating theory and research to help understand to what extent *automatic emotion processes can be changed through deliberate processes* and to what extent *only through more implicit processes based on new emotional and/or relational experiences?* Stated in another way the question becomes how much emotional change requires *implicit experiential learning vs. explicit conceptual learning*. This will lead to a better understanding of when emotional change requires corrective *interpersonal or intrapersonal emotional experience* and when *new skill learning and practice* are best. Much of the research to date has functioned on the learning and practice of more deliberate conceptual and behavioral skills, but there is some evidence on the role of corrective relational and self-experience (Goldman, Greenberg, & Angus, 2006; Greenberg & Watson, 1998; Johnson, Hunsley, Greenberg, & Schlindler, 1999). Below I will sketch out the importance of these two more automatic processes and propose that they need to be given serious study if emotional change is to be investigated comprehensively.

THE ROLE OF INTERPERSONAL FACTORS

In clinical work, a number of theorists, therapists, and researchers believe that emotion regulation is not easily achieved through the cognitive system alone (Campos et al., 2004; Fosha, 2000; Hunt, 1998; Linehan, 1993; Schore, 2003). Problems in vulnerable personalities also often arise most from deficits in the more implicit forms of regulation of emotion and emotional intensity. Although deliberate behavioral and cognitive forms of regulation—a more left hemispheric process—are useful for people who feel out of control, over time, it is the building of implicit or automatic emotion regulation capacities that is important for enduring change, especially for highly fragile personality-disordered clients. Implicit forms of regulation often cannot be trained or learned as a volitional skill. The provision of a safe, validating, supportive, and empathic environment is the first level of intervention that helps soothe and

regulate automatically generated underregulated distress (Bohart & Greenberg, 1997). People with underregulated affect have been shown to benefit both from interpersonal validation as much as from the learning of emotion regulation and distress tolerance skills (Greenberg & Watson, 1998; Linehan, 1993; Linehan et al., 2002).

Empathy from another person seems to be particularly important in learning to self-soothe and restore emotional equilibrium and help strengthen the self. Deficits in empathy and emotional connection between infants and their caretakers have been found to affect areas of right brain development involved in empathy and compassion (Schore, 2003). Directly experiencing aroused affect being soothed by relational or nonverbal means—a more right hemispheric process (Schore, 1994)—is one of the best ways to build the implicit capacity for self-soothing. Being able to soothe the self develops initially by this internalization of the soothing functions of the protective other (Stern, 1985). Over time, empathy from the other is internalized and becomes empathy for the self (Bohart & Greenberg, 1997). These optimal relational qualities thus facilitate the dyadic regulation of emotion through provision of safety, security, and connection. In addition to providing the lived experience of aroused affect being soothed, relational experience of this type breaks the client's sense of isolation, confirms self-experience, and is helpful in promoting both self-empathy and self-exploration (Greenberg, 2002).

THE THERAPEUTIC RELATIONSHIP

How the therapist joins and connects emotionally with the client is the very first experience in therapy that influences emotion and its regulation. Clients' right hemispheres respond to therapists' micro affective communication as well as to their explicit words, and all these influence clients' processes of dynamic self-organization (Cozolino, 2002; Ferrari, Gallese, Rizzolatti, & Fogassi, 2003; Gallese, 2005; Marci, Ham, Moran, & Orr, 2007; Schore, 1994; de Vignemont & Singer, 2006). Communication between the right hemisphere of the client and the therapist has immediate effects on implicit regulation process. Therapists first create a warm, safe, and validating climate by their way of being with the client. The affective climate is created predominantly by facial, vocal, gestural, and postural cues. How safe, received, and soothed the client feels

will affect what emotions he or she experiences. When an empathic connection is made with the therapist, affect processing centers in the brain are effected and new possibilities open up for the client. This creates an optimal therapeutic environment in which clients feel safe to fully engage in the process of self-exploration and new learning but also contribute to clients' affect regulation by providing interpersonal soothing. The therapeutic relationship thus helps clients develop their implicit abilities to tolerate emotion and self-soothe (Schoe, 2003).

The empathic relationship has been shown to be a predictor of therapeutic outcome across a variety of approaches (Greenberg, Elliott, Watson, & Bohart, 2001). The empathic relationship in therapy serves a dual purpose (Greenberg & Watson, 1998, 2006). First, the relationship is therapeutic in and of itself by serving an affect regulation function that is internalized over time. This function is accomplished by offering a soothing, affect-attuned bond characterized by the therapist's presence and empathic attunement to affect as well as acceptance validation and congruence. Second, the relationship functions as a means to an end. The relationship offers the optimal environment for facilitating specific therapeutic modes of emotional processing. In this view, therapists' attitudes, not only techniques, are seen as influencing the clients' well-being.

TYPES OF EMOTION

In discussing emotional change, it is important to recognize that not all emotions serve the same function both in and out of therapy and that therapists need to intervene differentially with different types of emotional processes. Therapists do not simply help clients regulate all emotions, or become aware of, or express, all feelings. Rather, they distinguish clinically among different types of emotions to guide their interventions. Therapists intervene differentially with clients, helping them to accept and integrate certain emotions, to acknowledge some but bypass others, to regulate disruptive emotions, to express those that will enhance relationships, to contain and soothe painful emotions, and to explore and transform maladaptive emotions. This approach to differential intervention with emotions is based on the premise that some types of emotional expression are more productive than others, in and outside of therapy, and that it is emotional arousal of productive emotions that relates to

outcome in psychotherapy (Pos, Greenberg, Goldman, & Korman, 2003; Greenberg, Auszra, & Herrmann, 2007). In this view *primary emotions* are people's most fundamental, immediate reaction to a situation while *secondary emotions* are people's emotional reactions to their first emotional responses to a stimulus, rather than their first emotional response to the situation itself (Greenberg, 2002; Greenberg & Safran, 1987). For example, anger may be a reaction to a feeling of fear that itself may be adaptive or maladaptive depending on the function it serves in the situation. With this more differentiated perspective, we see that not only do we wish to help clients down-regulate unproductive dysregulated secondary and primary maladaptive emotions, but also at different times we may want to help them access productive primary emotions. Five different purposes of working with emotion, including regulation, thus are discussed below.

EMOTION AWARENESS

Helping clients become aware of their automatic emotions and more specifically their primary adaptive emotions is an important therapeutic goal. Becoming aware of and symbolizing core emotional experience in words provide access both to the adaptive information and action tendency in the emotion and are highly productive therapeutically. Labeling emotions also is a first step in problem definition. Differences in emotional awareness have been found to predict recovery of positive mood and decrements in ruminative thoughts following a distressing stimulus (Salovey, Mayer, Goldman, Turvey, & Palfai, 1995). Awareness of primary emotions can be trained explicitly but also occurs more automatically through the therapist's empathic understanding and exploration.

EMOTIONAL AROUSAL AND EXPRESSION

Emotional expression mobilizes the affect system, changes physiology and neurochemistry, overcomes inhibition, and changes interpersonal interaction. Emotional expression has recently been shown to be a unique therapeutic aspect of emotional processing that predicts adjustment to breast cancer (Stanton et al., 2000) and resolving interpersonal problems (Greenberg & Malcolm, 2002). Results from a variety of studies also support that emotional engagement with trauma memories in early sessions (Paivio, Hall, Holowaty, Jellis, & Tran, 2001;

Paivio & Nieuwenhuis, 2001), during the first exposure and habituation (reduced distress) during exposure (Foa & Jaycox, 1999; Jaycox, Foa, & Morral, 1998), and over the course of therapy predicts better outcome. There is a long line of evidence on the effectiveness of arousal of and exposure to previously avoided feelings as a mechanism of change, such as in exposure treatments for anxiety in youth and adults (Kendall & Hedtke, 2006). This clearly is an experiential rather than a conceptual process.

EMOTION REGULATION

Regulation of underregulated emotion in adult psychotherapy involves getting some distance from overwhelming despair and hopelessness and/or developing self-soothing capacities to calm and comfort core anxieties and humiliation. Forms of meditative practice and self-acceptance often are most helpful in achieving a working distance from overwhelming core emotions (Teasdale et al., 2000). These can be learned deliberately and with practice. Emotion in addition can be down-regulated by developing tolerance and soothing at a variety of different levels of processing. Physiological soothing involves activation of the parasympathetic nervous system to regulate heart rate, breathing, and other sympathetic functions that speed up under stress. Implicit self-soothing involves, among other things, diaphragmatic breathing, relaxation, and development of self-empathy compassion. Promoting clients' in-session abilities to receive and compassionately accept their emerging painful emotional experience is an experiential process that helps develop tolerance of emotion and self-soothing.

REFLECTION ON EMOTION

In addition to recognizing emotions and symbolizing them in words, promoting further reflection on emotional experience helps people make sense of their experience and promotes its assimilation into their ongoing self-narratives. What we make of our emotional experience (the cognitive meaning we give to these emotions) makes us who we are. Reflection helps to create new meaning and develop new *narratives to explain experience* (Goldman, Greenberg, & Pos, 2005; Greenberg & Angus, 2004; Greenberg & Pascual-Leone, 1997; Pennebaker, 1995). Pennebaker (1995) has shown the positive effects of writing about emotional experience on autonomic nervous system activity, immune functioning, and physical and

emotional health, and concludes that through language, individuals are able to organize, structure, and ultimately assimilate both their emotional experiences and the events that may have provoked the emotions. This clearly involves conscious conceptual processes.

EMOTION TRANSFORMATION

The final and probably most important way of dealing with emotion in therapy involves the transformation of *emotion by emotion*. This applies most specifically to transforming primary maladaptive emotions, such as fear and shame (Greenberg, 2002). This principle of emotional change suggests that a maladaptive emotional state can be transformed best by undoing it by activating another more adaptive emotional state. In time the coactivation of the more adaptive emotion along with or in response to the maladaptive emotion helps transform the maladaptive emotion. Rather than reason with emotion, one can transform one emotion with the activation of another. While thinking usually changes thoughts, emotion usually is best in changing primary emotions (Greenberg & Watson, 2006; Hunt, 1998).

It is important to note that the process of changing emotion with emotion goes beyond ideas of catharsis or completion and letting go, exposure, extinction, or habituation, in that the maladaptive feeling is not purged, nor does it simply attenuate by the person feeling it. Rather, another feeling is used to transform or undo it. Although exposure to emotion at times may be helpful to overcome affect phobia, in many situations in therapy, change also occurs because one emotion is transformed by another emotion rather than simply attenuating. In these instances emotional change occurs by the activation of an incompatible, more adaptive experience that undoes or transforms the old response. This may involve more than simply feeling or facing the feeling, leading it to diminish. Rather, emotional change occurs by the activation of an incompatible, more adaptive experience that replaces or transforms the old response.

Frederickson (2001), for example, has shown that a positive emotion may loosen the hold that a negative emotion has on a person's mind by broadening a person's momentary thought action repertoire. The experience of joy and contentment were found to produce faster cardiovascular recovery from negative emotions than a neutral experience. Frederickson, Mancuso, Branigan,

and Tugade (2000) reported that resilient individuals cope by recruiting positive emotions to undo negative emotional experiences. Thus, in the first instance bad feelings appear to be able to be transformed by happy feelings, not in a deliberate manner, by trying to look on the bright side, or by replacement, but by the evocation of meaningfully embodied alternate experience that undoes the physiology and experience of negative feeling.

In grief, laughter has been found to be a predictor of time to recovery. Thus, being able to remember the happy times and to experience joy help as an antidote to sadness (Bonanno & Keltner, 1997). Warmth and affection similarly are often an antidote to anxiety. In depression a protest-filled, submissive sense of worthlessness can be transformed therapeutically by guiding people to the desire that drives their protest—a desire to be free of their cages and to access their feelings of joy and excitement for life. Isen (1999) hypothesized that at least some of the positive effects of happy feelings depend on the effects of the neurotransmitters involved in the emotion of joy on specific parts of the brain that influence purposive thinking. Mild positive affect has been found to facilitate problem solving. These studies together indicate that positive emotion can be used to change negative emotion. Davidson (2000) also suggests that the right hemispheric withdrawal-related negative affect system can be transformed by activation of the approach system in the left prefrontal cortex.

This principle applies not only to positive emotions changing negative ones but also to change by changing maladaptive emotions by activating dialectically opposing adaptive emotions (Greenberg, 2002). Thus, in therapy, maladaptive fear, once aroused, can be transformed into security by the activation of more boundary-establishing emotions of adaptive anger or disgust, or by evoking the softer feelings of compassion or forgiveness. Similarly, maladaptive anger can be undone by adaptive sadness. Maladaptive shame can be transformed by accessing both anger at violation and self-comforting feelings and by accessing pride and self-worth. Thus, the tendency to shrink into the ground in shame can be transformed by the thrusting forward tendency in newly accessed anger at violation. Withdrawal emotions from one side of the brain are replaced with approach emotions from another part of the brain or vice versa (Davidson, 2000). One can argue that once the alternate emotion has been

accessed, it transforms or undoes the original state and a new state is forged.

CONCLUSION

This time is an exciting one for psychology in general and clinical psychology specifically—a chance to make major advances by delineating and studying the many processes of emotional change that remain yet uncharted. The articles in this issue provide an overview of the challenges that need to be addressed in the coming decades, not the least of which, as Sloan and Kring (2007) and Zeman et al. (2007) point out, is the adoption of multimethod approaches to the assessment and measurement of different levels, forms, and aspects of emotion in children, adolescents, and adults.

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