

# Dialectical Behavior Therapy: An Emotion-Focused Treatment for Borderline Personality Disorder

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**Abstract** Dialectical Behavior Therapy (DBT) is a cognitive-behavioral treatment for borderline personality disorder (BPD) that is based on the theory that emotion dysregulation is the core feature of BPD. This article focuses on aspects of DBT theory and techniques that specifically address emotion. The dialectical and biosocial theories that underlie DBT are reviewed with an emphasis on how each relates to emotional experiencing in BPD. Selected treatment strategies that address emotion dysregulation and their hypothesized mechanisms of change are also described. Relevant research findings are incorporated throughout to provide an empirical foundation for the DBT theories and strategies that are discussed.

**Keywords** Dialectical behavior therapy · Emotion regulation · Borderline personality disorder · Emotion

Borderline personality disorder (BPD) is a severe and complex psychological disorder characterized by pervasive dysregulation of emotion, behavior, and cognition. Due to the nature and severity of BPD criterion behaviors, individuals meeting criteria for this diagnosis are generally viewed as among the most challenging clients for clinicians to treat. Perhaps of greatest concern is the high rate of self-injurious and suicidal behavior in this population, which is estimated to

range from 69% to 80% (Clarkin, Widiger, Frances, Hurt, & Gilmore, 1983; Cowdry, Pickar, & Davies, 1985; Gunderson, 1984). The rate of death by suicide among individuals with BPD is estimated at 10% (Linehan, Rizvi, Welch, & Page, 2000) and this rate doubles when only those with a history of self-injurious or suicidal behavior are included (Stone, Hurt, & Stone, 1987). Adding to the complexity of treating BPD is the fact that most individuals with this diagnosis also meet criteria for a variety of comorbid disorders (Zanarini et al., 1998; Zimmerman & Mattia, 1999). The challenges inherent in treating individuals with BPD are evident in the high rates of treatment utilization in this population. Over their lifetime, treatment-seeking BPD patients receive more types and greater amounts of psychosocial and psychopharmacological treatment than patients with other Axis I and II disorders (Bender et al., 2001). In addition, although the prevalence rate of BPD in the general population is estimated at 1% to 2% (Torgersen, Kringlen, & Cramer, 2001), from 9% to 40% of high utilizers of inpatient psychiatric services are diagnosed with BPD (Surber et al., 1987; Swigar, Astrachan, Levine, Mayfield, & Radovich, 1991).

As currently defined in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV; American Psychiatric Association, 1994), to receive a diagnosis of BPD individuals must meet 5 out of the 9 symptom criteria. Linehan (1993a) organized these criteria into five areas of dysregulation. First, individuals with BPD generally experience *emotion dysregulation*, including emotional responses that are highly reactive and include relatively brief but intense periods of overwhelming affect (Criterion 6) as well as specific difficulties regulating anger as evidenced by intense irritability and anger outbursts (Criterion 8). Second, individuals with BPD commonly exhibit *behavioral dysregulation*. Such extreme and out-of-control behaviors frequently include suicidal and self-injurious behaviors (Criterion 5) as

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well as a variety of other impulsive and self-damaging behaviors (e.g., substance abuse, binge eating) (Criterion 4). Third, borderline individuals often experience *interpersonal dysregulation*, including unstable relationships characterized by oscillation between extremes of idealization and devaluation (Criterion 2), along with intense and frantic efforts to prevent abandonment (Criterion 1). Fourth, individuals with BPD typically experience *dysregulation of the sense of self*, as evidenced by a persistently unstable sense of identity (Criterion 3) as well as a chronic sense of emptiness (Criterion 7). Finally, borderline individuals are at times *cognitively dysregulated*, as characterized by relatively brief periods of paranoid ideation and/or dissociation during times of extreme stress (Criterion 9).

As reflected in the polythetic format of the DSM-IV BPD diagnostic criteria, considerable heterogeneity in symptom presentation exists among this population. However, both theoretical and empirical work on BPD has suggested that the central feature of this disorder is a dysfunction of the emotion regulation system and it has been proposed that most behavioral patterns in BPD are either attempts to regulate intense affect or outcomes of emotion dysregulation (Linehan, 1993a; Westen, 1991). Consistent with such proposals, factor analyses of the BPD diagnostic criteria have identified affective dysregulation as a core component of BPD (Sanislow, Grilo, & McGlashan, 2000; Sanislow et al., 2002). In addition, the criterion of affective instability has been found to be correlated with the entire BPD criteria set, suggesting that this is a core feature of the disorder (Sanislow et al., 2000).

Dialectical Behavior Therapy (DBT; Linehan, 1993a, 1993b) is a cognitive-behavioral treatment for BPD that is based on the theory that BPD is fundamentally a disorder of one or more components of the emotion regulation system. DBT has been found to be efficacious for the treatment of BPD in seven randomized, controlled clinical trials conducted across four independent research teams (Koons et al., 2001; Linehan, Armstrong, Suarez, Allmon, & Heard, 1991; Linehan, Comtois, et al., 2002; Linehan, Dimeff, et al., 2002; Linehan et al., 1999; Turner, 2000; Verheul et al., 2003), as well as a number of uncontrolled or non-randomized trials (e.g., Bohus et al., 2000, 2004). This research has found that DBT results in fewer and less medically severe self-injurious acts and suicide attempts, decreased suicidal ideation, fewer inpatient psychiatric hospitalizations, increased treatment retention, and improvements in global and social adjustment, depression, anger, and hopelessness.

This article is focused primarily on describing aspects of DBT theory and techniques that specifically address emotion. A central feature of DBT is its focus on emotions, including formulating problems as emotion-related, attending to the client's in-session emotions, highlighting emotions that occur in and out of session, and helping the client to

observe and describe the various components of their emotions. Importantly, DBT aims not only to teach clients how to more effectively regulate and control their emotions, but also to help clients increase their awareness and acceptance of emotions and to experience them more fully. Indeed, this balance between acceptance and change of emotions is an example of the central dialectic in DBT. We begin with a review of the theoretical framework of DBT, including biosocial and dialectical theory, and address how each relates to the experience and expression of emotion among individuals with BPD. The stages of DBT treatment and associated treatment goals are then discussed, with an emphasis on the aspects of emotional experiencing that are targeted in each stage. We conclude with a description of selected DBT treatment strategies that target emotion dysregulation through both change- and acceptance-oriented interventions. Relevant findings of basic and applied research on emotion are incorporated throughout the article to provide an empirical foundation for the DBT theories and strategies that are discussed.

### The theoretical foundation of DBT

DBT is a principle-driven as opposed to a protocol-driven treatment. Consequently, a comprehensive understanding of the theoretical foundation of the treatment is necessary to ensure both effective and adherent treatment delivery. In addition to the standard principles of behavioral theory, there are two main theories that underlie DBT: dialectical and biosocial theory.

#### Dialectical theory

Understanding dialectical theory is essential to the proposed view of BPD as a disorder of emotion regulation and its treatment as an emotion-focused one. According to the *Encyclopedia of Marxism*, “dialectics is the method of reasoning which aims to understand things concretely in all their movement, change and interconnection, with their opposite and contradictory sides in unity.” From this brief definition one can see the importance of asking “what’s missing?” in treatment. Each dialectic presents a thesis and antithesis and the midpoint of these two perspectives yields a synthesis—the unity of the seemingly opposing points-of-view. This synthesis then becomes the new thesis of yet another dialectic, with the process of synthesizing dialectical perspectives continuing to bring the system, in this case a person and their behavior, to unity.

One of the core dialectical dilemmas in individuals with BPD is the tension between acceptance of one's emotions as valid and the need to change them to develop a “life worth living.” This process proceeds by using the dialectical

perspective of considering the entire reality of a situation while also considering the inter-related parts. Conversely, the inter-related parts have no absolute meaning outside of the current reality. With this theoretical perspective in mind, DBT attempts to treat the whole emotion system, recognizing that each part of this system is inter-related and influences the patient's behavior and the external context with which it transacts.

#### The biosocial theory of BPD

DBT was developed based on the biosocial theory of the etiology of BPD. According to Linehan (1993a), biosocial theory conceptualizes BPD as the result of the transactions over time between an emotionally vulnerable individual and an invalidating environment. Biosocial theory asserts that the presence of one component alone does not result in BPD and that it is the combined influence of emotional vulnerability and the invalidating environment that leads to the pervasive dysfunction of the emotion regulation system that is the core feature of BPD.

#### *Emotional vulnerability*

Linehan (1993a) theorized that problems with emotion dysregulation in BPD are, in part, due to a biological disposition for greater emotional vulnerability. This vulnerability in BPD is hypothesized to consist of greater *emotional sensitivity* (low threshold for recognition of emotional stimuli), greater *emotional reactivity* (high amplitude of emotional responses), and a *slower return to baseline arousal* (long duration of emotional responses).

Several studies have begun to examine the construct of *emotional sensitivity* in BPD using affective facial stimuli. Levine, Marziali, and Hood (1997) reported that male and female BPD patients were less accurate compared to gender balanced non-BPD controls at recognizing static facial expressions of anger, fear, and disgust. In contrast, Wagner and Linehan (1999) reported that BPD women without a history of sexual abuse were more accurate at labeling facial affect expressions of fear compared to women reporting a history of sexual abuse but not meeting criteria for BPD, and women serving as healthy controls. In another study, Donegan et al. (2003) found that BPD patients showed greater left amygdala activation to neutral, sad, fearful, and happy facial expressions compared with controls. Using a paradigm that allowed examination of participants' ability to respond accurately to morphing facial emotional expressions, Lynch et al. (2005) found that, as facial expressions morphed from neutral to full intensity, participants with BPD correctly identified facial affect at an earlier stage than healthy controls. Participants with BPD were more sensitive than healthy controls to angry expressions and marginally more sensitive to

happy expressions. These findings could not be explained by those with BPD responding more impulsively (i.e., faster with more errors).

Biological indicators of emotional sensitivity in BPD have also been studied using brain imaging technology. Evidence indicates that the amygdala plays a role in the generation of negative emotional states, specifically fear/anxiety and vigilance, and reduced hippocampal and amygdala volume have been observed in individuals with BPD and a history of early abuse (e.g., Driessen et al., 2000; Tebartz van Elst et al., 2003). Herpertz et al. (2000) reported that while watching negative emotional stimuli, BPD subjects demonstrated increased activation in both sides of the amygdala, while activation of the amygdala was not found in the control group. Interestingly, the authors point out that although the findings suggest an oversensitization to aversive emotional stimuli (i.e., emotional sensitivity), they may also reflect attenuated habituation of response within the amygdala of the BPD subjects (i.e., slow return to emotional baseline).

*Emotional reactivity* has been studied using self-report measures of dispositional affect intensity. Previous work has suggested that affect intensity, a stable personality characteristic, is related to negative emotional vulnerability (Yen, Zlotnick, & Costello, 2002), affect-relevant cognitive distortions (Flett, Boase, McAndrews, Pliner, & Blankenstein, 1986), and dysfunctional affect regulation styles (Lynch, Robins, Morse, & Krause, 2001). BPD individuals have been shown to report greater affect intensity compared to other personality disorders (Koenigsburg et al., 2002) and dispositional negative affect intensity/reactivity has been shown to be a stronger predictor of BPD symptoms than history of child sexual abuse (Rosenthal, Cheavens, Lejuez, & Lynch, 2005). However, self-report measures of emotional responding are subject to biases in reporting and individuals reporting high affect intensity do not always exhibit correspondingly high psychophysiological arousal (Vujanovic et al., 2006). Indeed, Eichler, Katkin, Blascovich, & Kelsey (1987) found that individuals who are hyposensitive to physiological arousal were more likely to report higher levels of negative affect after viewing slides of injured automobile accident victims. Potentially, findings such as these might help explain differences in affect responding reported in self-report (e.g., Koenigsburg et al., 2002) versus psychophysiological studies of reactivity in BPD individuals (e.g., Herpertz, Kunert, Schwenger, & Sass, 1999, 2000). That is, BPD individuals could very well be physiologically hyposensitive and rely almost exclusively on external cues for moderation of internal states, and thus, be more likely to report biased intense negative affective reactions in stressful environmental situations. Finally, with regard to emotion vulnerability as proposed by Linehan (1993a), to our knowledge, no study has yet to specifically examine *slower return to baseline arousal* (long duration of emotional responses),

which further stresses the importance of additional research in this area.

### *Invalidating environments*

An invalidating environment is one that chronically and pervasively invalidates an individual's internal experiences and self-generated behavior and, at its most extreme, can include psychological, sexual, and physical abuse. According to Linehan (1993a), there are two primary characteristics of invalidation: (1) it communicates to the individual that their experiences and perceptions (e.g., emotions, beliefs) are wrong, and (2) it attributes the individual's experiences to socially unacceptable characteristics (e.g., oversensitivity, manipulation). In the case of an emotionally vulnerable child, such invalidation often takes the form of ignoring, punishing, or contradicting their frequent and intense emotional reactions. There is considerable empirical data indicating that childhood invalidation is pervasive among individuals with BPD. Zanarini et al. (1997) interviewed a large group of inpatients with BPD and found high rates of recollected denial of the patient's feelings in childhood (70.4%). A number of studies document that individuals with BPD report high rates of childhood physical, sexual, and emotional abuse, as well as emotional neglect and the separation from (or loss of) significant caretakers (Herman, Perry, & van der Kolk, 1989; Ogata et al., 1990; Zanarini et al., 1997). Further, reports of repeated abusive experiences, multiple types of abusive experiences, multiple perpetrators of abuse, and early age of onset of abuse have been found to distinguish BPD from other diagnostic groups (Herman et al., 1989; Laporte & Guttman, 1996; Ogata et al., 1990; Zanarini et al., 1997).

Linehan (1993a) proposes a variety of consequences of invalidating environments, including encouraging the emotionally vulnerable child to suppress emotional reactions such that they fail to learn how to label emotions, modulate emotional arousal, or tolerate distress. In addition, because extreme emotional reactions are often required to obtain a supportive response from the environment, the child is intermittently reinforced for intense displays of emotion. Such social contingencies result in the child's oscillation between emotional inhibition and extreme emotional reactivity. In support of these proposals, research has found that parental punishment or minimization of emotional expression is correlated with children's proneness to frequent or intense negative emotions (e.g., Eisenberg, Fabes, & Murphy, 1996) and low socioemotional competence (e.g., Jones, Eisenberg, Fabes, & MacKinnon, 2002). In addition, childhood emotional invalidation has been shown to be associated with chronic emotional inhibition in adulthood that, in turn, predicts adult psychological distress (Krause, Mendelson, & Lynch, 2003). The long-term effects of childhood abuse

have been found to include a variety of problems with emotion regulation, including getting upset easily, having trouble calming down, difficulty letting go of upsetting things, and fear of experiencing and expressing anger (van der Kolk, Roth, & Pelcovitz, 1993).

### *Emotion dysregulation*

The biosocial theory of BPD asserts that it is the transaction across time between an emotionally vulnerable individual and an invalidating environment that results in the pervasive emotion dysregulation that is central to BPD. According to Linehan (1993a), emotion dysregulation consists of a combination of increased *emotional vulnerability* and *problems in regulating emotion*, thus leading to an increased risk for engaging in a number of aggressive, impulsive, and risk-taking behaviors to alleviate emotional distress. One indicator of poor emotion regulation might be the frequent mood swings or affective instability often observed in BPD individuals. A number of studies using self-report techniques have found that individuals with BPD report greater affective lability and more short-term fluctuations in negative affect than other diagnostic groups (Henry et al., 2001; Koenigsburg et al., 2002; Stein, 1996). Other studies have approached the study of emotion dysregulation by examining conscious emotion regulation strategies, particularly efforts to avoid or suppress internal experiences. For example, two studies have recently reported that higher thought suppression mediated the relationship between negative affective intensity/reactivity and BPD symptoms, after controlling for a history of child sexual abuse (Cheavens et al., 2005; Rosenthal et al., 2005). In addition, these findings suggest that individuals with high affect intensity are not likely to develop BPD unless they engage in unhealthy emotion regulation strategies, which provides additional preliminary support for Linehan's (1993a) biosocial theory of BPD.

### **Stages of therapy and treatment goals**

DBT is designed to treat individuals with BPD at all levels of severity and complexity of disorder and is conceptualized as occurring in stages. The stages, and treatment targets within the stages, are arranged hierarchically, giving precedence to reducing behaviors that directly threaten the patient's safety or therapy and to increasing capabilities required for the achievement of other goals.

In Stage I, the primary focus is on stabilizing the patient and achieving behavioral control. Treatment targets are addressed in the following hierarchical order: (1) life-threatening behaviors (primarily self-injurious and suicidal behavior), (2) therapy-interfering behaviors (e.g., poor attendance), and (3) quality of life-interfering behaviors (e.g.,

substance abuse, severe financial difficulties). The behavioral dyscontrol that is evident in Stage I is viewed as fundamentally related to emotion dysregulation; that is, the various dysfunctional behaviors of the Stage I client are conceptualized as attempts to regulate intense emotional reactions and/or outcomes of overwhelming emotions. This conceptualization is supported by longitudinal research indicating that affective instability is the only BPD diagnostic criterion associated with prospectively observed suicide attempts, and is the criterion most highly associated with prospective suicidal behaviors of all types (Yen et al., 2004). Accordingly, Stage I DBT aims to teach the client a variety of skills to enable them to more effectively regulate and tolerate emotional distress with the goal of replacing dysfunctional behaviors with new skillful behaviors.

The aim of Stage II DBT is to reduce *quiet desperation*, which is defined as extreme emotional pain in the presence of control of action, including emotion-linked action (Linehan, 1999). The proposed mechanism of change is to treat emotional experiencing difficulties (e.g., avoidance of emotion), thereby increasing the capacity for normative emotional experiencing (i.e., the ability to experience a full range of emotions without either escalating or blunting). In the subsequent stages, the treatment goals are to achieve “ordinary” happiness by way of reducing ongoing disorders and problems in living (Stage III), and to resolve a sense of incompleteness and achieve joy and freedom (Stage IV). In sum, the orientation of the treatment is to first get action under control, and then to help the patient address emotional experiencing difficulties that are often associated with childhood trauma, resolve problems in living and residual disorder, and to find joy and freedom.

### Selected DBT treatment strategies that address emotion dysregulation

DBT includes numerous treatment strategies that either directly target emotion dysregulation or are thought to indirectly function to reduce emotion dysregulation. We next discuss several of these strategies and interventions, including chain analysis, mindfulness, opposite action, and validation, with particular attention paid to the likely emotion-related mechanisms of change associated with each.

#### Chain analysis

Prior to engaging in problem solving to address emotion dysregulation, the first and critical step in treatment is to sufficiently assess the specific nature of the problem. In DBT, problem assessment is conducted via *chain analysis*, which is defined as “an exhaustive, step-by-step description of the chain of events leading up to and following the behavior”

(Linehan, 1993a, p. 258). A chain analysis focuses on a single instance of a target behavior and attempts to determine, via moment-to-moment assessment, the specific vulnerability factors and antecedent events that increased the likelihood that the behavior would occur, as well as the consequences that reinforced the behavior. The selection of the behavior to be analyzed is determined by the target hierarchy and these behaviors are monitored by the client via completion of a daily diary card. The goal of chain analysis is to identify the unique pattern of variables that control an individual’s dysfunctional behaviors in order to select and implement appropriate problem solving interventions. Given DBT’s emphasis on emotion dysregulation as the core feature of BPD, chain analyses often focus on the various ways in which emotions are related to the promotion and maintenance of dysfunctional behaviors. This often includes attention to the intense or aversive emotional states that may precede target behaviors as well as the potential emotion regulatory function of such behaviors.

Chain analysis may function to influence emotion via two mechanisms (see also, Lynch, Chapman, Rosenthal, Kuo, & Linehan, 2006). First, chain analysis may function as *behavioral exposure*. That is, behaviors such as suicide attempts or non-suicidal self-injury may be conceptualized as attempts to regulate intense, unwanted emotions. Therefore, by focusing on the antecedents, behaviors (including emotions), and consequences associated with these target behaviors the DBT therapist can guide the patient through informal non-reinforced behavioral exposure. Second, chain analysis may function to increase *in-vivo learning of skillful behavior*. Thus, problem solving, solution generation, didactic information, contingency management, and behavioral skills that are woven into each chain analysis may increase the likelihood that the aversive emotional cues or prompting events will become classically conditioned to problem-solving and solution generation. Over time, those stimuli previously associated with emotion dysregulation and ineffective emotional responding (e.g., self-injury) become conditioned stimuli for skillful behavior (Lynch et al., 2006).

#### Mindfulness

Mindfulness is often referred to as the “core” skill of DBT and focuses on developing a lifestyle of participating with awareness. Its importance is emphasized by how often it is taught during skills group and used during coaching calls. As an emotion regulation strategy, mindfulness may function via *behavioral exposure* to previously avoided emotions, thoughts and sensations. Non-judgmental awareness of distressing thoughts, emotions, or sensations in the absence of any dire consequences and without escape or avoidance essentially constitutes non-reinforced exposure. By allowing emotions, thoughts and sensations to be experienced

without judgment, new associations to a particular stimulus are acquired (the emotion “just is”). In addition, changing the emotion-linked response tendency (i.e., avoid or approach) may change the appraisal of the emotional experience without having to directly modify the cognition (Lynch et al., 2006). Indeed some have suggested that the development of metacognitive awareness (i.e., seeing thoughts as thoughts, not literally true) is the salient mechanism of change in cognitive therapy rather than reappraisal of beliefs in schema (Teasdale, Segal, & Williams, 1995). Thus, mindfulness is hypothesized to influence emotion via repeated behavioral exposure and by indirectly altering the cognition associated with the emotion. Consequently, emotional experience may be less likely to be re-fired by associated appraisals. With repeated practice, this becomes an over-learned response such that experience in general is more likely to be regarded without harsh judgment.

Mindfulness may also influence emotional experience by enhancing *attentional control*. As a skill, this involves learning to control the focus of attention, not the object being attended to (e.g., observing an emotion as emotion, without an attempt to change the emotion). Enhanced attentional control may maximize the ability to shift focus between different aspects of one's experience (emotions, thoughts, sensations, sounds, textures, tastes, etc.) and reduce rumination regarding emotional events by fostering a “non-elaborative awareness” (Bishop et al., 2004). In addition, attentional control may be useful during times of extreme emotional dysregulation. For example, research has shown that being able to disengage from emotional stimuli may reduce the tendency to experience negative affect (Ellenbogen, Schwartzman, Stewart, & Walker, 2002).

### Opposite action

Many of the mechanisms in DBT can be conceptualized as involving the reduction of ineffective action tendencies linked with dysregulated emotions (Lynch et al., 2006). Foremost in this is the emotion change strategy of *opposite action*. Opposite action involves determining whether an emotion is warranted by the situation and/or interferes with effective behavior; providing exposure to the emotional cues; blocking the behavior prompted by the emotion's action urge; and substituting a behavior that is incompatible with the action tendency compelled by the emotion. As an emotion regulation strategy, opposite action is presumed to work via two mechanisms: *behavioral exposure* and *cognitive modification*.

Based on behavioral theory that acting in a manner consistent with the action compelled by an emotion increases the likelihood that the emotion will reinforce that behavior, opposite action involves exposure to the emotionally evocative

stimulus while engaging in behavior that is inconsistent with the behavior or action tendency prompted by the emotion. For instance, when the emotion is anger, the action urge is to attack, which is often justified when the situation involves boundaries being crossed or important goals being blocked. However, when anger is not justified (e.g., boundaries are crossed without intention) or expressing the anger would be ineffective (e.g., may result in being terminated from a job), then attacking will only exacerbate anger and may make matters worse. In this case, the appropriate opposite action is to gently avoid, both behaviorally and cognitively. One way to maximize avoidance when angry is to have empathy; that is, to see the world from the others' perspective. By blocking attacking behavior, the link between anger and the situation are weakened.

Opposite action also likely influences emotion via *cognitive modification* by changing the patient's perception of his or her emotional experience (Lynch et al., 2006). For example, a patient infers they are braver because they are behaving “as if” there is nothing to fear. In addition, neurobiological research has suggested that certain subcortical neural pathways lead directly to the emotional areas of the brain (e.g., amygdala) bypassing areas associated with cognition (e.g., LeDoux, 1996), and research on changing facial expressions has shown that facial expression can trigger positive feelings and an autonomic response in the absence of cognitive processes (e.g., Soussignan, 2002). Thus, opposite action by changing behavioral actions (e.g., facial expression) may activate subcortical neural pathways that influence the experience of emotion, independent of cognition. This activation, in turn, influences attributions made about the situation, further modulating the emotion.

### Validation strategies

As a core therapeutic skill, validation involves being awake to, accurately reflecting, and conveying acceptance of the patient's behavior, thoughts, or feelings based both on the patient's history or the normalcy of the behavior. In addition, according to Linehan (1993a) validation also involves interacting with the patient in a genuine manner. As an emotion regulation strategy, validation is hypothesized to *reduce emotional arousal and enhance learning*. Research has demonstrated that when goals are blocked or self-constructs disconfirmed, people tend to experience negative emotional arousal, which interferes with cognition and task performance (Gellatly & Meyer, 1992). Thus, validation can reverse this process by confirming self-constructs and helping a patient reach their goals. Thus, emotional arousal decreases and as a result in-session learning is enhanced.

## Summary and conclusions

The present discussion focused primarily on strategies that influence the patient's emotion system or reduce emotion dysregulation, based on the biosocial theory that BPD represents a pervasive dysfunction of the emotion regulation system. From this perspective, we have reviewed relevant empirical literature that supports the biosocial theory and have outlined how mindfulness, opposite action, chain analysis, and validation function to regulate emotional experience. Specifically, we consider the following to be likely mechanisms of change associated with each of these behavioral interventions: (a) exposure, response prevention, and extinction (mindfulness, opposite action, and chain analysis); (b) confirmation of self-constructs reduces aversive arousal and enhances learning (validation); (c) improved attentional control and abilities to turn attention from emotionally evocative stimuli (mindfulness); (d) alteration of cognitive meanings by changing the response to the emotional experience (mindfulness, opposite action); and (e) learning new skillful behavioral responses that are classically conditioned to aversive emotional cues (chain analysis).

DBT has been shown to be an efficacious treatment for BPD and the above conceptualization of both the disorder and its treatment provides a reasonable synthesis of the available empirical literature and theory. As described, DBT is a treatment that targets, among other things, the severe emotion dysregulation problems experienced by individuals with BPD. Despite this, research on predictors of treatment response in DBT has been sparse and further examination of the hypothesized mechanisms of change must be undertaken in order to advance the field of DBT treatment research.

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