

August 2013

Disturbance of Self in Borderline Personality Disorder: An Integrative Approach

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DISTURBANCE OF SELF IN BORDERLINE PERSONALITY DISORDER:
AN INTEGRATIVE APPROACH

by

Ross Lafleur

A Thesis Submitted in
Partial Fulfillment of the
Requirements for the Degree of

Master of Science

in Psychology

at

The University of Wisconsin-Milwaukee

August 2013

ABSTRACT
DISTURBANCE OF SELF IN BORDERLINE PERSONALITY DISORDER:
AN INTEGRATIVE APPROACH

by

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The University of Wisconsin-Milwaukee, 2013
Under the Supervision of Professor Diane Reddy

Disturbance of self has long been recognized as an important aspect of Borderline Personality Disorder. While it has received much attention from theorists, relatively little empirical study has examined the issue. One reason is the difficulty in conceptualizing and operationalizing the associated phenomena. This thesis reviews the theoretical and empirical literature on the self and its disturbance in BPD. It takes an integrative approach, drawing from cognitive, behavioral, psychodynamic, and neurobiological viewpoints. Within this context it presents a model of self disturbance in BPD, organizing processes by time scale as well as types of phenomenological self.

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Borderline Personality Disorder (BPD) is a psychiatric disorder characterized by instability in affect, interpersonal relationships, cognition, behavior, and self. Its recognition within psychiatry is traced to Adolph Stern's description of pathology that was on the borderline between neurotic and psychotic (1938). It was first officially recognized in the Diagnostic and Statistical Manual of Mental Disorders, Third Edition (DSM III; American Psychiatric Association, 1980) and continues to be listed in the current Fifth Edition (DSM-5; American Psychiatric Association, 2013). The DSM-5 includes nine diagnostic criteria for BPD (see Table 1). At least five out of nine criteria are required to meet full criteria for the disorder. The World Health Organization International Classification of Diseases 10 (ICD-10; World Health Organization, 1992) includes a diagnostic category corresponding to BPD that is labeled Emotional Instability Disorder. The prevalence of BPD in the general population is estimated to be 2-6%, and BPD patients make up 20% of psychiatric inpatients. Individuals with BPD have an increased risk of suicide with lifetime risk between 3% and 10%. Non-suicidal self-injury such as cutting is also highly prevalent among BPD patients (Gunderson & Links, 2008).

The three most common presenting complaints of people with BPD are depression, substance abuse, and eating disorders (Gunderson & Links, 2008). Differential diagnosis is important to inform treatment decisions. The fuzzy boundaries between BPD and other disorders make an understanding of the disorder's most distinctive hallmarks crucial in clinical assessment. Disturbances of self represent one of these key features.

Table 1: DSM-5 Criteria for Borderline Personality Disorder

Language pertaining to self disturbance is indicated in boldface type.

1. Frantic efforts to avoid real or imagined abandonment. (Note: Do not include suicidal or self-mutilating behavior covered in Criterion 5.)
2. A pattern of unstable and intense interpersonal relationships characterized by alternating between extremes of idealization and devaluation.
- 3. Identity disturbance: markedly and persistently unstable self-image or sense of self.**
4. Impulsivity in at least two areas that are potentially self-damaging (e.g., spending, sex, substance abuse, reckless driving, binge eating). (Note: Do not include suicidal or self-mutilating behavior covered in Criterion 5.)
5. Recurrent suicidal behavior, gestures, or threats, or self-mutilating behavior.
6. Affective instability due to a marked reactivity of mood (e.g., intense episodic dysphoria, irritability, or anxiety usually lasting a few hours and only rarely more than a few days).
- 7. Chronic feelings of emptiness.**
8. Inappropriate, intense anger or difficulty controlling anger (e.g., frequent displays of temper, constant anger, recurrent physical fights).
- 9. Transient, stress-related paranoid ideation or severe dissociative symptoms.**

There may be an identity disturbance characterized by markedly and persistently unstable self-image or sense of self. There are sudden and dramatic shifts in self-image, characterized by shifting goals, values, and vocational aspirations. There may be sudden changes in opinions and plans about career, sexual identity, values, and types of friends. These individuals may suddenly change from the role of a needy supplicant for help to that of a righteous avenger of past mistreatment. Although they usually have a self-image that is based on being bad or evil, individuals with this disorder may at times have feelings that they do not exist at all. Such experiences usually occur in situations in which the individual feels a lack of a meaningful relationship, nurturing, and support. These individuals may show worse performance in unstructured work or school situations.

The DSM-5 (2013), and the World Health Organization ICD-10 (1992) both include a disturbance in self. This has been a recognized component of the borderline construct since Otto Kernberg included weak identity formation in his definition of borderline personality organization (1967). It is recognized in models of BPD from all theoretical perspectives. For example, Marsha Linehan's reorganization of the BPD diagnostic criteria includes "self dysfunction" as one of five categories (1993).

The current thesis reviews the theoretical and empirical literature on the role of self in BPD and discusses possibilities for future investigation. Following recent efforts to identify areas of convergence in theoretical viewpoints (Chard et al., 2005; Louw & Straker, 2002), this thesis will take an integrative approach. A model of self disturbance in BPD, which synthesizes aspects of psychodynamic, behavioral, and cognitive theory, is proposed.

Clinical Presentation

A disturbance in self is manifested in multiple ways in BPD. One is entirely subjective -- a chronic feeling of emptiness (DSM Criterion 3). Gunderson and Links (2008) call this a "terrifying loss of self" and Wilkinson-Ryan and Westen (2000) call it "painful incoherence." Gunderson and Links emphasize the physical nature of emptiness in BPD, describing it as "a visceral feeling, usually in the abdomen or chest, not to be confused with fears of not existing or with existential anguish." This experience is typically regarded as being intertwined with the individual's interpersonal context.

DSM Criterion 7 is a relatively broad category of disturbance of identity, also termed self-image. This reflects a marked tendency of individuals with BPD to adopt the habits, values, and attitudes of those around them, to the extent that they do not know who they are. There is a concomitant instability of interests, occupations, and commitments over time. This criterion also includes the body image distortions often seen in anorexia nervosa and body dysmorphic disorder and intensely negative judgments of oneself as being “bad” or “evil.”

Finally, DSM Criterion 9 indicates transient, stress-induced psychotic symptoms, including dissociation. These may include depersonalization, derealization and/or paranoid ideation or other cognitive distortions. These symptoms represent disturbances of self inasmuch as they alter self-perception.

The DSM-5 includes an alternative diagnostic model of personality disorders in its appendix. The alternative model is dimensional, intended to reflect the current empirical models of personality pathology. Criterion A in this model includes four elements of personality functioning. Identity and Self-direction describe self functioning, while Empathy and Intimacy describe interpersonal functioning. The BPD criteria in the alternative model includes disturbed self-image, emptiness, and dissociation under the Identity element and instability in goals, aspirations, values, or career plans under the Self-direction element. See Schmeck et al. (2013) for case examples of diagnosis of identity-related dimensions using the DSM-5 alternative model.

Psychological Theories of Self

Self has been addressed in many traditions and beginning long before modern psychology. The concept of self has been a central concern throughout the history of psychology. There have been myriad theories that attempt to account for the self, as well as definitions of the self and related constructs. In order to cogently address the role of self in BPD, it is necessary to have a working model of self in general.

James

William James's (1890) theoretical writings of self are among the first in psychology. Among his major contributions are the concepts of the empirical, objective, self (represented by "me"), and the subjective self, pure Ego (represented by "I"). The empirical self consists of the material self, the social self, and the spiritual self. Of particular interest to the study of a phenomenon as interpersonal as BPD is James's social self. Of this he writes, "A man has as many social selves as there are individuals who recognize him and carry an image of him in their mind." The following passage is particularly salient when considered in reference to the intense, unstable relationships that characterize BPD:

"The most peculiar social self which one is apt to have is in the mind of the person one is in love with. The good or bad fortunes of this self cause the most intense elation and dejection - unreasonable enough as measured by every other standard than that of the organic feeling of the individual. To his own consciousness he *is* not, so long as this particular social self fails to get recognition, and when it is recognized his contentment passes all bounds."

Freud

Sigmund Freud (1947), the founder of psychoanalysis, conceived of a self consisting of interacting, functional parts. His tripartite model included the Ego, the

Id, and the Superego. The Id encompasses unconscious instinctual drives such as sex and aggression. The Ego inhibits the Id based on the constraints of the external world. The Superego internalizes societal values and morals and serves to influence the Ego to act in accordance with them. Both the Ego and Superego extend from conscious to preconscious and unconscious.

Erikson

Erik Erikson (1959) was a psychodynamic psychologist who formulated a stage model of human development, of which the concept of identity was a key component. According to his model, identity (also called ego identity) is an individual's representation or knowledge of oneself. Identity is subject to an ongoing process of development featuring psychosocial crises that must be resolved to progress successfully to the next stage. Identity becomes more stable in adolescence through the resolution of the crisis of Identity versus Role Confusion (or Diffusion). If this is not achieved, then identity will be unstable moving into young adulthood.

Kohut

Heinz Kohut (1971) pioneered a branch of psychoanalytic theory known as Self Psychology, which is an offshoot of Object Relations Theory. Departing from Freudian drive theory, Kohut emphasized the empathic needs of the self. He theorized that responses of a child's caretaker (the "selfobject") to a child's psychological needs were crucial to the development of the self. He formulated a bipolar self with ambitions on one pole, ideals on the other, and innate skills and talents in the intermediate area between the poles. In contrast to other theorists,

Kohut saw narcissism as a healthy aspect of early development in which the selfobject (caregiver) is experienced as indistinguishable from the self.

Skinner

B. F. Skinner's (1953) radical behavioral account of self eschews reification of and assignation of causal agency to internal constructs. Instead, Skinner defines the self as "a functionally unified system of responses." Self-knowledge is also considered to be a repertoire applying the behavior of knowing to one's own overt or covert behaviors. This may be seen as a counterpart to the idea of a self-concept or self-representation, reinterpreted as a behavioral process rather than a mental entity.

Hayes

Current radical behavioral (also known as functional contextual) approaches build on the foundation of Skinnerian theory. Steven Hayes has developed a psychotherapy, Acceptance and Commitment Therapy (Hayes, Strosahl, & Wilson 1999), and a behavioral theory of language and cognition, Relational Frame Theory (Hayes, Barnes-Holmes, & Roche, 2001), that is ostensibly the basis for the therapy. According to this theory, there are three types of self: the conceptualized self (also called self-as-content), the knowing self, and the transcendent self (also called self-as-context). These arise from perspective-taking via verbal behavior (McHugh & Stewart, 2012).

Beck

Aaron Beck, the developer of cognitive therapy, proposed an elaboration on the basic cognitive construct of the schema – the mode - that has implications for a

model of self (1996). He described modes as “network[s] of cognitive, affective, motivational, and behavioral components ... consisting of integrated sectors or suborganizations of personality ... designed to deal with specific demands or problems.”

Dennett

Daniel Dennett (1992; 2003) is a philosopher and cognitive scientist who has written extensively on self and consciousness. He likens self to the idea of center of gravity in Newtonian mechanics. An object’s center of gravity is a theoretical location in space and time that is necessary to describe its motion. Also, altering the distribution of mass in the object can change it. Therefore it has a “spatio-temporal career.” It can play a role in causal explanations of physical events. People are skilled at making predictions based on estimations of the center of gravity. However, there is no physical part of an object, no particle, which *is* its center of gravity. In this sense, it is fictional, yet it also is the subject of scientific study. Dennett posits that the self is a “narrative center of gravity.” There is no neural network, no part of the brain or of the body generally, that *is* the self. The self is a theoretical fiction that a narrative of an individual’s behavior coheres around. Furthermore, by this account there is nothing that prevents someone from having more than one self, if that is what fits the narrative best. Indeed, Dennett asserts, the unity of our selves is due to our skill at creating narratives that explain behavior that is sometimes unified, sometimes not. Dennett subscribes to the information-processing model of the mind, which describes a modular system of functional parts. These parts work in concert, but not always perfectly.

Gallagher

Shaun Gallagher (2000) links philosophical notions of self with cognitive neuroscience. He proposes two selves: the minimal self and the narrative self. The minimal self is the basic subjective experience of self in the present moment, analogous to James's pure ego. The narrative self is equivalent to the objective self, an ongoing narrative construction. Gallagher further points to two components of the minimal self: a sense of agency and a sense of ownership. A sense of agency is the recognition that an action is caused by the self. A sense of ownership is the recognition that it is the self who is acting.

Summary

The model presented in this thesis represents an integrative approach built on the assumption that it would be valuable to draw on literature from a variety of theoretical perspectives. Therefore, finding commonalities among approaches is an important task. One can find several concepts among the disparate theories of self that are largely similar to one another and as such can be useful in parsing the complex phenomena comprising BPD. The oldest theory discussed here is James's, and it is also one of the more generally useful. Following the categories set forth by James as well as Hayes and other developers of Relational Frame Theory, this thesis will use the Objective, Subjective, and Transcendental Selves under the rubric of the Phenomenological Self.

Objective Self. James calls this the empirical self. In broad terms, the objective self is analogous to Erikson's ego identity, Skinner's behavior of knowing

self, Hayes's conceptualized self, and the narrative self expounded by Gallagher.

With respect to narrative point-of-view, it constitutes the third-person self.

Subjective Self. This is the first-person self. It is analogous to James's pure ego and Hayes's knowing self. This is "who" experiences sensations, feelings, and thoughts in the present moment. It may be thought of as the subjective experience of Gallagher's minimal self.

Transcendental Self. Hayes proposes a transcendental self (also called self-as-context) that is essentially the present moment experience of self (Gallagher's minimal self) from the perspective of an observer. In this way it is similar to Freud's concept of the observing ego.

Multiplicity. One common element among many of these approaches is a multiplicity of self. The self is seen as a system of parts, or at least organized around multiple divisions of the behavioral stream. Despite their divergent theoretical assumptions, Beck's modes, Dennett's account of a center of narrative gravity, and Skinner's account of a functionally unified system of responses bear strong resemblances to one another. In addition to the theorists discussed here, many others have proposed similar concepts, including Carl Jung (1968), Roberto Assagioli (2000), John Rowan (2005), Fritz Perls (1951), Elizabeth Howell (2005), and Richard Schwartz (1995). The model presented in this paper will use the term *functional selves* to refer to these divisions of self.

It may be that functional selves approach true vertical partitions of personality (Rowan uses the term "subpersonalities"). In Schwartz's Internal Family Systems therapy, for example, clients and therapists interact with these "parts of

self” as if speaking with another person. Perls’s famous Gestalt Therapy empty chair exercise takes a similar approach. Many trauma and dissociation researchers such as Howell see the dramatic dissociation of selves such as that seen in Dissociative Identity Disorder as an extreme splitting of normal multiplicity due to trauma. Others see multiplicity as purely pathological, not on a normal spectrum – in fact, some think Dissociative Identity Disorder is iatrogenic in origin and not an indication of any underlying structure (Paris, 2012). The model presented in this thesis is based on the position that multiple functional selves are, to some degree, independent, are a normative phenomenon, and include cognitive, affective, motivational, and behavioral levels. Apart from that, the model is agnostic.

Theories of Disturbance of Self in BPD

Psychodynamic Theories

Beginning in the 1960s, the quantity of psychodynamic literature on BPD, or, to use Otto Kernberg’s term, Borderline Personality Organization, greatly expanded. Most of the modern psychodynamic theorizing draws on object relations and/or attachment theory. They share an emphasis on mental representations of self and other.

Kernberg. The theories of Otto Kernberg (1967; 1975; 1989) have been among the most influential in the clinical literature on BPD. Kernberg applies object relations theory to psychodynamic treatment of BPD clients. They form the basis of one of the modern treatments developed for BPD, Transference Focused Psychotherapy (Clarkin, Yeomans, & Kernberg, 2006). His theory posits that various representations of self and other are internalized during development, with each

self-other pair joined by a particular affect. Kernberg states that disturbances in the self as well as in interpersonal relationships are the result of a failure to integrate positive and negative representations of self and other. He theorizes this as a psychological defense called “splitting” – the active separation of the good image of self or other in order to protect it from contamination by the bad image. Kernberg places a particular emphasis on the role of aggression in the development and maintenance of BPD. He says that an excess of hostile affect is a hallmark of BPD.

Masterson. James Masterson (1976) emphasizes failures of individuation in the genesis of BPD. He postulates that mothers of children with BPD often have BPD themselves. Building on Margaret Mahler’s account of self development in children and D. W. Winnicott’s ideas of the “true self” and “false self,” Masterson sees the primary treatment goal in psychotherapy with BPD clients as the activation of the real self. According to his theory, a child develops a false or defensive self in an effort to please his/her attachment figure. This false self can become predominant when the emergence of the real self is disrupted during development.

Adler/Buie. Gerald Adler and Dan Buie (1982) also take a developmental approach. They explain intolerance of aloneness and difficulty with self-soothing as the results of a failure to internalize a relationship with an empathic parental figure. This leaves an individual without a soothing “introject” to utilize when in emotional distress. Adler and Buie see a primary task of psychotherapy with borderline clients as the development of such introjects via the therapeutic relationship.

Fonagy and Bateman. Peter Fonagy and Anthony Bateman (2006) developed a psychodynamic treatment for BPD called Mentalization Based

Treatment that also arises from developmental theory. They draw heavily on the attachment theories of Bowlby and Ainsworth. Their essential premise is that BPD is characterized by failures in mentalizing, or conceiving of the mental states of self and others. Mentalization is similar to the construct of Theory of Mind in cognitive psychology, although Fonagy and Bateman emphasize that mentalization is mostly preconscious and dependent on affective responses. Mentalization is thought to develop via attachment relationships, and thus the mentalization failures underlying borderline pathology arise from disturbed attachments. Like Masterson, Fonagy and Bateman incorporate a false self in their theory, calling it the alien self. The alien self is seen as an internalized representation of the experience of the attachment figure that serves as a substitute for an authentic sense of self. It disrupts the true self and leads to dysfunctional interpersonal behaviors in the service of establishing coherence.

Gunderson. John Gunderson (Gunderson & Links, 2008) was primarily responsible for the inclusion of BPD in the DSM, starting with the Third Edition (American Psychiatric Association, 1980). Informed by theorists such as Masterson, Adler, and Fonagy, Gunderson regards intolerance of aloneness as the core of BPD.

Cognitive-Behavioral and Integrative Theories

Linehan. Marsha Linehan's biosocial model of BPD underlies her cognitive-behavioral treatment, Dialectical Behavior Therapy (1992). Linehan posits that the core processes of BPD are emotional dysregulation and impulsive behavior. The etiology is linked to biological predisposition to those two processes, interacting with an invalidating environment. According to Linehan, self-disturbance is partly

attributable to overwhelming emotional intensity and instability (1992; Heard & Linehan, 1993). Intense, unstable emotion leads to unstable behavior and cognition. Consequently, the experience of self as well as the feedback from others can be inconsistent and leads to an unstable self-concept. Additionally, excessive dependence on others as well as attempts to inhibit emotional responses also disrupt a sense of self. She also offers a socio-cultural perspective, hypothesizing that people have relational selves that tend to be invalidated in the context of individualistic Western culture.

Kohlenberg and Tsai. Robert Kohlenberg and Mavis Tsai (1995), developers of Functional Analytic Psychotherapy, offer a functional contextual account of self-disturbance in BPD, building on Skinner's explanation of self. In their model, a weak sense of self results from an individual's behavior being too publicly controlled.

Young. Jeffery Young developed Schema Therapy (Young, Klosko, & Weishaar, 2003), a cognitive therapy for BPD influenced by theorists such as Aaron Beck. Young's theory focuses on the maladaptive cognitive schemata that develop in children in the service of meeting emotional needs. He also identifies schema modes that correspond to specific patterns of affect and behavior.

Ryle. Ryle (1995; 1997) proposed a model of BPD supporting his therapeutic approach, Cognitive Analytic Therapy, which combines cognitive and psychodynamic theory. He called it the "multiple self states model" because he proposes partially dissociated self states to explain the shifts in behavior seen in BPD.

Empirical Investigation of Self-disturbance in BPD

While there is a consensus on the importance of a disturbance of self in the conception of BPD, as well as an abundance of theory to account for the phenomenon, it remains the feature of BPD with the least empirical investigation. This is no doubt in part due to the variegated and multifaceted nature of theories of the self and to the difficulty in reliably discerning and measuring self-related phenomena. Thus there is no operational definition with much degree of support. However, a few recent empirical studies have examined self disturbance in BPD from different perspectives.

Wilkinson-Ryan and Westen (2000) conducted a study of clinicians' reports of identity disturbance. They sampled each of 95 clinicians (psychologists, psychiatrists, and social workers) about a single patient. Clinician reports of patients with BPD (n=34), patients with other personality disorders (n=20), and patients with no personality disorder (n=41) were compared. Principal components analysis of the survey items yielded four factors: role absorption, painful incoherence, inconsistency, and lack of commitment. They also ran a multiple regression analysis to determine to what extent the four identity factors would predict a BPD diagnosis above and beyond gender and sexual abuse history. They found that gender and sexual abuse alone predicted 25.0% of the variance. Adding the four identity factors accounted for an additional 20.0% of the variance, a highly significant change ($F=7.61$, $df=4, 70$, $p<0.001$).

Koenigsberg et al. (2001) tested correlations between measures of the BPD-related traits of impulsive aggression and affective instability with measures of

identity and interpersonal disturbance as well as the utilization of psychodynamic defense mechanisms. They found that affective instability was significantly correlated with identity disturbance and feelings of emptiness.

Jørgensen (2009) utilized Berzonsky's social-cognitive construct of identity style to study identity disturbance in BPD. Berzonsky outlined three identity styles: information seeking, normative, and diffuse-avoidant, in order from most adaptive to least. Jørgensen administered Berzonsky's Identity Styles Inventory to a BPD group and a control group. He found that the level of information seeking style was significantly lower and that of diffuse-avoidant style was significantly higher in a BPD group as compared to a control group.

Adler, Chin, Kolisetty, and Oltmanns (2012) examined identity disturbance using Dan McAdam's framework of narrative identity. The methodology utilized was qualitative analysis of responses to a structured "life story" interview. Coders identified instances of *a priori* defined themes. In this study, the themes of agency, communion, communion fulfillment, and narrative coherence were coded.

Similarly, Jørgensen (2012) studied characteristics of the autobiographical memories of a BPD group, an Obsessive-Compulsive Disorder (OCD) group, and a control group. He used Rubin et al.'s Life Story Event Task (2009) to elicit autobiographical memories. Using the concept of the cultural life script, a standard account of major life events in a given culture, Jørgensen generated typicality scores for participants' narratives in comparison with a Danish life script. He also scored memories on specificity and categorized them using a "high-point analysis" of their narrative structure. The BPD group reported more self-rated negative events, less

typical life events, and more memories that were coded as having a “leap-frogging/disorganized” style. Jørgensen extended his earlier findings on identity style in BPD in this study, finding that the BPD group had a significantly higher diffuse identity style score compared to both the control group and the OCD group.

Taken together, these studies provide some evidence of self/identity disturbance in BPD that distinguishes it from other disorders. It manifests in multiple ways, including a weak or unstable subjective sense of self, and in self-relevant behaviors such as inconsistency and incoherence in the narration of autobiographical events.

Neurobiology: The Default Mode Network

A promising avenue for identifying the neural correlates of self, and, by extension, disturbances in self like those seen in BPD, is the study of the Default Mode Network (DMN) of the brain. The identification of the DMN was entirely due to neuroimaging research. Most imaging studies scan a participant’s brain while he/she is performing a task. To establish a “baseline” for comparison, it is standard to also perform a scan while participants are in a “resting state,” meaning not engaged in the experimental task. The accumulation of data across imaging studies revealed that the resting state is reliably characterized by significant activity in a network of brain structures. These include the ventral medial prefrontal cortex (vMPFC), the dorsal medial prefrontal cortex (dMPFC), the posterior cingulate and retrosplenial cortex (PCC/Rsp), inferior parietal lobule (IPL), and the hippocampal formation (HF+; includes the hippocampus, the entorhinal cortex, and the surrounding cortex) (Buckner et al., 2008).

Because DMN activity is anticorrelated with tasks that require externally focused attention, it is known as a task negative network. Additionally, structures of the DMN are associated with active tasks that require internally directed attention. So, the DMN is activated both when an individual is passive and at rest (hence its “default mode” status), and when he/she is actively directing attention to internal mentation. Activity in the DMN is associated with stimulus-independent thought, spontaneous cognition, and self-referential processing. Buckner et al. (2008) observed that activity in the DMN is associated with a wide variety of cognitive tasks, including autobiographical memory, envisioning the future, theory of mind, and moral decision-making. He proposed that the core function of the DMN is mental simulation, “imaginative constructions of hypothetical events or scenarios.” For example, structures of the default mode network have been associated with a sense of agency, one aspect of both the subjective and narrative selves that appears to be affected in people with BPD. Farrer and Frith (2002) operationalized agency as attributing an event in a computerized task to oneself, as opposed to an experimenter that was also influencing the task.

Immordino-Yang (2012) proposes two brain systems – the “looking out” system of the task positive networks and the “looking in” system of the task negative networks. She offers the hypothesis that the brain “at rest” and the correlated default mode activity is important in healthy socio-emotional functioning, and coins the term “constructive mind wandering” to describe the spontaneous cognition that supports a sense of self.

The activation patterns and function of the DMN provide some evidence supporting Gallagher's minimal and narrative selves. The DMN is implicated in autobiographical memory retrieval and constructing mental simulations of past events or possible future events. Therefore it aligns closely with the concept of narrative self, as it would putatively be involved in constructing and imagining the self as a narrative through time. The task positive networks correspond in function to the minimal self in that they are active during present moment attention. However, the DMN is also implicated in self-referential processing and thus would be necessary to contribute a sense of agency and ownership. Following the three divisions of self outlined in this paper, it is possible that the objective self corresponds to dominant activity in the DMN, while the subjective self corresponds to dominant activity in the task positive networks. The transcendental self may be associated with some measure of the decoupling of these two networks. There is some evidence to support the latter hypothesis. Reduced functional connectivity between components of the DMN and task positive networks has been found in resting-state scans of experienced meditators (Farb et al., 2007).

Jack et al. (2013) challenge the hypothesis that the activation of the DMN versus the task positive network is singly characterized by internally versus externally focused attention. Their imaging study found that performing social reasoning tasks was associated with DMN activation and task positive network deactivation, while physical/mechanical reasoning tasks showed the opposite activation pattern. Both sets of tasks required external attention, suggesting that task domain is an important predictor of which network is activated. Additionally,

the DMN was more active during the social reasoning tasks than during a rest condition. Clearly, the DMN is a new research area and more revelations about the precise nature of its function will likely be forthcoming. However, it seems clear that the DMN and task positive networks are distinct systems likely representing two cognitive modes that are often antagonistic in activation, yet under some conditions are also simultaneously active.

Aberrations in DMN activity have been associated with various types of psychopathology, including depression, anxiety, attention deficit hyperactivity disorder, schizophrenia, and autism. Broyd et al. (2008) identify four types of DMN patterns associated with psychopathology: dysfunction in the transition between rest to task; reduced or excess functional connectivity; differences in the reciprocal relationship and strength of the anticorrelation between the DMN and task-positive networks; and differences in activation of the particular subsystems within the DMN that are linked to specific cognitive functions. In general, these findings indicate that disturbances in the relationship between systems of introspection and externally focused attention (or perhaps socio-emotional and physical domains, according to Jack et al., 2013), and in specific areas of functioning within each system, are associated with a broad range of psychopathology.

A small number of imaging studies have examined differences in the DMN structure and function of BPD participants and comparison groups. Wolf et al. (2010) compared resting-state fMRI scans of BPD participants and healthy controls. They found reduced functional connectivity in the left cuneus and increased connectivity in the fronto-polar cortex and the left insula. Kluetsch et al. (2012)

conducted an fMRI study examining DMN activity during pain processing. Like Wolf et al., they found differences in DMN functional connectivity between a BPD group and a control group. Their results showed reduced connectivity in the left retrosplenial cortex and the left superior frontal gyrus.

Understanding the role of the default mode network has the potential to inform BPD research and treatment. Its importance to social cognition and self-relevant processing and its integration into emotion processing situate it at the neural nexus of core areas of functioning that are disturbed in BPD. It could be an important biological link between the symptoms of affective and interpersonal instability and self/identity disturbance. Further, its pattern of activation antagonistic to other important brain networks may have implications for the moment-by-moment experience of BPD as well as practical intervention techniques. For example, mindfulness training, a core skill in Dialectical Behavior Therapy for BPD, is associated with alterations in the functional connectivity of the default mode network (Farb, Segal, & Anderson, 2013; Prakesh et al., 2013; Farb et al., 2007)

Discussion

There is a rich clinical and theoretical literature on BPD representing psychodynamic, cognitive, and behavioral viewpoints. Recent decades have also seen a profusion of empirical research on BPD symptomatology, treatment, individual differences, and neurobiology. There are currently several different treatments that have been designed specifically for BPD, including Dialectical Behavior Therapy (Linehan, 1993), Transference Focused Psychotherapy (Clarkin, Yeomans, & Kernberg, 2006), Mentalization Based Treatment (Fonagy & Bateman,

2006), Schema Therapy (Young, Klosko, & Weishaar, 2003), and Cognitive Analytic Therapy (Ryle, 1995). The attitude toward BPD in the mental health community is shifting due to these developments. BPD is no longer seen as intractable or untreatable. If a person receives a proper diagnosis and has access to knowledgeable treatment (although the mental healthcare system has a long way to go on both counts), he or she can improve.

Even with this positive momentum, the aspect of BPD with the least empirical study is disturbance in self. It thus stands as an opportunity for a fuller understanding of the processes at work in BPD. With the current effective treatments in use, there are still many people that do not respond well. Additionally, a more complete recovery may be possible for those that do respond. Advancements in models of self and self disturbance could make further refinements in treatment possible.

This review has provided a brief survey of the diverse theories and experimental research that are represented in the literature. There are some divergences in extant theories. The psychodynamic literature tends to emphasize self disturbance in relation to attachment and interpersonal difficulties as a primary treatment target. Cognitive-behavioral theories emphasize emotion dysregulation and behavioral impulsivity. While Linehan addresses self and identity in her writings, Dialectical Behavior Therapy itself is focused on skills that may help promote a healthier sense of self. It does not necessarily assess or treat self-disturbance overtly.

Table 2: Processes of Self Disturbance in BPD			
Phenomenological Selves	Time Scale		
	Present Moment	Short-term	Long-term
Objective (Empirical/ Conceptualized/ Narrative) Self	<ul style="list-style-type: none"> • rapidly shifting self states • splitting/dichotomous thinking • negative evaluation • cognitive distortions/misattributions 	<ul style="list-style-type: none"> • Inconsistent feedback from social environment • difficulty explaining behavior • unstable identity 	<ul style="list-style-type: none"> • Unstable social affiliations, values, roles, attitudes, beliefs • Incoherence of life narrative
Subjective (Knowing) Self	<ul style="list-style-type: none"> • Emptiness • affective instability • memory impairment • dissociation • self-loathing • confusion • cognitive fusion 	<ul style="list-style-type: none"> • incoherence • ambivalence 	
Transcendental Self	<ul style="list-style-type: none"> • Disconnection from transcendental self 	<ul style="list-style-type: none"> • Rigidity • Avoidance 	

A Model of Self-Disturbance in BPD

In the service of organizing the phenomena associated with self-disturbance in BPD, it would be informative to proceed from an assumption that the components that have been proposed as the core processes of BPD are tightly intertwined. In Linehan's model it is emotion dysregulation; in Gunderson's model it is intolerance of aloneness. It is reasonable to think of these as two sides of the same coin. Emotion dysregulation leads to a chaotic inner experience of everyday life. Feeling unable to manage daily existence without the coherence provided by others, individuals with BPD become excessively dependent and thus intolerant of aloneness. While this can lead to cognitive distortions and misinterpretations (e.g., "frantic efforts to avoid real or imagined abandonment," American Psychiatric Association, 2013), the intense fear of aloneness is reasonable in the sense that it is congruent with unbearable distress. At the same time, intolerance of aloneness feeds back into

emotional dysregulation, as intense negative affect is evoked in response to everyday experiences of separation from others.

The processes implicated in self disturbance in BPD can be organized by type and temporality (Table 2). Present moment processes are on a moment-to-moment scale and can modulate throughout each day. Short-term processes are relatively proximal, taking place over days, weeks, and months. Long-term processes extend into years and through major life changes. Processes across time unfold in a telescoping fashion: medium term processes are emergent properties of ongoing short-term processes, and long-term processes are emergent properties of ongoing medium term processes. Additionally, processes at different temporal levels support and intensify each other; likewise, processes affecting different types of self feed into each other.

Present moment processes. A possible explanation for the moment-to-moment instability of self associated with BPD is that it reflects an exaggeration of the normal discontinuities of self that are typically negotiated by higher-order regulatory systems. This idea draws on the multiplicity of self suggested by Ryle, Young, Dennett, and others. It also builds on the “modularity of mind” models of cognitive architecture, which propose that the brain has evolved as a system of modules with independent functions (Fodor, 1983; Carruthers, 2006). The system of multiple selves may be thought of as functionally organized consortiums of modules with selective access to behavioral repertoires. These selves sometimes work seamlessly in concert, but do not march in lock step, and often are competing with each other. Communication between functional selves (Ryle’s self-states or Beck’s

modes) is not always adequate. Control systems nevertheless serve to regulate and coordinate the activity of these selves and thus maintain some measure of consistency and coherence in behavior. Borderline pathology may be characterized by the overwhelming of control systems by intense, rapidly engaged affective responses, especially negatively valenced ones. This process may be further facilitated by weakened control mechanisms responsible for affective regulation and, in keeping with a tendency toward impulsivity, behavioral regulation. Neuroimaging studies comparing people with BPD to healthy controls when presented with negative stimuli support this general mechanism (see Ruocco, Amirthavasagam, Choi-Kain, & McMain, 2013, for a meta-analysis). With control systems impaired, the various functional selves have unchecked access to behavioral output systems. For example, evidence of the orbitofrontal cortex's role in switching between automatic and goal-directed actions raises the possibility that its disruption may prevent executive functions from superseding automatic behavior patterns (Gremel & Costa, 2013). If multiple functional selves are activated with comparable affective intensity, instability characterized by sudden and dramatic shifts in behavior and affect may result. These selves are, by definition, narrow in range. Some may be particularly narrow, which may account for the description of primitive defenses and regression in the psychodynamic literature, and the "child" schemata in Young's theory.

Kernberg's object relations theory of BPD proposes self-other object pairs, each joined by a specific affect. These pairs can be seen as analogous to the functional selves in the current model in that they are functionally organized

(associated with a particular interpersonal context) and recruit specific affective, cognitive and behavioral repertoires. Splitting and dichotomous thinking can be explained similarly. Intense, dysregulated affect is extreme and thus polarized by definition. An intensely activated self that is interpersonally affiliative in function will be associated with idealization; likewise, an intensely activated self that is protective in function will be associated with devaluation. Compounding this effect is that an activated self may be narrow in its behavioral repertoire and thus respond in inappropriate and maladaptive ways, such as intense expressions of anger.

Affective instability and exaggerated discontinuities in experience and behavior disrupt the narrative self in the moment. There are two effects that may contribute to this. One is that the attenuated regulatory functions and narrowing of behavioral repertoires preclude higher cognitive processing. Thus the capacities to view current events in context, take different perspectives, retrieve relevant autobiographical memories, mentalize, and make meaning, are impaired. The other effect is that the individual's thoughts, emotions, and behavior – the content of the objective self - are more chaotic, and thus more difficult to process. In sum, impaired processing abilities applied to events that are difficult to process cause a disruption in moment-to-moment conception of the narrative self. This account is consistent with Koenigsburg et al.'s (2001) finding of an association between affective instability and identity disturbance (objective self) as well as emptiness (subjective self).

Finally, the ability to contact the transcendental self via perspective taking is disrupted. While the transcendental self is conceived as an ongoing property of the

phenomenological self, an individual can be cognitively engaged with it or disengaged from it – or, perhaps more accurately, engaged in taking a different perspective. Engaging the transcendental self serves to “loosen” cognitive and behavioral processes, that is, promote flexibility of thought and action. This is a central construct in Acceptance and Commitment Therapy called psychological flexibility (Hayes, Strosahl, & Wilson, 1999). The result of disconnecting from the transcendental self is cognitive and behavioral rigidity, perseveration, and avoidance. This perpetuates the pathological processes of BPD.

Short-term processes. The gap between an individual’s emotional experience and their feedback from others causes disorganization in the process of self knowledge over longer periods of time. Individuals with BPD that have not received any diagnosis are in the same predicament as other important actors in their lives (friends, family members, intimate partners): they do not understand how to reconcile borderline experience with that of “normal” emotional experience. Without more accurate explanations for their emotions and behavior, what usually are substituted are negative attributions for self and others. An evaluation of another may be: “I feel so bad that this other person must have made me feel that way, therefore they are bad and dangerous.” Judgments from self or others may include characterizations as manipulative, lazy, irrational, crazy, callous, cruel, or mean.

This disorganizing effect is particularly strong in interpersonal relationships. Whether splitting is an active process à la Kernberg or is a specific case of dichotomous thinking - polarity caused by emotional dysregulation - does not

change the essential experience. Initial elation and idealization of a partner is eventually followed by devaluation. Gradually the experience of the partner, the relationship, and the self in the relationship, is unbearably polarized. The affective experience, and thus cognitive evaluations and interpersonal behavior, jolts between extremes of positive and negative valence. This is not only exhausting and distressing for both partners, but because individuals with BPD may adopt identity characteristics of those around them, volatility in a close relationship translates into volatility in identity. At the subjective level, feelings of emptiness and fear of abandonment arise. A profound feeling of ambivalence may also accompany relationship volatility. This is because of two strongly polarized motivations: to preserve the relationship at all costs to prevent coming unmoored and feeling completely alone, and to escape the pain and distress that accompany the emotional vicissitudes of the relationship.

Long-term processes. As BPD symptomatology persists across life changes, long-term processes are manifest. Dramatic and frequent shifts in preferences, attitudes, values, friends, and careers may occur. Endings of relationships, particularly longer-term ones, may be marked by an objective difficulty in constructing the narrative of the relationship without the support of the partner, as well as a subjective sense of loss of identity and emptiness. Intolerance of aloneness may propel an individual with BPD to quickly seek out another relationship.

Over the long-term, the difficulty constructing a narrative identity is writ large. As Adler et al. (2012) report, life story narratives of individuals with BPD are marked by greater incoherence and less sense of agency than narratives of those

without BPD. Not only do the cumulative effects of instability lead to a difficulty constructing a coherent life narrative, there is also a sense that the self is not an active agent within a narrative, but a passive object of external events. To borrow Dennett's term, a person with BPD may not be able to reliably locate a center of narrative gravity in their autobiographical accounts. Again, one contributing factor may be the inherent difficulty in explaining behavior and relationships that were influenced by BPD symptoms without even knowing to make reference to BPD, let alone account for its complex sequelae. Another possible influence is that major life changes tend to evoke the most stress and emotion, heightening the disorganizing effect of BPD on crucial junctures in a long-term life narrative.

The false or alien self featured in the theories of Masterson and Fonagy is thought to be due to early attachment problems. An alternative (but not necessarily incompatible) explanation is that this phenomenon is an ongoing reflection of unstable identity and the degree to which people with BPD adopt the characteristics of others around them. Thus the false self may be a public persona that is continually constructed to adapt to social demands. Given the self disturbance of BPD and the impetus to hide the ongoing distress of BPD experience in order to adapt socially, this false self may be substantially less informed by the subjective self than the average public persona. An example of this in the BPD literature is Marsha Linehan's description of apparent competence, "the tendency of borderline individuals to appear competent and able to cope with everyday life at some times, and at other times (unexpectedly, to the observer) as if the observed competencies did not exist" (1993). Another is the "quiet borderline patient" or the "as-if

personality” described by Helene Deutsch (2007, originally published 1942) and further elaborated by Vance R. Sherwood and Charles C. Cohen (1994). In Fonagy’s theory, this is a manifestation of “pretend mode,” in which an individual’s internal mentation is disconnected from external reality and yet experienced as real (Fonagy & Bateman, 2006).

Conclusion

BPD has recently received much-needed empirical examination. Disturbance of self is regarded as an important aspect of BPD and represents an opportunity for further research that will ideally lead to improved outcomes for people with BPD. This thesis has attempted an integrative approach that draws on many theories to find commonalities and unique contributions. BPD is a complex and formidable challenge and those affected by it would benefit from the interdisciplinary collaboration from all corners of the mental health community.

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