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REFLECTIVE FUNCTIONING IN PATIENTS WITH PANIC DISORDER WITH OR
WITHOUT AGORAPHOBIA: AN EXAMINATION OF THE EFFECTS OF COMORBID
PERSONALITY DISORDERS

by

TEMPE A. WATTS

A dissertation submitted to the Graduate Faculty in Psychology in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The City University of New York

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This manuscript has been read and accepted for the
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ABSTRACT

Reflective functioning in patients with panic disorder with or without agoraphobia: an examination of the effects of comorbid personality disorders

by

Tempe A. Watts

Advisers: Diana Diamond, Ph.D. and Barbara Milrod, M.D.

This study examined reflective functioning (RF) in patients who experience a combination of panic and personality disorders (PD). Despite broadly accepted beliefs that comorbid personality and Axis I disorders indicate poor prognosis, limited research has examined how these two axes interact within a panic disorder population. The Diagnostic and Statistical Manual of Mental Disorders typifies personality disorders as fitting different clusters categorization: cluster A referring to “odd” personality disorders, including schizoid, schizotypal and paranoid PDs; cluster B referring to “dramatic” personality disorders, including borderline, narcissistic, histrionic and antisocial PDs; and cluster C referring to “anxious” personality disorders, including avoidant, dependent and obsessive compulsive PD. Reflective functioning is a measure for the concept of mentalization, or an individuals’ ability to understand mental states in themselves and others link their mental states to behavior and symptoms, while bearing in mind the inferential nature of this process.

This study proposed that in a panic disorder sample: the presence of any personality disorder will yield predictably low RF scores; that the presence of cluster B PDs will predict low RF scores; and that the interaction of cluster B with cluster A or cluster C PDs will predict low RF scores. This project determined that within this sample, the presence of personality disorders is not related to RF score. Furthermore, no relationship between cluster B PDs and RF was

found and no statistically significant interaction was determined. However, a statistical trend toward significance for a three way interaction between clusters A, B and C with regard to RF scores was evident, although the nature of this relationship was not able to be specified by this dataset. The results suggest that in a sample with the primary diagnosis of panic disorder, RF does not specifically correlate with differences in personality disorders. This project may demonstrate limitations in the use of RF to distinguish personality disorders for patients with panic disorder. Further study into the relationship between PDs and panic disorder is warranted, particularly with regard to what aspects of panic or personality symptomatology become amplified or less observable and are primarily impairing for the patient.

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CHAPTER 1: INTRODUCTION

The treatment of patients with panic disorder, with or without agoraphobia, has a rich body of research supporting efficacy of several types of psychotherapies. Outcome researchers have only just begun to examine the factors that account for the variability in responsiveness to treatment, such as patient characteristics and therapist implementation (Boswell et al., 2013). In particular, patients who experience a combination of Axis I and personality disorders drop out of psychotherapy at high rates and have comparatively lower response rates to treatment than patients without personality disorders (McGlashan, 1986; Stone, 1993; Fournier et al., 2008) and may suffer serious physical health conditions (El-Gabalawy et al., 2010). Despite the broadly accepted notion that the presence of personality disorders in addition to Axis I symptoms indicates poor prognosis, there has been limited systematic clinical trials research examining how these axes, using criteria defined by the Diagnostic and Statistic Manual, interact (Skodol et al. 2014; Telch et al, 2011, Siever & Davis, 1991). Further research is needed to understand how admixtures of syndromes may affect various aspects of functioning and the outcome of therapeutic interventions. This project will study patients with panic disorder with and without personality disorders to investigate whether or not this relationship interferes with response. Specifically, the construct of mentalization (Fonagy, Gergeley, Jurist & Target, 2002), which will be further described below, will be taken into account as a cognitive-affective capacity that may differ across diagnoses.

The Diagnostic and Statistical Manual, 4th edition Text Edition, (DSM-IV-TR)¹ organized psychiatric diagnosis across five axes, to account for a range of factors that were

¹ For the purposes of consistency, the DSM-IV-TR will be referred to in the past tense, to acknowledge the publication of the DSM-5 (APA, 2013). However, diagnostic criteria discussed in this study will exclusively refer to DSM-IV-TR standards, as the measures involved were based on that edition.

thought to have an impact on mental health. Axis I referred to clinical syndromes, including panic disorder and other anxiety and mood disorders (disorders of “state”), while Axis II referred to developmental disorders, and personality disorders (PDs) (disorders of trait). The division and standardization of psychiatric classifications based on potentially episodic phenomenology (Axis I) and personality disorders (Axis II) has been operationalized since the construction of The Diagnostic and Statistical Manual, 3rd edition (DSM-III, 1980), and used until the recent publication of the DSM-5.

Clinical trials have improved our ability to understand and develop effective treatments for discrete disorders. Panic Control Therapy (PCT, Barlow, Raffa, & Cohen, 2002), a cognitive behavioral therapy, was specifically designed and studied for panic disorder, and found to be efficacious. A multicenter controlled trial compared PCT, imipramine and their combination, with pill placebo using the measure the Panic Disorder Severity Scale (PDSS; Shear et al., 1997; Shear et al., 2001) as the primary outcome measure to record response. Intent to treat (ITT) analysis found that PCT alone yielded response rates at the end of three months of weekly 90 minute treatment sessions averaging at 48.7%, 39.5% after six months of monthly maintenance treatment, and 32.4% six months after treatment termination (after 9 months of therapy; Barlow, Gorman, Shear & Woods, 2000). ITT analysis of combined treatment of imipramine and CBT yielded response rates at 60.3% at end of weekly treatment, 57.1% after six months of monthly maintenance treatment, and 25.0% six months after treatment termination. Meta-analyses of CBT studies have found that on average, 40% of patients entered into randomized controlled trials of PCT are non-responders (Levitt, et al., 2001; Mitte, 2005), with response rates ranging 29-48%.

The reasons for non-response to Cognitive Behavioral Therapy in panic disorder have been inadequately characterized, although frequently discussed. Studies of CBT have reported mixed effects of Axis II co-morbidity on treatment response. Hoffart (1994) found worse CBT outcomes for panic disorder inpatients with co-morbid dramatic and avoidant traits (N = 50 with panic disorder and agoraphobia). However, Dreessen et al. (1994) reported treatment effects were not diminished by the presence of co-morbid personality disorders in 2 open trials of standard, time limited CBT (N = 31, N= 57 for panic disorder inpatients with comorbid personality disorders). Bienvenu and Brandes (2005) argued against what they describe as the “gross overgeneralization” that extremes in any personality traits with comorbid anxiety disorders adversely affect response to treatment. However, in a descriptive paper, Ozkan and Altindag (2005) found that panic disorder patients with comorbid personality disorders were more severely ill across mood, anxiety and psychosocial domains than panic disorder patients without personality disorders.

Panic Focused Psychodynamic Psychotherapy, a manualized, time-limited psychodynamic psychotherapy for panic disorder, has been studied far less extensively, but a pilot study showed efficacy (PFPP, Milrod, Busch & Cooper, 1997; Milrod et al., 2007) and was replicated by Beutel and colleagues (2013). In the 2007 study, Axis II/Cluster C personality disorders (“avoidant” PDs, as described below) moderated treatment response to PFPP (N = 24 with PDs, N = 19 patients with panic disorder and Cluster C co-morbid personality disorders) such that subjects with panic disorder and a comorbid Cluster C disorder improved to a greater extent than those without Cluster C comorbidity, an unusual finding. Small sample size did not allow for clear distinctions to be made between cluster C and other PDs. In both CBT and PFPP, personality disorders may have some influence on treatment outcome, although the nature of this

impact has been under researched. The Practice Guidelines for Panic Disorder for the American Psychiatric Association (APA, 2009) recommend that research continue to explore the effectiveness of psychodynamic psychotherapies in the treatment of panic disorder with other co-occurring disorders such as co-morbid personality disorders.

Personality disorders, as defined by DSM-IV-TR, are rigid or ingrained maladaptive patterns of thinking, feeling or behaving.² PDs have been vague and poorly described, with similar or overlapping criteria. High incidence of co-morbidity between personality disorders are consistently found (Craske et al., 2009) but it is unclear if the prevalence of co-morbid diagnoses is due to verifiable and distinguishable co-occurring disorders. Vague and similar classifications may account for some portion of high rates of co-morbidity. Further examination of patients with co-morbid disorders may lend insight into underlying pathology and help sharpen definitions and refine distinctions between personality disorders. Using the models of Axis II disorders accepted in the DSM-IV-TR, this paper will further clarify variance between people who may fall into these different diagnostic categories.

Patients with anxiety and comorbid personality disorders complain of more acute symptoms, such as severity of anxiety, than anxiety patients without personality disorders (Van Velzen & Emmelkamp, 1999). The reasons for this have not been firmly established but rigid personality factors may limit how individuals respond to anxiety, which may in turn exacerbate anxiety (Tonna et al. 2011; Uguz et al. 2009). In fact, the case for a dimensional system for

² This study used the ADIS-IV and SCID-II to assess Axis I and Axis II diagnoses and therefore adheres to the DSM-IV definitions. However, definitions in the DSM-5 for both panic disorder and personality disorders are essentially as they were in the DSM-IV, amid and despite intense controversy in the field regarding definitions of personality disorders (McGlashan et al., 2005).

personality disorders, debated prior to the publication of The Diagnostic and Statistical Manual, 5th edition (DSM-5) was argued, in part, because of the close interplay between Axis I disorders and Axis II disorders. The Collaborative Longitudinal Personality Disorders Study (CLPS) study found both that personality disorders are not always stable and chronic, and that mood disorders are more chronic and less episodic than had typically been assumed (Skodol et al., 2011; Skodol, et al. 2010). Furthermore, in the CLPS study, patients with major depressive disorder (MDD) who were also diagnosed with schizotypal, borderline, or avoidant personality disorders as their primary PD diagnosis had significantly longer time to remission from MDD than did patients with MDD without a co-occurring PD (Skodol et al., 2005). Even controlling for other negative prognostic features, such as age of onset of MDD, pattern of MDD recurrence, co-occurring dysthymia and other Axis I disorder comorbidity, PDs remained robust predictors of slowed remission of symptoms of MDD. Understanding factors associated with comorbid symptoms of panic and personality disorders may lead to more precise description of mental disorders, and stimulate greater specificity in targeted treatments.

In this study, mentalization, as measured on The Reflective Function Scale (RF; Fonagy et al., 1995; Fonagy, Target, Steele, & Steele, 1998; Rudden et al., 2006), will be examined to offer further insight into the relationship between Axis I disorders, as described on the Anxiety Disorders Interview Schedule for DSM-IV Lifetime Version (ADIS-IV), and personality pathology, as measured on the Structured Clinical Interview for DSM-IV Axis II Personality Disorders (SCID-II; First et al, 1997). Distinctions made on the relationship between panic disorder and personality disorders may begin to indicate refinements in treatment recommendations.

Mentalization is broadly defined as the capacity to perceive and interpret behavior in terms of intentional mental states (i.e. needs, desires, feelings, beliefs, goals, purposes, and reasons) (Fonagy et al., 1995; Fonagy & Target, 2006; Fonagy, Gergely, Jurist, & Target, 2002). Fonagy and Target (2006) describe this as a “mostly preconscious imaginative mental activity,” in that the process requires imagining the inner states of others and, especially reflective mentalization, that is, the awareness that suppositions about others’ minds, and one’s own mind, are not irrefutable truth. Mentalization requires attentional control, which can be challenging during emotionally charged states, in order to selectively activate a sense of one’s own or others’ minds regarding particular intentions.

The Reflective Function Scale (RF; Fonagy et al., 1995; Fonagy, Target, Steele, & Steele, 1998; Rudden et al., 2006) was developed to operationally measure degree of mentalization in the context of attachment relationships. Individuals differ significantly in the degree to which they are able to understand thoughts and feelings, both their own, and those of other people. Higher or lower RF scores indicate exceptional and diminished mentalization, respectively. In cases of diminished mentalization (i.e. low RF), one’s own and others’ behavior can seem unpredictable and other people’s minds may seem opaque and may therefore be interpreted with significant distortion. With the (apparent) absence of mentalization (i.e. negative RF), the task itself of reflecting on another person’s mind or reflecting on one’s own thoughts or feelings can be experienced as an attack and may be actively rejected. The interaction of intense affective states and the capacity for mentalization is speculated to have an influential relationship on affect regulation (Solbakken et al., 2011).

The theory of mentalization emerged out of an incorporation of “theory of mind” research, attachment theory, and psychoanalytic concepts (Fonagy et al., 2002). The development of mentalization is speculated to be essential to an elaboration of a sense of self and to self-regulation, specifically supporting affect regulation. Different personality disorders are associated with varying capacities and strategies for managing affect. RF has been most frequently studied in patients diagnosed with borderline personality disorder for the purpose of comparing differences in the capacity for mentalization and understanding the role of pre-treatment mentalization in mediating treatment outcome. RF has consistently been found to be low (3 or below) in patients diagnosed with borderline personality disorder, who struggle with affect regulation (Fonagy et al., 1998; Levy et al., 2006). The capacity to mentalize has both state and trait characteristics (Fonagy, Bateman & Luyten, 2012). Mentalization is not a fixed and stable capacity, but rather can fluctuate during shifting self-states, particularly under deep distress, or in reaction to an interpersonal context (Fonagy, Bateman & Luyten, 2012; Sperry, 2013; Chefetz, 2013).

Examination of the influence of mentalization across the range of non-BPD personality disorders is a new but expanding field of inquiry. Reflective function has begun to be investigated for patients with specific Axis I disorders, such as major depression, panic disorder and post-traumatic stress disorder (Fischer-Kern et al., 2008; Rudden et al., 2006; Markowitz et al., 2013). Further knowledge about the capacity for mentalization in a wider range of disorders may help to refine understanding of the underlying dynamics of symptoms and characteristics that define these disorders.

This project will examine the capacity for mentalization in a sample of patients with primary DSM-IV-TR panic disorder with or without co-morbid Axis II diagnoses, with a range of severity, as diagnosed by the Anxiety Disorders Interview Schedule for DSM-IV Lifetime Version (ADIS-IV) and Structured Clinical Interview for DSM-IV Axis II Personality Disorders (SCID-II; First et al, 1997). The data are drawn from one site of a two-site, randomized controlled trial (Barbara Milrod and Jacques Barber, Principle Investigators NIMH R01 MH70918-01A2; R01-MH070664) comparing three psychotherapy interventions for primary DSM-IV-TR panic disorder: Panic-Focused Psychodynamic Psychotherapy (Milrod, Busch, Cooper, & Shapiro, 1997), Panic Control Therapy (Barlow, Raffa & Cohen, 2002), and Applied Relaxation Training (Chambless, Schwalberg, Relaxation Therapy Manual). The subjects compared in this investigation comprise patients who were diagnosed with primary panic disorder by ADIS-IV-L with minimum severity (of 4/8) and did not have substance or alcohol dependence, bipolar disorder, organic mental disorders or psychosis. I will compare RF scores of patients with panic disorder with or without agoraphobia, across Axis II disorder diagnoses, nested in one of the three clusters of personality disorder, as defined by the DSM-IV-TR. These comparison groups will be further detailed in the Results section.

CHAPTER 2: REVIEW OF THE LITERATURE

This study examines the relationship between reflective function and personality disorders in patients with primary panic disorder, with and without agoraphobia, recruited to a psychotherapy research study. The following literature review is presented in four sections, beginning with an overview of panic disorder, discussing treatment options as well as potential considerations in non-response to first-line interventions. The second section will examine issues regarding patients with personality disorders, and consider treatment complications posed by co-occurring Axis I and Axis II disorders. The third section will review the concept of mentalization and reflective functioning as it pertains to Axis I and II comorbidity. This section will examine the theoretical basis for RF and reviews empirical research documenting the relationship between RF and personality disorders. The fourth section will propose a relationship between RF and the three clusters of personality disorders (which will be described below).

PANIC DISORDER

Definition and Prevalence

A panic attack is defined by the DSM-IV-TR as a sudden or unexpected onset of intense fear or discomfort, during which four or more physical symptoms occur for a discrete period of time. Any combination of the following physical symptoms may include: racing heart, sweating, trembling/shaking, shortness of breath, feeling of choking, chest pain/discomfort, nausea/abdominal distress, dizziness/unsteady feeling, derealization/depersonalization, chills/hot

flushes, numbness, fear of losing control, fear of going crazy and fear of dying. These symptoms typically peak within ten minutes. A diagnosis of panic disorder is warranted if panic attacks become recurrent over a period of one month or more, with at least one of following three responses: unrelenting concern for further attacks, worry about the consequences of panic attacks, especially on one's mental or physical health, or a significant change in behavior to avoid additional panic attacks. Panic disorder is specified to occur with or without agoraphobia. Agoraphobia is defined as intense anxiety and persistent avoidance of situations or places from which, in the event of a panic attack, obtaining help or escaping might be difficult.

Estimates of prevalence rates for panic disorder without agoraphobia have remained relatively constant over time and across populations, and range from approximately 1-2% to 3.7% of adults (Yates, 2009; Kessler et. al, 2006). The lifetime prevalence of panic disorder with agoraphobia is 1.1%, while 0.8% of the general population is estimated to suffer agoraphobia without panic disorder following an isolated panic attack (Kessler et. al, 2006). According to the National Comorbidity Survey Replication (Kessler, et al. 2005), 23% of patients with panic disorder also have agoraphobia, although this number has been found to be as high as one-third to one-half of panic patients (Yates, 2009). Almost a quarter of the general population (22.7%) suffers from an isolated panic attack without going on to develop panic disorder or agoraphobia. Panic disorder patients have been estimated to account for approximately 21% of emergency room visits and are 12.6 times as likely to visit emergency rooms as the general population, at considerable financial cost (Swinson et al., 1992; Markowitz et al, 1989; Hunsley, 2003). They also have higher rates of morbidity and health care utilization relative to patients with other psychiatric diagnoses and primary care patients without psychiatric diagnoses (Korczak et al., 2007; Klerman et al, 1991; Katerndahl & Realini, 1995). Furthermore,

the frequency with which panic attacks, and the suffering that even isolated panic attacks can bring (Klerman et al., 1991), suggests that clinicians treating patients who experience only temporary panic symptoms would benefit from complex understanding of this disorder

Development of panic disorder

Although there is general consensus in research regarding risk factors that contribute to the development of panic attacks, the etiology of panic remains debatable. Panic disorder is theorized to develop through a combination of constitutional genetic and temperamental factors and environmental influences. Theoretical models have typically been formulated with the purpose of indicating treatment recommendations, although at this time, no single theoretical model has been found to be unifying and irrefutable in terms of causal or predictive dynamics. A full accounting of the history of these theories would not be relevant to the aims of this study but a brief summary of conceptualized mechanisms of panic disorder follow.

Psychiatric genetic studies have identified panic disorder is a heritable disease. First degree relatives of participants in these studies with panic attacks have from three to twenty-one fold higher lifetime risk of panic than relatives of participants without panic disorder (Smoller & Tsuang, 1998). Furthermore, relatives of participants in these studies are more likely to suffer from panic disorder than other forms of anxiety disorders (Fyer, 1995).

Temperamental variables have been identified as heritable phenotypes that predispose individuals to the development of anxiety disorders. Among these variables are behavioral and personality descriptors observed in children and adults prior to the development of panic disorder. The presence of behavioral inhibition, a tendency in childhood to display fear, shyness or avoidance of novel situations (Kagan, 1987), is associated with the development of anxiety disorders (Craske & Waters, 2005; Smoller et al., 2005). Neuroticism is an adult personality trait

(Eysenck, 1967; McCrae & Costa, 1987; Craske, 2001), characterized by high sensitivity and vulnerability to negative emotion, and is associated with the onset of anxiety disorders. In a hierarchical model, Craske and Waters (2005) proposed that the presence of behavioral inhibition and neuroticism, with contributing genetic loading, cognitive and familial variables, predispose an individual to development of some anxiety disorders, including panic disorder.

Psychotherapeutic theories on panic disorder

Cognitive behavioral theory

Cognitive behavioral therapy is a first-line psychotherapeutic intervention for panic disorder with the most empirical support, although the most recent Practice Guidelines for Panic Disorder from the American Psychiatric Association (2009) references the success of panic-focused psychodynamic psychotherapy (PFPP, Milrod, Busch, Cooper & Shapiro, 1997; Milrod, et al., 2007) as an initial treatment in accordance with patient preference. In the cognitive behavioral model of panic disorder, fear of panic attacks and their consequences produces a general ‘fear of fear’, leading to anticipatory anxiety and phobic avoidance (Chambless & Gracely, 1989). Interoceptive conditioning is identified as maintaining panic disorder, as associative learning forges a link between transient or even normal bodily sensations and the unpleasant experience of having a panic attack. Low-level bodily/somatic sensations of anxiety or simple arousal become conditioned stimuli, which then elicit additional anxiety or panic. This experience attenuates the body’s response to conditioned stimuli, further increasing vulnerability to panic attacks (Craske and Waters, 2005). Therefore, cognitive behavioral treatments for panic disorder use interoceptive exposure to ameliorate this conditioning.

Contributing to the “fear of fear,” panic disorder patients are thought to suffer from “catastrophic misinterpretations” of bodily sensations (Clark, 1986). That is, normal bodily

sensations are imbued with dangerous misinterpretation and meaning. Based on the characteristic of ‘out of the blue’ panic attacks, implicit memories activate the amygdala, and these interpretations may therefore take place at a conscious or unconscious level (Craske and Waters, 2005). Due to the perceived inability to control these feelings, patients become afraid of all strong affects (Williams et al., 1997). This serves to support the overly sensitive responses of patients to normal body sensations as they are prone to becoming overwhelmed by strong emotions. Cognitive restructuring, as part of cognitive behavioral treatments, intends to modify patients’ irrational thought patterns that lead to “catastrophic misinterpretation” (Craske and Waters, 2005). Both pharmacological and cognitive behavioral therapies attempt to support patients’ capacity for emotion regulation. CBT attempts to enhance executive functioning through cognitive restructuring and lessening patients’ sensitivity and reactivity to anxiety through exposure.

Psychodynamic theory

The psychodynamic approach to panic disorder emphasizes unconscious conflicts, defensive coping styles, and disturbed object relational schemata that are theorized to underlie the disorder and contribute to the severity of symptoms. This perspective does not contradict the diathesis model, wherein a combination of physiological vulnerability and environmental factors predispose a person to panic disorder (Busch et al., 1991; Milrod et al., 1997).

Although psychodynamic theories of panic disorder have evolved over time, the basis of these ideas derives from Freud’s (1895) description of “anxiety neurosis” originating from unconscious conflict. He theorized that the structure and process of anxiety neurosis arises out of an “accumulation of excitation,” as a result of the “deflection of somatic sexual excitement.” He observed affect dysregulation and ineffective management of strong impulses in these

patients. Freud (1926) later revised his theory of anxiety, developing the idea of “signal anxiety,” which was defined as a normal and adaptive mechanism in response to psychological threats. This theory integrated the function of the ego in employing and managing defenses. Appropriate levels of anxiety signal the ego to launch psychological defenses. In this way, signal anxiety supports the ego in protecting itself from unconscious overwhelming affect. When the ego is not successful in this process, traumatic levels of anxiety may occur. Panic attacks represent a breakthrough of traumatic level anxiety. In this way, intrapsychic conflict is hypothesized to be central in the development of panic symptoms. Symptoms are viewed as a compromise formation between an unacceptable wish and the defense against that wish (Freud, 1926; Milrod et al., 1997).

Freud’s theory on the function of signal anxiety has significantly contributed to the basis for current psychodynamic understandings of the development of panic disorder. Failure of signal anxiety is thought to cause a traumatic level of anxiety to flood the ego, resulting in panic attacks (Diamond, 2004; Milrod et al., 1997; Busch et al., 1999). As hypothesized by Freud (1926), signal anxiety is proposed to alert the ego to the presence of danger, but traumatic anxiety is experienced as actual danger, overwhelming the ego’s capacity for symbolic representation. The failure of signal anxiety may arise in cases of ego weakness, real trauma or cumulative trauma. In this instance, cumulative trauma is described as repeated “micro” traumas, often as a result of severe disturbances in the early relationship with the caregiver (Diamond, 2004). These disruptions interfere with the development of regulatory faculties, including the symbolizing function of signal anxiety. Therefore, these individuals are more vulnerable to being overwhelmed by flooding of emotions. This ego immaturity contributes to charged and

ambivalent experiences in separations and the development of autonomy, as the individual lacks the ego strengths to function independently.

In one model integrating constitutional factors and parenting style, Shear and colleagues (1993) suggested that some anxiety, particularly an avoidant defensive style, arises out of vulnerabilities in temperament interacting with early relationship disruptions. They theorized that “inborn fear of unfamiliar situations, augmented by frightening, overcontrolling parental behaviors, predisposes [the individual] to incomplete resolution of conflicts between dependence and independence” (p. 862). This perspective observes that some individuals who experience panic attacks are prone to feeling suffocated by other people and they excessively seek a sense of independence while others with panic are sensitive to separation and are excessively dependent on others. In either case, one way of describing the object relational pattern of panic disorder patients is weak representations of the self and powerful representations of the other. Defenses remain directed toward maintaining a tolerable distance from others. In turn, this coping strategy produces avoidance of unfamiliar situations and, cyclically, overvaluing threats while perceiving the self as infantile and unable to manage situations.

Milrod et al. (1997) have further theorized on panic patients’ poor affect regulation to note that disavowed anger becomes a dangerous and difficult emotion for patients with panic to experience. This association develops as the child becomes angry and she perceives the parent’s behavior to be rejecting or frightening. However, the child believes that the parent cannot tolerate or survive her rage, and that it will destroy the parent or the parent’s relationship to the child, a devastating and frightening loss for the dependent child. Due to this fear, the child suppresses her rage. Any awareness of this rage contributes to further binding the child to the parent, in an unconscious attempt to undo rageful fantasies. This process can establish a vicious

cycle, as fear of loss can then increase the child's dependency on the parent, leading to further frustration and rage toward the parent, as the child views the parent as the source of her inadequacies. The defense against unconscious anger is one aspect of the cycle of panic and is further reinforced if the parent correspondingly resists the child's attempts at independence. The child may feel incomplete without the primary object and struggle to fully develop a separate, coherent sense of self. Furthermore, the child can develop a sense of inadequacy if the parent overtly or implicitly supports the belief that the child cannot tolerate separation (Busch et al., 1999; Milrod et al., 1997).

As the child is faced with new developmental tasks, such as during the resolution of the oedipal phase, this previously established fear of loss is reinforced by normative anger at the parent. For these patients, it seems as if regression to a more dependent position is preferable to the danger of facing greater autonomy (Shear et al., 1993; Milrod et al., 1997). As the child grows into an adult, terror of autonomy reinforces the sense of inadequacy and emotional dependence, which in turn maintains the reluctance to separate from attachment figures (Klass et al., 2008). Thus, the panic patient enacts and reinforces her fear that she will not function without the object.

In order to avoid experiencing painful emotions, the patient uses defenses of denying, displacing or projecting negative affects (Rudden et al., 2008). Instead, attention is focused on the physical symptoms of the panic attack, supporting the patient's defense to distract from emotional conflicts and intensity. The development of this physical and emotional disability creates a perceived need for care from others (Busch et al., 1999). In this way, the patient is able to avoid functioning independently, keeping important objects in caretaking roles. Panic disorder patients demonstrate a failure in defenses to effectively cope with anxiety and rage.

Psychodynamic theory of panic disorder emphasizes that the symptoms themselves carry emotional significance. Milrod and colleagues (1997) argue that, while catastrophic misinterpretation is typical in the development of panic disorder, specific constellations of symptoms relate to specific underlying emotionally-driven meanings for individual patients. Through the patient's associations to the context of the panic attacks and specific symptoms, it is possible to identify events or thoughts that triggered the attack. Patients' associations to body sensations often reveal body memories or unconscious fantasies that are psychologically connected to the physical symptoms. These thoughts or fantasies are expressed somatically (Milrod et al., 1997; Shear et al., 1993).

Psychotherapies for panic disorder

There are several known effective treatments for panic disorder. A number of pharmacological agents and cognitive behavioral therapy are considered first line treatments (American Psychiatric Association, 2007; Lydiard, Otto, Milrod, 2001). However, a subset of patients does not respond or suffers relapse after receiving these therapies. In a multi-site study of panic disorder, Barlow and colleagues (2000) compared the efficacy of CBT, imipramine, their combination, placebo only, or CBT plus placebo. They found a 48.7% response rate to CBT alone and 60.3% response rate for patients treated with a combination of medication and CBT immediately following three months of treatment, dropping to 37.8% remission rate for CBT alone and 57.1% for combination therapy following a six-month period of maintenance treatment, dropping further to 31.9% for CBT alone and 26.3% for the combination group six months after discontinuing therapy and medication.

In a small study (n= 44) of CBT for panic disorder, Marks and colleagues reported that 29% of subjects were classified as "nonresponders," and continued to experience panic attacks

following the end of the treatment (Marks et al., 1993). CBT has a good record of maintaining therapeutic improvement for panic disorder (Brown & Barlow, 1995), however, a significant proportion of patients have been found to relapse after response to all initially efficacious treatments (Craske et al., 1991, Barlow et al., 2000).

Predictors of poor outcome, indicating greater level of anxiety symptoms and impaired social adjustment following treatment among patients with panic disorder, include: presence of personality disorders, severity of panic symptoms, phobic avoidance (agoraphobia), depression, and female gender (Yates, 2009; Kessler et al., 2006; Pollack & Otto, 1997; Slap & den Boer, 2001; Pollack et al., 2000). Results of a study examining differences between male and female patients with panic disorder on rates of co-occurring personality disorders found no gender differences (Barzega et al., 2001). One study that specifically explored the co-occurrence of Axis I and II disorders in female and male patients with panic disorder with agoraphobia (Starcevic et al., 2008), found that women had a greater tendency to receive other comorbid Axis I diagnoses, particularly other anxiety disorders, while men were more likely to meet criteria for past alcohol abuse or dependence. No differences were found for the mean number of co-occurring Axis I and II diagnoses per patient. The only significant gender difference in Axis II was a higher likelihood for women to meet criteria for dependent personality disorder.

Heterogeneity of panic disorder

These theories and accompanying techniques each describe the panic disorder patient population assuming a relatively stable and uniform group. In fact, patients who meet DSM criteria for primary panic disorder may represent a heterogeneous population, with a range of comorbid personality disorders or other Axis I disorders, particularly depression. While therapist competence, therapy implementation and match compatibility with patient inevitably accounts

for some variation in responses to the treatment of panic, another contributing factor to differences in responses to treatment may be diversity within panic patient population. Further data on differences between patients within this population may lead to better articulation of treatment efficacy and help refine appropriate intervention selection.

PERSONALITY DISORDERS

Definition and prevalence

According to the DSM-IV-TR, personality disorders (PDs) are broadly defined as rigid or ingrained maladaptive patterns of thinking, feeling or behaving. Such patterns have been described as long in duration, leading to significant distress and impairment not better accounted for by use of substances or another medical condition. Although this stability of the condition of personality disorders has been the subject of debate (Skodol et al., 2005), especially with regard to proposals for change to the DSM-5, this is generally considered a central feature of PDs. PDs constitute a significant public health problem, as a result of associated functional impairment, extensive treatment utilization, complications to treatments of other psychiatric disorders, such as major depression, and suicide risk (Skodol et al., 2005).

As defined by the DSM-IV-TR, ten primary personality disorders have been identified and are separated into three clusters: cluster A comprises the “odd” personality disorders paranoid, schizoid, and schizotypal PDs; cluster B comprises the “dramatic” personality disorders anti-social, borderline, histrionic, and narcissistic PDs; and cluster C comprises the “anxious” personality disorders avoidant, dependent and obsessive compulsive PDs. Two other

personality disorders, depressive personality disorder and passive-aggressive personality disorder, are evaluated using the SCID II and were included in previous versions of the DSM (the DSM-II and DSM-III-R, respectively). Although they are not currently included in Axis II, they remain in Appendix B with other proposed disorders suggested for further study.

In Part II of the National Comorbidity Survey Replication (NCS-R) study of the general population of the United States, personality disorder screening questions from the International Personality Disorder Examination (IPDE) were administered (N = 5692). A probability subsample was then interviewed with the IPDE and used to link screening question responses with IPDE clinical diagnoses. The method of Multiple Imputation (MI) was used to estimate prevalence and correlates of PDs in the full sample. The 12-month MI prevalence estimates were 5.7% Cluster A, 1.5% Cluster B, 6.0% Cluster C, and 9.1% any PD (Lenzenweger et al., 2007). For individual DSM-IV/IPDE personality disorders, prevalence estimates were taken from the PD Clinical Reappraisal Sample (N = 214) and were approximated as follows : Paranoid PD 2.3% (SE=0.8), Schizoid PD 4.9% (SE=2.2), Schizotypal PD 3.3% (SE=2.0), Borderline PD 1.6% (SE=0.7), Antisocial PD 1.0% (SE=0.5), Histrionic PD 0.0% (SE=0.0), Narcissistic PD 0.0% (SE=0.0), Avoidant PD 5.2% (SE=1.6), Dependent PD 0.6% (SE=0.4), Obsessive-compulsive PD 2.4% (SE=0.8), and PD NOS 1.6% (SE=0.7). These estimates are likely to be somewhat higher than in the population as there was a somewhat higher proportion of IPDE screening questions endorsed in the clinical reappraisal sample than the full sample as well as larger sample estimates (SEs) found in the clinical reappraisal sample than in the full Part II NCS-R.

Criticism and limitations of current personality disorder definitions

The DSM-IV-TR diagnostic system for personality disorders has been criticized for many reasons. Limitations include the use of polythetic criteria rather than the identification of a central criterion, leading to extreme heterogeneity among patients receiving the same diagnosis. The number of criteria necessary for diagnosis of each personality disorder leads to potential underrating of meaningful character pathology, requiring the use of the PD NOS category. Furthermore, the current rating system of the DSM-IV-TR does not include a standard for evaluating severity in personality disorder nor does it identify strengths or protections against dysfunction (Tyrer, 2005; Skodol et al., 2005).

DSM-IV-TR diagnoses of personality disorders have been criticized for their vague definitions and lack of basis in research. As defined in DSM-IV-TR, overlapping and vague criteria may lead some personality disorder symptomatology to be subsumed under multiple diagnostic categories, resulting in the diagnosis of multiple disorders (Clark, 2007; Oldham et al., 1992; Zimmerman, Rothchild, & Chelminski, 2005). Alternatively, some symptoms may be left out of diagnostic descriptions if full criteria for a given disorder are not met in favor of the primary diagnosis. While these outcomes, either multiple comorbidities, or existing symptoms not being reflected in any diagnosis, may be appropriate, there is little hierarchical accounting. Other types of PDs, such as histrionic PD, have been found inadequately described as a valid and separate diagnosis (Bakkevig & Karterud, 2010). Furthermore, the CLPS project findings called into question the DSM-IV-TR defined stability of PD criteria (Grillo et al., 2000; Skodol et al., 2005). The lack of specificity in the general definition of PD, pervasive co-occurrences among DSM-IV-TR PDs, limited validity for some existing PDs, instability of current PD criteria, and arbitrary diagnostic thresholds led the Personality and Personality Disorders Work Group to

recommend a significant reorganization of the diagnostic process for personality disorders for the DSM-5. However, despite years of debate and revision, no specific diagnostic changes were adopted, although the multiaxial system itself was eliminated. Due to the above limitations of the current diagnostic process of PDs, it would be useful in the ongoing debates to specify characteristics associated with the current categories of PDs used in the DSM-IV-TR, and now DSM-5. Further understanding of the interaction between what has been known as Axis I and II might indicate patterns in personality and symptoms that make up different diagnostic constellations.

Co-morbidity within Personality Disorders, Clusters A, B, and C

Personality disorders are among the most frequent disorders treated by psychiatrists (Zimmerman et al. 2005). Estimates of those seeking outpatient treatment meeting criteria for one of the 10 official DSM-IV-TR personality disorders range from approximately one third to almost half of outpatients, taking into account patients diagnosed with PDNOS. Panic disorder is associated with high rates of personality co-morbidity, estimated between 40% to 50% (Yates, 2000). Co-morbidity rates for being diagnosed with two or more personality disorders have consistently been found to be high. According to Zimmerman et al. (2005), who evaluated 859 psychiatric outpatients, among patients who met criteria for at least one personality disorder, 60.4% met for more than one personality disorder and 25.2% met for two or more personality disorders. The Part II NCS-R (Lenzenweger et al., 2007) also found significant comorbidity within cluster, using tetrachoric correlations, and the following table (Table 1) adapted from Lenzenweger et al. 2007) presents these correlations of comorbidity:

Table 1. Correlations Among DSM-IV/IPDE PDs in the Clinical Reappraisal Sample $n = 214$)

NCS-R IPDE Clinical Data: Tetrachoric Correlation Estimate

	CLUSTER A			CLUSTER B ^b			CLUSTER C				
	PAR	S'OID	S'TYP	ANY A	ANT	BOR	ANY B	AVO	DEP	OCD	ANY C
CLUSTER A											
PAR											
S'OID	.77 ^a										
S'TYP	.48	.96 ^a									
ANY A	----	----	----								
CLUSTER B ^b											
ANT	.73 ^a	-.84 ^a	.13	.56 ^a	----						
BOR	.76 ^a	.56 ^a	.34	.58 ^a	.64 ^a						
ANY B	.83 ^a	.46	.27	.65 ^a	----	----	----				
CLUSTER C											
AVO	.70 ^a	.55 ^a	.53 ^a	.60 ^a	.05	.54 ^a	.44				
DEP	.20	-.84 ^a	-.86 ^a	.03	-.83 ^a	.82 ^a	.77 ^a	.70 ^a			
OCD	.59 ^a	.40	.49	.49 ^a	.45	.67 ^a	.59 ^a	.63 ^a	.80 ^a		
ANY C	.67 ^a	.49 ^a	.46 ^a	.55 ^a	.24	.55 ^a	.45	----	----	----	
Total											
PD NOS	.55	-.89 ^a	-.10	.37	.90 ^a	.55	.82 ^a	-.27	-.79 ^a	.64 ^a	.43

NCS-R, National Comorbidity Survey Replication; PAR, paranoid; S'OID, schizoid; S'TYP, schizotypal; ANY A, any cluster A PD; ANT, antisocial; BOR, borderline; ANY B, any cluster B PD; AVO, avoidant; DEP, dependent; OCD, obsessive-compulsive disorder; ANY C, any cluster C PD.

^a Significant at the .05 level, two-sided test.

^b Note that Narcissistic and Histrionic PDs were not included in the table in the original article (Lenzenweger et al., 2007)

Dividing the ten personality disorders into three clusters as discrete and separate elements has been examined for validity through factor analysis (Kass et al. 1985; Hyler & Lyons, 1988). The use of the three clusters has been consistently found to support the grouping of personality disorders into categories showing similar clinical characteristics. The exception to this finding has been obsessive-compulsive personality disorder (OCPD), as factor analytic studies have found it to constitute a separate component from the three clusters, despite its continued designation as a cluster C personality disorder (Skodol et al., 2005; Kass et al., 1985; Morey et al., 1986).

Treatment of personality disorders

Research into psychotherapy outcomes for personality disorders has been fairly limited. Primarily, there have studies on the treatment of Borderline PD, with more recent examinations of other personality disorders, those in cluster C in particular. According to the “Practice Guideline for the Treatment of Patients With Borderline Personality Disorder” (2001), two psychotherapeutic approaches have been shown in randomized controlled trials to have efficacy: psychoanalytic/psychodynamic therapy (such as Mentalization-Based Therapy (MBT)) and dialectical behavior therapy (DBT). Transference Focused Psychotherapy (TFP) has also been studied for the treatment of individual Borderline PD and comorbid Narcissistic and Borderline PDs (Diamond et al., 2013).

Svartberg et al. (2004) designed a randomized controlled trial comparing short-term psychodynamic psychotherapy and cognitive therapy for 40 weekly sessions for adult outpatients (ages 18-65 years) with cluster C personality disorders (N = 51). 54% of patients from the short-term psychodynamic therapy group and 42% of patients from the cognitive psychotherapy group were considered “recovered” for psychiatric symptoms on the Global Severity Index of the SCL-90 (Derogotis, 1983), and 40% of patients showed significant improvement in personality pathology in both groups. Despite these impressive changes, a sizeable number of patients did not significantly improve and the authors suggested that “factors other than treatment modality may discriminate better between successful and poor outcomes.” A better understanding of the makeup of patients with Axis I and II disorders may give information about the changes that patients undergo, and therefore guide further refinement of therapeutic interventions.

One randomized control trial (Vinnars et al., 2005) compared 40 sessions of manualized time-limited supportive-expressive psychotherapy (SEP; Luborsky, 1984) to a nonmanualized

community-delivered psychodynamic treatment (CDPT) for patients with any personality disorder (N = 156). The researchers found reduction of psychiatric symptoms based on the Symptom Checklist-90-R (SCL-90), general personality disorder severity and improvement in general psychosocial functioning in both treatment groups at termination and maintained at follow-up. The authors accounted for severity in personality disorders on the SCID-II, by creating a dimensional index, summarizing all of the positive criteria on Axis II, resulting in a scale that ranged from 0 to 93. In this way, they attempted to address the categorical diagnostic system of the SCID-II, in its use of arbitrary cutoff points for demarcation of personality disorders.

CO-MORBIDITY OF PANIC AND PERSONALITY DISORDERS

Several models have been proposed to describe the relationship between Axis I disorders and personality disorders. Much of the longitudinal research into the interaction of personality disorders and Axis I best fits in the framework of the "pathoplasty" model, which does not assume a shared etiology, but rather emphasizes the influence of one disorder on the presentation or course of the other (Shea et al., 2004). Some studies have found evidence through self-reports of a particular directional effect in this interaction, that is, the impact of an acute Axis I disorder on presentation of personality traits or disorders and vice versa (Widiger, Verheul, & van den Brink, 1999).

Particularly relevant to panic disorder patients are the cluster C personality disorders. The personality disorders in cluster C, which includes Avoidant PD (AVPD), Dependent PD (DPD), and Obsessive Compulsive PD (OCPD), share a common factor of fearfulness (Fossati et al., 2006). For AVPD, the core fear is of negative evaluation, for DPD, the core fear is of

separation, and for OCPD, the fear is of not having personal and interpersonal control. In a study on anxiety disorders, high rates of comorbidity between Generalized Anxiety Disorder and the cluster C personality disorders were found by Massion et al. (2002), AVPD: 20%, DPD: 10% and OCPD: 9%, as well as Social Phobia and cluster C, AVPD: 35%, DPD: 6% and OCPD: 7%. These are the most common PDs found for panic disorder patients (Friborg, et al., 2013). A recent PsycInfo meta-analysis identified 118 papers published between 1980 and 2010 from English or German speaking sources with relevant criteria of primary anxiety disorders for patients over 18-years-old with comorbid personality disorders (Friborg et al., 2013). The authors estimated that for panic disorder without agoraphobia 41% of patients met criteria for any comorbid PD, 14% for cluster A PDs, 16% for cluster B PDs, and 22% for cluster C PDs. For panic disorder with agoraphobia, 47% of patients met criteria for any comorbid PD, 11% for cluster A PDs, 20% for cluster B PDs, and 38% for cluster C PDs. Proportions for specific PDs are below in Table 2, adapted from Friborg et al (2013):

Table 2: Comorbid proportions of specific PDs for panic disorder based on a random effects model.

Anxiety Disorder	PD									
	PAR	S'OID	S'TYP	ANT	BOR	HIS	NAR	AVO	DEP	OCD
Panic no Agora	.06	.04	.04	.04	.10	.11	.05	.15	.13	.09
	439	431	514	341	515	542	486	594	528	641
	9	8	9	6	11	11	9	11	11	11
Panic w/Agora	.07	.02	.02	.03	.06	.08	.05	.17	.13	.11
	1955	2001	2000	1813	2426	2612	2320	3045	2747	2694
	21	17	17	18	21	23	22	28	26	25

Note: Reported data(ex:.06.) represent mean proportion of personality disorders. Total sample size and number of studies [ex:439 and 9] are reported on the lines immediately following. PAR, paranoid; S'OID, schizoid; S'TYP, schizotypal; ANT, antisocial; BOR, borderline; HIS, histrionic; NAR, narcissistic; AVO, avoidant; DEP, dependent; OCD, obsessive-compulsive disorder; A, Agoraphobia.

The impact of co-morbid Axis II disorders on the treatment of panic disorder

Generally, five variables have been associated with poorer treatment outcome responses among panic disorder patients: severity of panic disorder, the presence/severity of agoraphobia, comorbid depression, female gender, the history of separation anxiety disorder, and the presence a personality disorder (Pollack et al., 2000). Severe agoraphobia has been linked to greater incidence of Axis II diagnosis as well as greater levels of severity of personality pathology (Shear et al, 2004). However, the nature of the relationship between severe agoraphobia and personality disorder is inconclusive and does not seem predictive (Brooks, Baltazar & Munjack, 1989). The effect of personality disorders on outcome of pharmacological treatment in patients with panic disorder is subject to debate in the research literature. In a review of pharmacotherapy treatments for panic disorder, Slaap and den Boer (2001) concluded that personality disorders, or even personality traits are the most robust predictor of nonresponse. However, this effect has been disputed in other studies (Clair et al., 1992; Hoffman et al., 1998; Massion et al., 2002; Tony et al., 2000; Kampman et. al., 2008). Of particular debate is whether any PD or only specific PDs negatively affect response to pharmacological treatment (Massion et al., 2002; Tony et al., 2000; O'Rourke et al., 1996, Berger et al., 2004). Marchesi et al. (2006) suggest that different findings regarding the influence of personality disorders on the pharmacological treatments of panic disorder may be due to both differences in methodologies (self-report versus structured interview) and the duration of the periods examined in the studies. The negative impact of personality disorders is less likely to be found after a short-term follow-up (less than three months) (Slaap & den Boer, 2001). Furthermore, a combination of any cluster C PD and the severity of panic disorder with agoraphobia has been identified as the most significant predictor of suicidal ideation (Starcevic et al., 1999).

In a study of 347 outpatients with a primary anxiety disorders, at least 35% were found to have a personality disorder, with 27% meeting criteria for a cluster C disorder (Sanderson et al., 1994). Patients with panic disorder and comorbid personality disorder typically have higher levels of panic severity. In a treatment study of 173 patients, participants with one or more comorbid personality disorders displayed higher baseline and higher post CBT treatment scores across multiple indices of panic disorder severity compared to those without personality disorders (Telch, Kamphuis, and Schmidt, 2011).

In one study isolating the effect of personality traits on treatment for panic disorder using two types of SSRIs, only borderline traits (based on SCID-II evaluations) had a negative impact on remission (Marchesi et al., 2006). Patients were evaluated once monthly over the course of one year. In this study, remission was defined as the absence of full or limited symptom panic attacks, anticipatory anxiety, phobic avoidance and depression for three months. The total number of traits of each personality cluster did not affect outcome. As several variables have been found to negatively affect treatment of panic disorder (Slaap & den Boer, 2001), the authors excluded the effects of female gender, age at onset, duration of disorder, pre-treatment severity of symptoms and Axis I comorbidity, isolating borderline traits to be a predictable variable in nonresponse to SSRI pharmacotherapy for panic disorder.

The American Psychiatric Association (APA) practice guideline (2009) recommends psychodynamic psychotherapy for panic disorder patients with comorbid personality disorders based on pilot research from Milrod et al. (2007). As coping strategies across PDs tend to be limited and maladaptive, patients with co-morbid Axis I disorders may have increased symptomatology in both severity and scope (Van Velzen & Emmelkamp, 1999). In a study making a three-way comparison among patients with pure anxiety disorders, patients with pure

depressive disorders, and patients with both anxiety and depressive disorders, prevalence rates for PDs were highest for the anxious/depressed group, who were diagnosed with more avoidant, dependent, paranoid and borderline PDs (Van Velzen & Emmelkamp, 1999). Oldham et al. (1995) found that there are significant odds that when a personality disorder is present, a mood, anxiety, psychotic, or eating disorder is also present. Although treatment outcomes for individuals with a personality disorder vary depending on PD diagnosis (Bender et al., 2001), generally the presence of personality disorders is a negative predictor of outcome (Reich et al., 1993; Oldham et al., 1995). Understanding the nature and impact of the compounding effect on Axis I symptoms that seems to accompany character pathology will give clinicians and researchers a better sense of the challenges in treating different patients.

Co-morbidity has repeatedly been suggested to have a negative impact on treatment processes (Kennard et al, 2005), although this is not universal. In order to make sense of unique effects of particular patterns of co-morbidity on panic treatment interventions, assessment of clinically significant co-occurrences will be necessary (Starcevic, 2005). However, this type of study is complicated and controversial, in that there is evidence that is difficult to accurately evaluate a person's long-term personality traits during an acute phase of panic disorder (Bienvenu & Brandes, 2005). Panic disorder may exacerbate or exaggerate personality difficulties (Bienvenu & Brandes, 2005), with some evidence suggesting that high neuroticism, or a tendency to experience negative emotions often precedes the onset of anxiety disorders. However, the nature and direction of the relationship between personality difficulties and anxiety disorders is not fully understood, with some suggesting that the adverse effect of personality traits on the treatment response for panic disorder has been overstated and overgeneralized (Bienvenu & Brandes, 2005).

MENTALIZATION AND REFLECTIVE FUNCTIONING

The construct of mentalization is described by Peter Fonagy and colleagues (2002) as “the process by which we realize that having a mind mediates our experience of the world.” Mentalization is briefly defined as the imaginative capacity to reflect on internal experience, a social cognitive ability to imagine one’s own feelings and behavior and to reasonably speculate on the motivations and behaviors of other people (Fonagy & Target, 2006). Fonagy posits that mentalization is intrinsic to the development of the self, and fundamental to human interaction. Mentalization is an integration of research into “theory of mind” with attachment theory and psychoanalytic concepts. Fonagy has suggested that “the failure of mentalizing (social cognition) to be a vulnerability factor for a range of psychopathologies, particularly PDs” (Chiesa & Fonagy, 2013).

Borne out of philosophical debates regarding the understanding of one’s own and others’ minds, theory of mind was first studied as cognitive process, a primary deficit in autism, as an inability to take another person’s perspective (Baron-Cohen, Leslie, Frith, 1985). Mentalizing theory was initially described in the context of the formulation of mentalization-based treatment (MBT) for BPD in a partial hospitalization setting (Fonagy & Allison, 2014; Bateman & Fonagy, 2008; Bateman & Fonagy 2004). Fonagy and colleagues (2002) expanded on the basic concept of theory of mind to include a range of interpersonal functions that require an appreciation of the emotional mind, with distinct and understandable mental states that underlie observable behavior (Slade, 1999; Slade, et al., 2005). Mentalization reflects a complex affective and interpersonal understanding of oneself and others, and suggests capacities that enable an individual to develop an enriched stable sense of self and to effectively navigate the social world.

Awareness and insight into mental states allows for greater control over emotional experiences by creating a complex context and multiple perspectives for feelings and reactions. Healthy mentalization functions in the consolidation of the self, as it is critical to both identity development and affect regulation. Through understanding that emotions are internally generated rather than an externally imposed force, self-regulation becomes more available as a means for greater autonomy in affectively charged circumstances. The compounding benefits of this psychological capacity is described by Slade et al. (2005), as being able to separate what is internal to the self from particular contributions from the other may support “productive, intimate, and sustaining relationships,” capable of feeling connected to others but separate at the same time. In turn, individuals with poor mentalization capacity may have weaknesses in their sense of a self, in their capacity to tolerate strong emotions, and in their facility to form healthy interpersonal relationships.

Theoretical underpinnings of mentalization

Although mentalization theory primarily grew out of attachment theory research, as first pioneered by British psychoanalyst, John Bowlby (1969, 1980), Fonagy & Allison (2014) have argued that the mechanism of mentalization encompasses “the developmental significance of the transmission of epistemic trust in relation to social learning in the attachment context.” To clarify the complex and far-reaching implications of this developmental theory, each of these components needs to be described and explored. Attachment theory assumes that there is a universal and inborn human proclivity to form close bonds with others. In the formation of these bonds, attachment behaviors by an infant, such as smiling or clinging, are reciprocated by adult attachment behaviors, such as holding or soothing, which in turn strengthens and reinforces the attachment behaviors of the infant. Sroufe (1996) suggested that the primary objective of the

attachment system is the experience of security, which would be, among other outcomes, a necessary foundation for regulating human experience. The infant is externally regulated by his caregiver as he communicates changes in his state which are then understood and responded to by his caregiver. The child learns that the caregiver will help him should he be aroused beyond his coping capabilities and will soothe and aid him in recovering. Experiences over time with the caregiver are aggregated and layered into representational systems, termed “internal working models” by Bowlby (1973).

Based on Bowlby’s theory, Ainsworth et al. (1978) conducted controlled studies of infant attachment patterns, attempting to identify these representational systems. She developed “the strange situation,” in which she observed separations and reunions between mothers and their infants, thereby activating responses along a continuum of security and fear. Ainsworth categorized infants’ responses as representing three different types of attachment patterns: secure, preoccupied, and avoidant. She theorized that the attachment system is triggered by fear, while security facilitates exploration. Secure infants feel confident in the availability and trustworthiness of the primary attachment figure and will therefore feel comfortable exploring. Ainsworth et al. (1978) emphasize the importance of this “secure base” for the infant’s development of his identity and his sense of his caregiver. One of the protections of secure attachment, according to Ainsworth, is managing the activation of the attachment system. Infants with preoccupied or avoidant attachment classifications, also known as insecure attachment, do not have efficient strategies for managing their attachment needs and therefore suffer from chronic activation of the attachment system.

Expanding on Ainsworth’s theories, Main and Solomon (1990) created an additional category of insecure attachment, “disorganized” attachment for infants who do not seem to have

a coherent strategy for managing the activation of the attachment system. These infants do not fit into Ainsworth's categories of secure, avoidant or preoccupied. These children seem confused as to whether to approach or avoid the caregiver during times of stress, which can particularly occur if the caregiver is the cause of fear, making the baby's natural impulse to seek closeness maladaptive (Main & Hess, 2000). These children may exhibit behaviors such as appearing "dazed," freezing, rocking, or show contradictory actions, such as approaching the caregiver but with their back turned. A disorganized attachment classification has been theorized to be a risk factor for severe psychiatric disturbances in childhood and adulthood, particularly borderline personality disorder (Fonagy et al., 1996; Homes 2004; Nakash-Eisikovits, Dutra & Westen, 2002). Main and Goldwyn (1994; 1995) developed the Adult Attachment Interview (AAI) to classify the attachment of adults, asking about the subject's early relationships with the important caregivers.

Critical to the development of mentalization is the construction of an increasingly sophisticated sense of self through emergent levels of agency in the context of the relationship with one's primary caregiver (Slade, 2005). In this model (2002), the development of the self requires early differentiated physical representation, social affective-communicative interactions, basic and then more complex understanding of goal-directed rational intentionality, and the development of abstraction and temporality, allowing for the emergence of an "autobiographical self." These cognitive, psychological, and developmental lines are considered normal, with a spectrum of psychopathology arising from the developmental distortion of the self as agent.

The Reflective Function Scale

The Reflective Function (RF) scale is an operationalized measurement of the set of mental actions behind mentalization. Fonagy et al., (1998) developed an RF scoring system for

use with the AAI to assess a person's capacity to understand mental states in themselves or others. Fonagy and colleagues found that a mother's capacity to reflect on her own parents is correlated to her child's attachment classification and her attachment style. In other words, mothers with high RF scores were more likely to be classified as secure and more likely to have children classified as secure than mothers with low RF scores (Fonagy et al., 1995; Fonagy et al., 1998). They hypothesized that a mother's capacity to understand and make meaning of her child's mental states functions critically in her child's emotional development, as the child learns about mental states by having his own mind reflected back to him by his mother (Fonagy et al., 2002). The mother's capacity to mentalize makes her child's and her own behavior fairly predictable. This process serves to engender a feeling of security for the child and supports his growing sense of self and his ability to feel able to manage his emotional experience.

Slade and colleagues (2005) conducted research following Fonagy's hypothesis that RF mediates the intergenerational transmission of attachment status. They adapted an RF scoring system for use with the Parent Development Interview (PDI), a semi-structured interview that specifically assesses the mother's representation of her child (Slade et al., 2004). In a sample of 40 mothers with babies, Slade and colleagues demonstrated that maternal RF is significantly related to infant attachment status. Their results supported the idea that maternal reflective function mediates the relationship between the mother's attachment and the infant's attachment. The mother's ability to transmit both attachment security and capacity for RF inextricably influences the child's social and emotional development.

However, Fonagy has recently changed focus on the use of attachment in the development of mentalization, citing the theory of natural pedagogy, developed by Csibra and Gergely (2009) to explain how attachment history creates distinct epistemic states, or conditions

for communication of interpersonal and intrapersonal knowledge. In this theory, human communication is primarily an evolutionary imperative, required for the transmission of cognitively opaque cultural knowledge. Ostensive cues trigger a special mode of learning in the infant, in which the child feels that the subsequent communication will contain information that is specifically relevant that is encoded with other knowledge relevant to social situations. A securely attached child will believe that his/her caregiver is a reliable source of knowledge because of this history of communication, in part through consistent emotional responses (Csibra & Gergely, 2011). Fonagy and Allison (2014) have more recently argued that:

although attachment may be a key mechanism for mediating epistemic trust, it is secondary to an underlying biological process preserved by evolution. In other words, secure attachment is unlikely to be necessary for generating epistemic trust but it may be sufficient to do so, and, further, it is the most pervasive mechanism in early childhood because it is a highly evolutionarily effective indicator of trustworthiness (Fonagy & Allison, 2014, p. 374).

As demonstrated by Fonagy and colleagues during the development of the RF scoring system (Fonagy et al., 1991), there is a wide range in the capacity of individuals to mentalize. As currently theorized, this spectrum is a result of the individual differences in the early dyadic relationship of mother and infant. Disruptions in the attachment relationship, regardless of the reason, may hinder the development of mentalization in the child. As mentalization is posited to be fundamental in the development of the sense of self and in self-regulation, impairment of this capacity will disrupt the developing capacity for object relations and affect regulation (Fonagy et al., 2002; Slade et al., 2005; Fonagy & Target, 2006).

During normal development, the infant develops an awareness of himself as a separate self through communication with significant caregivers. This process begins with

communication of physical needs, which begins to consolidate the infant's physical self. Through the mother's early mirroring of the infant's responses, the child develops a basic emotional self. The infant learns to recognize that the mother's mirroring reflects something that comes from within. Fonagy and colleagues (2002) emphasize the importance of "high but imperfect contingencies" as a kind of mirroring that supports the healthy development of affect recognition and regulation. The mother mirrors the child in such a way that is slightly modified and elaborated on the emotions of the child. In this way, the mother "marks" the emotion and communicates that the mother understands and empathizes with the child's emotions (Bateman & Fonagy, 2004).

In presenting a slightly altered and heightened version of the emotion, the child moves toward a second order representation of affect, building on a cognitive appraisal component. The parent allows the child to develop a secondary representation of primary affect states, as the parent communicates a metabolized version of the affect. This exaggerated version, mirrored to the child should be experienced by the child as a representation of the child's affect and not the affect itself, allowing the child to differentiate his own affect from the parent's affect. This process ultimately teaches the child to recognize affect that is internally generated as distinct from the affect of others (Fonagy et al., 2002). Fonagy and colleagues refer to the experience of anxiety specifically, as a "confusing mixture of physiological changes, ideas and behaviors." The mother organizes the child's experience by reflecting back the child's anxiety so he knows what he is feeling. These interactions between mother and child organize different internal states in knowable and containable mental states. The mother's representation of the child's affect is assumed by the child and is "mapped onto the representation of his self-state." These different self-states consolidate into a sense of self.

Direct reflection on the part of the mother that too literally mirrors the child's emotion without marking it is experienced as the caregiver's affect, not the infant's. Inaccurate reflection, direct reflection, or an absence of reflection may work to keep the baby's feelings unsymbolized, and therefore confusing, perhaps uncontainable and even frightening. Bateman and Fonagy (2004) further hypothesize that if the caregiver does not appropriately mirror the child's affects, the child is deprived of the feeling of being known, which can interrupt the process of self-object differentiation. The experience of being safe with one's feelings allows the child to feel capable of being regulated. Chronic experiences of being "unknown, obliterated or dysregulated create feelings of danger, insecurity or falseness and unreality" (Slade, 2002, p. 2).

When the mother is unable to reflect affect to the infant, creating an emotional scaffold for the child, the earliest stages of self development are disrupted. Often parents who are unable to facilitate this process have deficits or disruptions in mentalization, whether due to interfering illness or due to their own childhood trauma and are unable to regulate their own strong emotions, and may expose their children to abuse or volatile environments. As a result the child is not supplied with an important psychological protective tool and is burdened with greater emotional trauma. If the child feels that his own mind or the mind of the caregiver is overwhelming or otherwise intolerable, the child may actively avoid reflection as it is too threatening. In this way, a deficit in mentalization is a developmental failure but also represents a defense against unbearable feelings.

Fonagy and Bateman (2006) describe the relationship between mentalization and affect regulation as a mutually influencing process that influences and shapes the formation of healthy self-object representations. They suggest that an individual who is constitutionally vulnerable who then experiences developmental trauma will have an unstable representation of self. In an

attempt to cope with this destabilization, the individual will rely on early psychological mechanisms, such as primitive defenses, to organize emotional experiences. This type of disturbance impedes emotional development, as what Fonagy and Target (2006) term the mentalizing self is critical to increasingly sophisticated types of affect regulation. They note that rudimentary affect regulation is a prelude and required for the development of mentalization, but once mentalization occurs, the capacity for and nature of affect regulations expands.

Mentalization supports the transformation of affect states, and more importantly, is used to regulate the self, as the “child’s capacity to create a coherent image of mind depends on an experience of being perceived as a mind by the attachment figure” (p. 554, Fonagy & Target, 2006). The infant’s capacity to self-soothe evolves into the ability to keep a stable sense of self and use this stability in supporting emotion regulation.

As Fonagy and Target (2006) hypothesize, in order for mentalization to fully develop, the child needs the attachment system to not be regularly activated. The dysregulation and arousal created by the activation of the attachment system does not allow the child to have the emotional or cognitive space to make sense of the world or richly develop the concept of mind. An insecurely attached child bears a more chronic state of hyperarousal, and as a result, may expend emotional resources to self regulate and make sense of an unpredictable caregiver, not leaving sufficient reserves to develop a mentalizing self, in reflecting on or making meaning of reality. A childhood environment which most supports the development of mentalization should also support the child’s ability to explore, play, learn, and freely understand himself in a safe environment. In this way, the environment that produces mentalization, as well as the subsequent healthy mentalization itself play a crucial role in the consolidation of the self, critical to identity development and affect regulation, allowing for more effective coping in the face of

stress. Individuals with lower mentalization capacity may have serious disturbances in their sense of self and ability to manage strong emotions, which may, in turn, interfere with interpersonal relationships.

Lower RF scores have been found to be correlated to borderline personality disorder (BPD) and other psychiatric difficulties. In a study of 82 inpatients, patients with a diagnosis of BPD were significantly more likely to have low RF scores than average or above average RF scores (Fonagy et al., 1996; Fonagy et al., 1998). Fonagy and colleagues' theorize that underlying much of the pathology of BPD is a failure to symbolize affect states in the context of attachment relationships (Fonagy et al., 2002; Bateman & Fonagy 2004), which would be represented in a failure to mentalize. Bateman and Fonagy assume this skill was underdeveloped or fails because the child did not experience effective marking and contingent mirroring, and therefore did not learn to distinguish between the caregiver's affect state and his own state. Even if the affect state reflected to child by the parent does not match with the child's affective experience, the child may still internalize these representations, including identifications of the self as bad or destructive, creating an "alien self." According to Bateman and Fonagy (2004), as adults, patients with BPD struggle to view themselves and others as separate beings and either merge with good aspects of the other, or project these alien aspects of self on to the other, in order to create and maintain a sense of continuity within the self. In addition, patients with BPD actively, defensively inhibit thinking about the mental states of self and others, as "these experiences have led them to experiences of unbearable pain." Chiesa and Fonagy (2013) found that lower RF scores were associated with both childhood adversity, defined as abuse and neglect, and PDs. As mentalization becomes protective during times of stress, individuals with deficits in mentalization will be comparatively further destabilized by stress. Inhibition of

mentalization may be adaptive in an abusive child-parent relationship, as sharing a mind with disturbed and abusive parent can be destabilizing. However, this adaptive defense also results in an ego weakness, leaving patients with BPD more prone to emotional lability and poor coping strategies. Lacking the ability to create a secondary representation of affect states, patients with impairments in RF may act out as both a failure in affect regulation and for the purpose of expressing internal states. When RF is not impaired, it serves as a resource to protect against trauma related emotional difficulties.

Reflective Function, symptomatology and psychotherapy

Choi-Kain and Gunderson (2008) compared mentalization to similar concepts such as empathy, mindfulness, psychological mindedness, and affect consciousness. When comparing these five concepts, they did find conceptual distinctions across dimensional dichotomies of implicit and explicit modes of mentalizing, the facility of self-oriented mentalization versus other-oriented mentalization, and the integration of cognitive-affective aspects of both process and content of understanding mental states. In the *Handbook of Mentalizing in Mental Health Practice* (2012), Bateman, Fonagy and Luyten emphasize differences in the self- versus other-oriented mentalization. These differences may manifest in three possible forms: impaired mentalizing about both the self and others; marked imbalances in mentalizing about the self and other; and imbalances in different way of mentalizing about the self and others.

As a caveat to the expanding inquiry into the utility of RF in the development of effective treatments, Choi-Kain and Gunderson (2008) emphasize that the validity of the RF measure is underdeveloped. Furthermore, they suggest that a deeper understanding of the relationship of RF to borderline personality disorder and other diagnostic groups would elucidate the concept and usefulness in treatment development. RF has been investigated in outcome research studies for

the treatment of borderline personality disorder (Levy et al., 2006; Yoemans et al., 2008; Bateman & Fonagy, 2008; Bateman & Fonagy, 2004). Although mentalizing theory was developed within the context of the formulation of mentalization-based treatment (MBT), Fonagy & Allison (2014) have argued that MBT has grown into a comprehensive approach to the understanding and treatment of personality disorder more broadly across clinical settings. Further, they posit that mentalization may be usefully described as a “common factor across different forms of effective psychotherapy.

Levy and colleagues (2006) assessed the changes in attachment organization and reflective function for three types of year-long psychotherapy treatments for BPD: transference-focused psychotherapy (TFP), dialectical behavior therapy (DBT) and a modified psychodynamic supportive psychotherapy. Significant improvements in RF and narrative coherence were observed in patients treated with TFP, changes not found for other treatment conditions. In an earlier paper from the same study, Clarkin et al, (2006) found that TFP was related to reductions in aggression, as well as depression, anxiety, anger and suicidality. However, the nature of the relationship between RF and these symptoms is an understudied aspect of clinical research. The study of RF within the context of clinical trials might give insight into differences among people with various symptoms in combination with personality.

Fischer-Kern and colleagues (2010) examined the relationship between personality organization, using the Structured Interview of Personality Organization (STIPO; Clarkin et al., 2004), RF, using the Adult Attachment Interview, and the number of Axis I or Axis II diagnoses in a sample of 92 female borderline outpatients. The STIPO is a semistructured version of Kernberg’s clinical Structural Interview (1984). It examines seven dimensions of personality functioning: identity consolidation, quality of object relations, use of primitive defenses,

character rigidity versus adaptive coping, quality of aggression, moral values and reality testing. Each dimension is derived from a question-based scoring method, with clinical ratings for each dimension ranging from absence of pathology to very severe pathology. Furthermore, an assessment of the level of personality organization, normal, neurotic (neurotic 1 or 2), or borderline (borderline 1 to 3) is made. Thus, descriptors of borderline 1, 2 or 3 refer to different levels of personality organization. They found significant correlations between level of personality organization and number of Axis I or Axis II disorders and a moderate association between RF and level of personality organization. However, they found no association between the number of Axis I or Axis II disorders and RF. This finding was in contrast to an earlier study by these researchers (Bouchard et al., 2008), which showed lower levels of mentalization to be significantly associated with the severity of both Axis I and Axis II pathology in a heterogeneous clinical and nonclinical sample.

As noted above, other than studies on borderline personality disorder, literature on the relationship between RF and psychopathology is sparse. Fischer-Kern and colleagues have conducted two studies examining the relationship between Axis I disorders and RF (Fischer-Kern et al, 2013; Fischer-Kern et al, 2010). In a study of 46 inpatients with major depressive disorder, RF was scored using the AAI, and compared with that of 20 “healthy” controls. The authors found highly impaired RF in severe chronically depressed inpatients as compared to the controls. Furthermore, patients with comorbid depression and dependent personality disorder had higher RF scores than those with depression alone, while those with comorbid depression and schizoid personality disorder had lower RF scores than those with depression only (Fischer-Kern et al., 2013). Ward et al (2001) observed a lower level of general RF in 20 inpatients with anorexia nervosa in comparison to a healthy control group. These findings may also be

considered consistent with research by Rastam et al. (1997) observed a subset of anorectic patients that may have difficulty identifying and communicating feeling states, although they used a measure of alexithymia to characterize this group.

A study by Rudden, Milrod, Target, Ackerman, and Graf (2006) noted that RF in 49 panic disorder patients was not impaired. However, Rudden et al. (2006) also measured Panic-Specific RF (PSRF), a scale derived from semistructured interview to elicit the patients' understanding of the connection between aspects of their inner lives and their symptoms, analogous to general RF yet targeting preoccupying symptoms. The authors found that mean PSRF scores were significantly lower than mean general RF scores, signifying that the patients were not impaired overall in their measured ability to mentalize, but were impaired with regard to reflection on their panic symptoms.

Bouchard et al. (2008) investigated the relationship between various measures of mentalization, attachment status and the severity of Axis I and II pathology. Twenty-two participants were assessed for Axis I and II diagnoses using the SCID-I and SCID-II and RF using the AAI. Using hierarchical multiple regression, RF was shown to be associated with the number of Axis I and II diagnoses, as well as their severity in a mixed sample of both clinical and non-clinical populations. Lower RF was associated with greater severity of both Axis I and II pathology, particularly among patients with primary Axis II disorders. In a sample of 24 female inpatients, Mueller et al. (2006) assessed RF and used the "structure" Axis of the operationalized psychodynamic diagnosis (OPD; OPD Task Force, 2001) as a measure of personality. The OPD concept of "structure" closely relates to Kernberg's model of personality organization and is assessed on six dimensions (self-perception, self-regulation, defense, object perception, communication, and attachment). The authors found a high positive correlation

between “structure” and RF in a mixed clinical sample. However, the power of RF to predict positive therapy outcome was largely independent of its relationship to this Axis on the OPD.

Current study

This study will investigate the relationship between reflective functioning and personality disorders in patients with primary DSM-IV-TR panic disorder with or without agoraphobia. The intention of this research is to delineate and clarify differences among patients with an Axis I disorder through classifications of personality disorders, particularly the clusters. The investigation of underlying and defining characteristics within comorbidity is central to making accurate and useful diagnosis and subsequent treatment planning and evaluation of treatment response. Pinpointing factors in symptomatology that distinguish patient factors that may affect the treatment of their symptoms may have important implications with regard to treatment planning. Distinctions in RF, if found, may suggest an approach to cataloging comorbid symptomatology, specifically panic disorder and personality disorders.

Aim 1

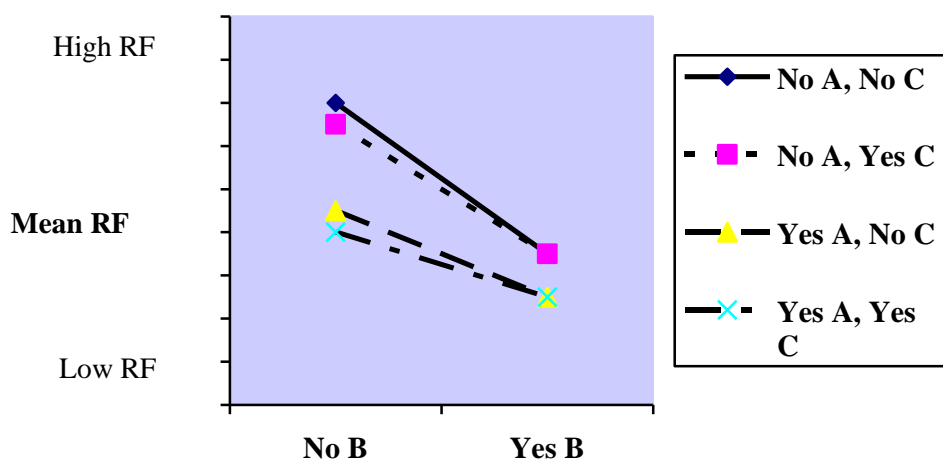
To examine the relationship between Reflective Functioning (RF) and axis II disorders in patients with primary DSM-IV panic disorder with or without agoraphobia.

Hypotheses

1. The presence of any personality disorder, as diagnosed by the Structured Clinical Interview for DSM-IV Axis II Personality Disorders (SCID-II) will predict lower RF scores.

2. The presence of any cluster B disorder will predict lower RF scores. This will be evaluated through the main effect of the presence of cluster B on RF scores in a general linear model (see further explanation in Methods below).
3. The presence of any cluster B disorder will moderate the relationship of clusters A and C with regard to RF score. Specifically, the presence of cluster B will correspond to lower RF scores overall (as stated in hypothesis 2) but when compared to cluster A will result in a relatively flatter slope. That is, those subjects with both clusters A and B will have lower RF scores than any other combination of personality disorder cluster. To demonstrate what this relationship would look like this hypothesized interaction is represented in Graph 1.

Graph 1: HYPOTHESIZED Estimated Marginal Means plot



CHAPTER 3: METHODS

Subjects

This study will examine data collected as part of a larger, National Institute of Mental Health (NIMH) funded study, “Dynamic therapy vs. CBT for Panic Disorder,” conducted by PIs Barbara Milrod, MD, at the Weill Cornell Medical College, and Jacques Barber PhD at the University of Pennsylvania School of Medicine. All data were collected between 2006 and 2011. The study was approved by the IRBs of Weill Cornell Medical College and University of Pennsylvania School of Medicine. Significant between-site baseline differences were found in some diagnostic criteria that are relevant to this study, specifically, severity of panic disorder as measured by the Anxiety Disorders Interview Schedule for DSM-IV Lifetime Version (ADIS-IV). Additionally, differences were found across a number of demographic variables and number of stable medications patients used throughout the course of the treatments. For the purpose of this dissertation, only data from one site, Weill Cornell Medical College, will be used. All research assessments used for the current analysis were carried out at New York Presbyterian Hospital-Weill Cornell Medical College, New York, NY 10065.

Procedures

Assessments:

Subjects with primary DSM-IV-TR panic disorder with or without agoraphobia were recruited through IRB approved advertisements in local newspapers, through fliers, and physician referrals. Initially, respondents were interviewed in a preliminary telephone screening consisting of questions related to the individual's current symptoms and functioning. Subjects who seemed appropriate for the study after the initial screening were invited to participate in a

comprehensive evaluation, conducted over two or more sessions. All participants signed written, informed consent.

Subjects were included in the study if they were between ages 18-70 and diagnosed with primary DSM-IV-TR panic disorder with or without agoraphobia on the Anxiety Disorders Interview Schedule for DSM-IV Lifetime Version (ADIS-IV) (Dinardo, Brown, & Barlow, 1995). Subjects were assigned diagnostic severity ratings on the ADIS, with a range of 0-8. In order to meet inclusion criteria for the study, subjects had panic disorder severity rating of equal to or greater than 4. Subjects were excluded from the study if they had a lifetime history of any psychotic disorder, bipolar disorder, if they met criteria for active substance dependence (6 months remission necessary), had an organic mental disorder, or were actively suicidal. Data from 99 patients at Cornell were used based on these criteria.

Blinded, independent research diagnosticians administered questionnaires evaluating a range of symptoms and psychosocial functioning, including work, family, friends and romantic relationships. All evaluations were conducted by master's level diagnosticians with at least 35 hours of training on the ADIS-IV-L and at least 12 hours of training on symptom measures. Diagnosticians also received training on conducting the RF and PSRF interview by Dr. Rudden, and administration of the RF and PSRF interview was monitored by ongoing supervision throughout the study. Patients filled out multiple self-reports. Only those measures relevant to the present analysis are outlined below:

Anxiety Disorders Interview Schedule for DSM-IV Lifetime Version (ADIS-IV) (Dinardo, Brown, & Barlow, 1995). The ADIS is a semi-structured diagnostic interview that focuses in extreme detail on diagnosis among the anxiety disorders. The ADIS assesses current mood, somatoform and substance abuse and dependence disorders, and screens for psychotic and

conversion symptoms. Subjects are rated on a 9-point severity scale ranging from 0 (absent) to 8 (most severe case). A score of 4 corresponds to meeting DSM IV diagnostic criteria for a given disorder.

Structured Clinical Interview for DSM-IV Axis II Personality Disorders (SCID-II). (First, Gibbon, Spitzer & Williams, 1997). The SCID-II, as used in this study, employs the SCID-II interview, covering the eleven DSM-IV personality disorders (including PD NOS) and the categories of depressive and passive-aggressive personality disorders, and a Personality Questionnaire, a screening tool consisting of 'yes' and 'no' answers, that shortens the interview by allowing the clinician to inquire only about positive answers. Scores on individual items are rated as a 1 (absent or false), 2 (subthreshold), or 3 (threshold or true). Only scores of 3 are counted as meeting criteria for each individual personality disorder, the number of which vary depending on disorder.

Reflective Functioning interview (RF) (Rudden, Milrod, Target, Ackerman, & Graf, 2006). The Reflective Functioning interview is a semi-structured interview, an abbreviated form of the Adult Attachment Interview (AAI) (Main & Goldwyn, 1994). The AAI focuses on individuals' early relationships with early caregivers. It specifically inquires about experiences of separations and reunions and reflections regarding the course of the relationship over time, asking for the person's best understanding and explanation of parents' behavior. Using the AAI, Fonagy et al. (1998) identified a subset of questions that specifically "demand" reflection, applying the AAI Reflective Functioning scoring system to these particular questions in the course of the administration of the entire interview. Mary Target and her colleagues constructed a semi-structured interview comprised only of these "demand" questions, including asking about only one parent. The group achieved moderate reliability on this interview (ICC = 0.68,

Spearman). This adaptation was employed in an attempt to make RF evaluations less time-consuming so it can be incorporated in the context of psychiatric outcome research, as the inclusion of the entire AAI would make the assessment unreasonably burdensome.

Reflective Functioning is scored on an 11-point scale that evaluates the quality of mentalization in the context of attachment relationships. Scores range from -1 to 9. A score of -1, categorized as negative RF, represents a complete repudiation of reflection, barren of mentalization with a bizarre distortion of the mental states of others. A score of 5 describes average reflective functioning, in which an individual demonstrates a basic capacity to link underlying mental states to behaviors. A score of 9 is considered exceptional RF, as the subject offers a complex, elaborate or vivid explanation of his or her parent's mental states, taking into account variations in perspective and allowing for conflictual experiences and the changing effects of time.

Although the RF Scale (Fonagy et al., 1998) was developed for use with the AAI, Fonagy et al. (1993) also discussed the scale's potential use in other narrative interviews. Rudden and colleagues piloted this adaptation as part of a sub-study specifically looking at patients diagnosed with panic disorder. Rudden was trained in RF scoring on the AAI by Mary Target and she achieved moderate reliability (ICC of 0.68, Spearman Brown's two way mixed effect model). Rudden subsequently trained two raters on scoring the abbreviated RF interview, Barbara Milrod and Elizabeth Graf and achieved excellent reliability, determining average ICCs on the RF portion of the interview between 0.78-0.95 (N = 62).

Data Analysis Plan

A general linear model will be used to test the mean differences on RF for 7 possible interactions. These interactions will be comprised of 7 possible combinations of personality disorders using the 3 clusters of PDs as defined by the DSM-IV-TR:

One-way interactions:

1. Presence or absence of cluster A personality disorder
2. Presence or absence of cluster B personality disorder
3. Presence or absence of cluster C personality disorder

Two-way interactions:

4. Presence or absence of a cluster A personality disorder and a cluster B personality disorder
5. Presence or absence of a cluster B personality disorder and a cluster C personality disorder
6. Presence or absence of a cluster A personality disorder and a cluster C personality disorder

Three-way interaction

7. Presence or absence of a cluster A personality disorder, a cluster B personality disorder, and a cluster C personality disorder.

In order to find significant results, the study design must meet requirements to minimize the probability of committing a Type II error and not finding a relationship between RF and category of Axis II if it does indeed exist. Therefore, a minimum sample size will be needed for adequate power. In this case, despite low Ns expected in each category, retrospective power analysis showed that if differences between the means of RF are as predicted, there is adequate power with the sample size collected. See Results section for further explication.

CHAPTER 4: QUANTITATIVE RESULTS

Sample Characteristics

The data for this project originated from a two site study, at The University of Pennsylvania Center for Psychotherapy Research and New York Presbyterian Hospital-Weill Cornell Medical College. As noted above, this study is based only on the baseline visits of the Weill Cornell Medical College sample, N = 99. 29 subjects were men (29.3%) and 70 were women (69.7%). The subjects had a mean age of 41.48 years (SD = 13.521). 65.7% identified themselves as Caucasian, 25.3% African American, 5% Asian, 1% Native American, and 2% mixed or other race, with 22% of subjects identifying as Hispanic.

Due to the presence of significant comorbidity in personality disorder diagnoses in this sample, in which a simple summary of clusters would not accurately represent the diversity of diagnoses in this sample, they will be described in multiple configurations. The purpose of presenting these different configurations is to give a multi-dimensional picture of this sample. At baseline, by DSM-IV-TR criteria, assessed using the SCID-II, 45 of 99 subjects did not meet criteria for any personality disorder (45%), 2 subjects met criteria for PD NOS (2%), and 5 subjects met criteria for only Depressive PD (5%). The following subjects may also have Depressive or Passive Aggressive PDs (from Appendix B of the DSM-IV-TR) and are listed in the following table, but are otherwise not an organizing characteristic (as they come from the Appendix) and are not taken into consideration in analysis of the data. Table 3 below lists all other PD by DSM categories.

Table 3: Personality disorders of subjects, listed by number of PDs

	ONE PERSONALITY DISORDER			TWO PERSONALITY DISORDERS	
	Not Otherwise Specified*	2	Cluster C only	OCPD & Avoidant	2
	Depressive only*	5		OCPD & Dependent	1
				Avoidant & Dependent	1
Cluster A	Paranoid only	3			
			Clusters A & B	Paranoid & Borderline	1
Cluster B	Narcissistic only	2			
			Clusters A & C	Paranoid & OCPD	3
Cluster C	OCPD only	14		Paranoid & Avoidant	2
	Avoidant only	3		Paranoid & Dependent	1
	Dependent only	1			
TOTAL w/1 PD		23	Clusters B & C	Narcissistic & OCPD	2
				Borderline & Dependent	1
				Borderline & OCPD	1
	THREE OR MORE PERSONALITY DISORDERS		TOTAL w/2 PD		15
Cluster C only	Avoidant, Dependent & OCPD	1			
Cluster A & C only	Paranoid, Avoidant & OCPD	4			
	Paranoid, Avoidant, Dependent & OCPD	1	Totals	Any personality disorder	54
				Did not meet full criteria for any personality disorder	45
Cluster B & C only	Borderline, Avoidant & OCPD	1			
			Sample total (n)		99
Cluster A, B & C	Paranoid, Borderline & Dependent	1			
	Paranoid, Narcissistic & OCPD	1	TOTAL (n)	PD (excluding NOS and Depressive PD only)	47
TOTAL W/3+ PD		9			
				*not included in analysis or in total of 1 PD column	
				OCPD = Obsessive Compulsive PD	

This study examined the relationship between the presence and interactions of the three different personality clusters, the following table (Table 4) shows the number of people who were identified with a personality disorder in each cluster. Individuals may be counted in more than one cluster due to comorbidity.

Table 4: Presence of personality disorder by cluster

		N
A	No	82
	Yes	17
B	No	89
	Yes	10
C	No	58
	Yes	41
Any PD (excluding NOS and depressive PD only)		47

The cluster A group was comprised only of patients with paranoid PD, with no schizoid or schizotypal personality disordered patients. The cluster B group included borderline PD and narcissistic PD, with no antisocial or histrionic personality disordered patients. As Table 3 and Table 4 demonstrate, unsurprisingly, this sample is heavily weighted toward Cluster C, the “anxious/fearful” personality disorders, and overall OCPD was the most common personality disorder. There are three fold more cluster C personality disorders as there are cluster A or cluster B. This will be taken into account in the general linear model in Table 9.

For this sample, RF scores range from 2 to 7.5, and are listed in the table below (Table 5).

Table 5: Summary of reflective function scores

	RF scores	Frequency	Valid Percent	Cumulative Percent
	2.0	4	4.0	4.0
	2.5	9	9.1	13.1
	3.0	13	13.1	26.3
	3.5	8	8.1	34.3
	4.0	21	21.2	55.6
	4.5	3	3.0	58.6
	5.0	16	16.2	74.7
	5.5	7	7.1	81.8
	6.0	10	10.1	91.9
	6.5	2	2.0	93.9
	7.0	4	4.0	98.0
	7.5	2	2.0	100.0
Total		99	100.0	
Mean	4.34			
Median	4.0			
Missing		0		
Total		99		

The table below (Table 6) lists the average RF scores by each combination of personality disorder category, although it should be noted that this comparison is condensed from the full list of all possible interactions used for the general linear model (GLM) to detect interactions. Rather, Table 6 is meant to grossly summarize the respective RF of each possible combination and distinct category of personality disorder by cluster. The following categories are distinguished: cluster A only, cluster B only, cluster C only, clusters A and B (no C), clusters A and C (no B), clusters B and C (no A), or clusters A, B, and C.

Table 6: Mean RF for personality disorders categorized by cluster

PD Category	N	Mean RF	SD
No A, B or C PD	45	4.37	1.39
Cluster A only	3	4.67	2.52
Cluster B only	2	5.25	1.06
Cluster C only	23	4.24	1.45
Cluster AB	1	2.50	-
Cluster AC	11	4.46	1.08
Cluster BC	5	3.70	1.20
Cluster ABC	2	5.25	0.35
Total	92	4.34	1.38
NOS and Depressive PD only	7		
Total	99		

Relationship between RF and PD

The first analysis broadly examines if there is any relationship between the presence of any PD and RF score.

Table 7: RF scores comparing no PD to any PD**Group Statistics**

	PD	N	Mean	Std. Deviation	Std. Error Mean
Reflective function score	NO	44	4.205	1.3177	.1986
	YES	55	4.445	1.4229	.1919

Table 8: Independent T test of yes PD versus no PD for RF scores**Independent Samples Test**

	Levene's Test for Equality of Variances:		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tail)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Reflective function score									
Equal variances assumed	.899	.345	-.865	97	.389	-.2409	.2786	-.7938	.3120
Equal variances not assumed			-.872	94.891	.385	-.2409	.2762	-.7892	.3074

The mean RF scores do not differ between subjects with PD and those without PD, with no significance differences found. In sum, although there may be an interaction between the cluster of PD and RF, this analysis was not able to find a predictable model. This is most likely due to a minimal effect. However, with a larger sample size, it is possible that the nature of the interaction could be detected. The implications of these findings will be discussed below.

A general linear model (GLM) was used to take into account all possible combinations of cluster A, B, and C personality disorders, with regard to RF means. The results are in Table 9.

Table 9: Test for relationship between reflective function and personality disorder
Tests of Between-Subjects Effects

Dependent Variable: Reflective function score

Source	Type III Sum of Squares	Df	Mean Square	F	Significance	Partial Eta Squared	Observed Power ^b
Corrected Model	9.478 ^a	7	1.354	0.700	.672	.051	.286
Intercept	441.069	1	441.069	228.14	.000	.715	1.000
A	0.174	1	0.174	.090	.765	.001	.060
B	0.392	1	0.392	.203	.654	.002	.073
C	0.276	1	0.276	.143	.706	.002	.066
A * B	1.097	1	1.097	.567	.453	.006	.116
A * C	6.609	1	6.609	3.419	.068	.036	.448
B * C	0.881	1	0.881	.456	.501	.005	.102
A * B * C	7.159	1	7.159	3.703	.057	.039	.478
Error	175.936	91	1.933				
Total	2048.750	99					
Corrected Total	185.414	98					

a. R Squared = .051 (Adjusted R Squared = -.022)

b. Computed using alpha = .050

As seen under the column above entitled 'Observed Power,' the available power to detect any of the three main effects, any of the two-way interactions or the three-way interaction are well below conventionally accepted standards, i.e., power = .80. Applying a Bonferroni

correction, the significance level would be $p = 0.007$ (versus using the standard probability level of 0.05). If strictly using significance testing, this study would meet those conditions. However, a statistical argument can be made that, while using a Bonferroni correction is necessary for experimental designs, doing so for nonexperimental designs (such as this study) is not imperative or appropriate (Garson, 2012). For this study, the data are essentially analyzed in a survey context, as this sample was not recruited for random assignment to different conditions (unlike the larger treatment study from which these data are drawn). In an experimental design, the goal is to draw valid statistical inferences for the purposes of internal validity, such as to examine the effects of an experimental treatment. Nonexperimental studies such as this are designed for external (rather than internal) validity; that is, the purpose of this study is to attempt to validly generalize any findings to a larger population, in this case, patients with panic disorder, with personality disorders. In this context, the sample is not a probability sample, but rather considered a convenience sample, or non-random sample (Garson, 2012, p21). Under these conditions, significance tests are less meaningful, both statistically and generally, than examining effect sizes. Using the test for significance, these findings indicate no significant interactions between the clusters of A, B and C and RF scores but that there may be a trend towards a three-way interaction, as $p = 0.057$.

The column entitled 'Partial Eta Squared' in Table 7 calculates the proportion of the variability attributable to an effect of the interaction between clusters A, B, and C has to predict RF scores. This is described as the effect size; in this case, the interaction of clusters A, B and C has an effect size of $\eta^2_{\text{partial}} = 0.039$. In other words, the effect of the interaction accounts for 3.9% of the outcome (in this case the RF score) plus associated calculated error. Partial eta squared equals 0.036 for the two-way interaction of clusters A and C. This is a small effect size,

as generally small effects using partial eta squared are estimated at 0.01, medium effects at 0.06, and large effects at 0.14 (Miles & Shevlin, 2012; Cohen et al., 2003). This model suggests that a small interaction may exist between two variables determined by the presence of a third variable.

The amount of the effect on this three way interaction is considered small. Note that in Table 9, this effect size equals 0.039 for the three way interaction for all three clusters (the same effect when covariance is not taken into consideration). In this case, there are three possibilities: 1) that there are different possible interactions between cluster A and B (and outcome of RF), which vary with the presence or absence of cluster C; 2) that there are different possible interactions between cluster A and C (and outcome of RF), which vary with the presence or absence of cluster B; or 3) that there are different possible interactions between cluster B and C (and outcome of RF), which vary with the presence or absence of cluster A. The a priori hypothesis based on the literature was that the presence of cluster B is principal and likely the moderating variable that combinations of cluster A and C vary on with regards to RF score.

Table 10: Comparison differences in mean RF scores

Pairwise Comparisons

Dependent Variable: Reflective function score

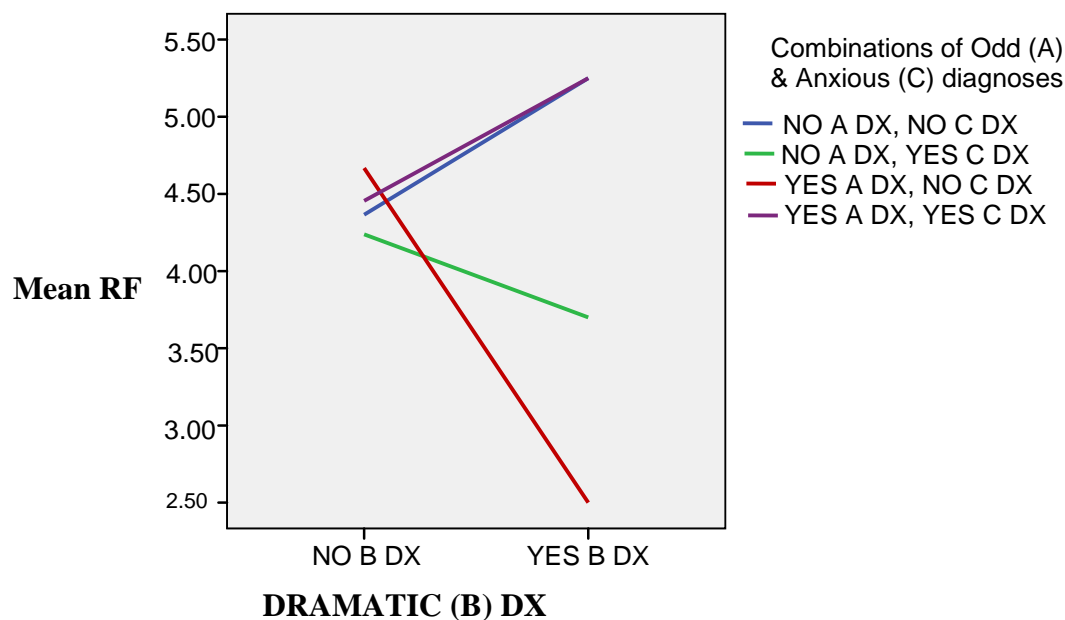
A	C	(I) B	(J) B	Mean Difference (I-J)	Std. Error	Sig. ^a	95% Confidence Interval for Difference ^a	
							Lower Bound	Upper Bound
.00	.00	.00	1.00	-.885	1.002	.380	-2.875	1.106
		1.00	.00	.885	1.002	.380	-1.106	2.875
	1.00	.00	1.00	.539	.686	.434	-.824	1.902
		1.00	.00	-.539	.686	.434	-1.902	.824
1.00	.00	.00	1.00	2.167	1.606	.181	-1.023	5.356
		1.00	.00	-2.167	1.606	.181	-5.356	1.023
	1.00	.00	1.00	-.795	1.069	.459	-2.919	1.328
		1.00	.00	.795	1.069	.459	-1.328	2.919

Based on estimated marginal means

a. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Note in Table 10 that none of these comparisons reach a level of significance. This is despite of the fact that the use of the Least Significant Difference (LSD) is considered liberal in that it runs the risk of meeting significance by error (committing a Type I error). Therefore, although there may be a trend towards an interaction between clusters A, B and C on RF scores, the effect of this interaction is small and no direction of this relationship can be determined in this sample. In fact, the observed plot of the relationship between the clusters and RF score (Graph 2) does not indicate the hypothesized interaction. The assumption was that the presence of Cluster B would correspond to lower RF scores, but that the presence of cluster A would result in a relatively flatter slope (Graph 1).

Graph 2: OBSERVED Reflective Functioning (RF) by Presence/Absence of Cluster B by Clusters A x C



In the hypothesized model, cluster B would yield predictably low RF scores. The observed plot does not characterize the hypothesis. In fact, there is no discernable pattern in this model. However, it should be noted that the *ns* for these categories are imbalanced and small

(see Table 6). For example, only 10 subjects in total met for any cluster B diagnoses. Only 2 subjects met criteria for cluster B alone, 1 subject met criteria for clusters A and B (but not C), 5 subjects met criteria for cluster B and cluster C (but not A), and 2 subjects met criteria for a diagnosis in each cluster. Furthermore, as discussed above, the interaction itself is found to have a small effect.

CHAPTER 5: DISCUSSION

Panic disorder with comorbid personality disorders and reflective functioning

The present study examined the relationship between reflective functioning and comorbid personality disorders in a population of panic disorder patients. Analyses explored whether there was an interaction between reflective functioning scores and the types and combinations of personality disorders as classified by clusters A, B and C. This analysis was not able to observe a predictable model to find or explain an interaction between PD and RF score in this sample. However, there was a trend toward a small effect of a three-way interaction between the clusters and RF scores, although the nature of this possible relationship was not established.

There are two arguments to be made to explain these results, essentially that there are no far-reaching conclusions to be drawn from this project, but some more specific questions are raised. The first explanation for these findings, that RF does not have a strong relationship to different clusters of personality disorders in this panic disorder sample, is that panic symptomatology overrode any other symptoms of psychological processes. The second explanation is that deficits in mentalization (as captured by RF scores) may not be apparent in all personality disorders, but rather a specific subset of PDs with various comorbidities. For example, borderline PD as comorbid among primary panic disorder patients may not manifest the same phenomena as in patients with primary borderline PD.

The relationship between Axis I and Axis II, in terms of the primary and driving pathology, may be one major factor in why the variances in RF scores were not statistically significantly different from each other within this sample. As much as there have been assumptions about the effects of Axis II in the treatment of Axis I disorders, as discussed in the review on comorbidity, there have also been arguments against the conjecture that Axis II is a

confounding factor that primarily interferes with Axis I. Specifically, that due to panic symptoms (or other anxiety disorders) being the principal and dominant pathology, an accurate sense of a person's long term personality traits during an acute phase of panic disorder is difficult (Bienvenu & Brandes, 2005). While an obvious explanation, it may simply be the case that with all other diagnoses secondary to panic, the patients in this sample with personality disorders are clinically different from those patients with primary personality disorders.

Furthermore, there is speculation that acute states of panic exaggerate a patient's personality vulnerabilities. To quote a suggestion made by Skodol et al. (1995) in their paper on "Patterns of anxiety and personality disorder comorbidity," the presence of personality disorders may be

an indication of chronic impairment in functioning that may accompany certain cases of anxiety disorder and may worsen during an acute exacerbation of an Axis I disorder. (Skodol et al., 1995, p 370.)

In this case, panic disorder could be an overriding factor. Given that the patients in this sample were selected for panic disorder as their primary complaint, corroborated by a clinical interviewer as part of the screening process, any personality disorders would be less prominent and potentially less influential on RF. The interference of a comorbid personality disorder in day-to-day functioning may amplify the panic disorder, reinforcing the debilitating symptomatology. Alternatively, when panic symptoms are acute and primary, a personality disorder could perhaps be less influential or prominent in impairments of RF. Specific to this study, personality disorders may not have a direct, quantifiable relationship with reflective functioning in patients with panic disorder. This sample constitutes a different population from a primary personality disorder population, who experience interference in their lives primarily because of their personality disorder, even if they also meet criteria for panic disorder or other

Axis I disorders. Therefore, the personality disorders in this sample of panic disorder patients, although detectable, may not be the primary and driving factor in low reflective functioning for this group. On average, this sample had “low” RF scores, but with no significant differences between those with personality disorders (averaging 4.4, $SD = 1.4$) and those without personality disorders (averaging 4.2, $SD = 1.3$). As an aside, however, it is notable that this “low” RF is comparatively not as low as found in existing studies of baseline RF and BPD treatment studies, such as Fischer-Kern and colleagues (2010; average RF = 2.7, $SD = 1.2$) or Levy and colleagues (2006; averages for three treatment groups were 2.86, $SD = 1.16$; 3.31, $SD = 0.95$; and 2.8, $SD = 0.80$). A further direction of study could isolate other factors within this sample, such as childhood trauma or agoraphobia to find other causes of the low RF. Additionally, future research could investigate individuals with primary diagnoses of BPD with co-morbid panic disorder with or without agoraphobia to examine differences in RF.

A second argument to explain the lack of findings in this analysis is that no relationship may exist between reflective functioning and personality disorders in the context of a primary anxiety disorder, even if there remains an open question with regard to borderline personality disorder specifically. In the existing literature, there have been mixed findings with regard to the relationship between Axis I and Axis II disorders and RF (Bouchard et al., 2008) in clinical and nonclinical samples. There has been some evidence of a relationship between impaired reflective function and borderline personality disorder in comparison to a non-psychiatric group (Chiesa & Fonagy, 2013). This current study is consistent with a previous study on Axis I and Axis II disorders and RF, in which no association was found between RF and number of Axis I and Axis II disorders (Fischer-Kern et al., 2010).

The results of this analysis, that RF does not provide a window for making distinctions within a panic disorder population that correlates with psychiatric diagnosis or symptoms per se, may not be generalizable to other Axis I disorders, nor to patients who are hospitalized. Other projects, that may otherwise appear comparable to this paper, examine populations that may have a different ability to mentalize. For example, in a study by Fischer-Kern and colleagues (2013) regarding depression, as summarized in the literature review section, patients who were hospitalized with primary major depression were shown to have lower RF scores than matched healthy controls.

Overall, the sample in this study did have high levels of Axis I comorbidity, with 80% of subjects meeting DSM criteria for agoraphobia, 70% of subjects meeting criteria for any anxiety disorder other than panic disorder, and 70% meeting criteria for other Axis I disorders (such as depression). However, despite the high symptomatology found within this sample was conducted in an outpatient setting, the majority of patients were self-referred, were either working or in school, and had no history of hospitalization; thus they were functioning at a higher level than studies conducted on inpatients. The patients in this study were required to attend the in-person baseline assessment, which presumes potential agoraphobic symptoms to be manageable to the extent that subjects can come to the facility, even if they were accompanied. Other studies showing a relationship between RF and other Axis I disorders, such as depression (Fischer-Kern et al., 2013) or anorexia (Ward et al., 2001), were inpatients at the time of their assessments. Although clear assessment of severity of symptoms for either of these samples is not available, these inpatients may have had higher levels of symptomatology overall that would justify a psychiatric hospitalization.

Another explanation for the lack of findings in this study may be the use of the abbreviated form of RF interview, which may focus more specifically on patients' capacities for mentalization of others' minds rather than their own. The RF scale itself conflates representation of self with representations of other, but higher RF scores are expected to reflect good working capacities in both. Fonagy and colleagues (1998) also acknowledge that mentalization may not be a fully consistent capacity across situations or relationships:

RF is a strand within the developmental web, one of the many distinct control systems that are neither strongly connected with each other, nor coordinated or integrated. The "fractionation" or splitting of all abilities as a function of tasks and domains is well demonstrated, and we might expect RF to be subject to the same kind of developmental *décalage* (unevenness) which characterizes the rest of cognitive development...Unevenness across situations is likely to remain prevalent even in adults, especially when they are emotional (Fonagy et al., 1998, p. 8).

This RF interview, in the interest of making the overall assessment less burdensome, asks patients to describe only one parent and allows them to choose which parent to speak about. Further, it asks patients to choose and describe another significant person in their lives (typically a less emotionally-charged relationship). As discussed in the review of the psychodynamic theory on panic disorder, patients may have representations of themselves as weak and that others are powerful (Shear et al., 1993). The demand questions for this abbreviated form of RF are focused on the representation of others. The patients' scores will be different than if asked to reflect on their representation of themselves by the very nature of the patient's object relations, rather than a true measure of their capacity to reflect on both the mental states of themselves and others.

The lack of findings in this study and the potential explanations to account for these results suggest interesting new directions for study. There have been some assumptions about the primacy of personality disorders; that is, the presence of personality disorders, especially borderline or narcissistic PD, can dwarf Axis I disorders, and therefore disrupt primary Axis I disorder treatment that does not specifically account for Axis II disorders. However, the primary symptoms that debilitate a patient's functioning may override or shape the expression of personality difficulties. One direction of study would be to examine the outcomes of the psychotherapy for panic disorder with regard to PD, looking for patterns of response.

Reflective functioning may not help to make distinctions with regard to Axis I and Axis II comorbidity, although the lack of findings here may be specific to panic disorder. Further study into making distinctions between patients with Axis II disorders with regard to RF may yield deeper understanding of the nature of RF as a corollary to the diagnostic process.

Limitations of this study

Sampling limitations:

This project has several significant limitations; therefore, the generalizability of these findings must be couched in the context of this analysis. This study may be limited in its scope of applicability. This project only included patients who could come to the research offices and planned to tolerate twice weekly out-patient psychotherapy. Therefore, it may have excluded the most disturbed patients, especially those with severe agoraphobia such as those who could not leave their homes, even with a companion. Furthermore, the mean age of the sample is 41.48 years ($SD = 13.521$), putting the majority of subjects approximately within the age range of 28-55. This is an older sample as compared to many treatment studies, including Fischer-Kern et al. (2010) (mean age = 27.7, $SD = 7.3$) and the Collaborative Longitudinal Personality Disorders

Study, in which the entry age of subjects (in the ten-year study) ranged 18-45 years (Skodol et al. 2005). The latter study found a pronounced drop in symptomatology over time across all PDs (as measured on the Diagnostic Interview for DSM–IV Personality Disorders (DIPD-IV; Zanarini, Frankenburg, Sickel, & Yong, 1996)), particularly within the first four years of the study. BPD symptomatology, including dissociation, dysphoria and cognitive distortions, declined over time (Zanarini et al. 2008; Reed et al. 2012; Zanarini et al, 2013). It is difficult, therefore, to draw any conclusion about the relative low levels of personality pathology in this panic patient sample.

However, with regard to the distributions of personality disorders, the sample sizes for each cluster are uneven and small in some cases. In particular, cluster B were not well represented, and OCPD was the most represented. In previous studies, there has been a more robust link between cluster B disorders (especially BPD) and low RF, than has been yet found with other personality disorders. Additionally, several factor analytic studies examining the DSM PD constructs and clusters have questioned if OCPD stands apart from clusters A, B and C altogether, with some evidence that a four-factor structural model better accounts data from clinical samples (Sanislow et al. 2009). A more meaningful and robust comparison between the groups may be made with balanced sample sizes, which would have entailed a different recruitment strategy and study design.

Conclusion

This study examined the relationship between reflective functioning and personality disorders in a sample of patients with primary panic disorder. Using the statistical models above, although some interaction between clusters A, B and C may exist, as a statistical trend was apparent, no

meaningful relationship was established. RF was not found to be predictive of the presence, type or number of SCID II diagnosed personality disorders. The results may suggest that in a sample with a primary diagnosis of panic disorder, RF does not correlate with differences in personality pathology diagnosed on SCID II, such as has been observed in previous studies with a primary personality disorder sample (Levy et al., 2006). This study may demonstrate limitations in the use of RF to distinguish between panic disorder and personality disorders. Further study into the relationship between PDs and panic disorder is warranted, particularly with regard to what aspects of panic or personality symptomatology become amplified or less observable and are primarily challenging and problematic for the patient.

APPENDIX

Appendix 1: Anxiety Disorders Interview Schedule for DSM-IV Lifetime Version (ADIS IV) (*PANIC SECTION only*)

PANIC DISORDER

I. INTIAL INQUIRY

1a. Do you currently have times when you feel a sudden rush of intense fear or discomfort (what someone might call a “panic attack”)?

YES ___ NO___

IF YES, skip to 2a.

b. IF NO, Have you ever had times when you have felt a sudden rush of intense fear or discomfort?

YES___ NO___

IF YES, When was the most recent time this occurred?

.....
IF YES to either 1a or 1b., or uncertain, continue inquiry.

Otherwise skip to AGORAPHOBIA.
.....

2a. In what kinds of situation(s) do you have these feelings? Where are you most likely to have these feelings?

b. Do you ever have these feelings come from “out of the blue,” for no apparent reason, or in situations where you did not expect them to occur? YES___ NO___

If patient indicates the presence of unexpected panic symptoms, further inquiry is necessary to determine if these symptoms occur in a number of situational contexts or whether the symptoms are circumscribed to a particular type of situation (as can occur in Social or Specific Phobia).

2. How long does it usually take for the rush of fear /discomfort to reach its peak level? _____ minutes

(Must be less than or equal to 10 minutes to meet diagnostic criteria)

3. How long does the fear/discomfort usually last at its peak level? _____ minutes

.....
If no evidence of unexpected (uncued) panic attacks that peak in less than 10 minutes, consider ending the interview or, if uncertain, continue interview.
.....

II. SYMPTOM RATINGS

In this section rate symptoms only for panic attacks that occur UNEXPECTEDLY in a variety of situations. Panic symptoms that are limited to a single stimulus (e.g., enclosed places or heights, social situations, obsessional content, etc.) should not be rated here.

In mixed or uncertain cases, ratings can be completed in this section.

Rate the severity of each symptom that is *typical of the most recent period of attacks* and, when appropriate, what characterized a typical attack in a separate past episode of disturbance. *If a symptom is experienced during only some attacks (i.e., does not typically occur during an attack), enclose the rating in parentheses.*

DSM-IV defines a panic attack as a discrete period of intense fear or discomfort, in which at least 4 of the symptoms listed below developed abruptly and reached a peak within 10 minutes. If typical attacks do not include 4 symptoms, determine if any attack has included 4 symptoms.

Use the following inquiry when rating symptoms:

- 1) During the panic attack, do you usually experience _____?
- 2) Using Scale A, how distressing/severe is the symptom to you? If there is any doubt about whether the symptom is typical, ask: Do you experience this nearly every time you have an attack?

0-----1-----2-----3-----4-----5-----6-----7-----8
 None Mild Moderate Severe Very severe

	FULL	LSA	COMMENTS
a. Palpitations, pounding heart, or accelerated heart rate	_____	_____	_____
b. Sweating	_____	_____	_____
c. Trembling or shaking	_____	_____	_____
d. Shortness of breath or smothering sensations	_____	_____	_____
e. Feeling of choking	_____	_____	_____
f. Chest pain or discomfort	_____	_____	_____
g. Nausea or stomach distress	_____	_____	_____
h. Chills or hot flushes	_____	_____	_____
i. Dizziness, unsteady feelings, lightheadedness, or faintness	_____	_____	_____
j. Feelings of unreality or being detached from oneself	_____	_____	_____
k. Numbing or tingling sensations	_____	_____	_____
l. Fear of dying	_____	_____	_____
m. Fear of going crazy	_____	_____	_____
n. Fear of doing something uncontrolled	_____	_____	_____

2a. If the patient reports *4 or more symptoms per typical attack of at least Moderate Severity (i.e., 4 or above)*, ask:

Do you have periods (attack/spells) when you have a sudden, unexpected rush of fear/discomfort that is accompanied by only one or two these symptoms?

YES _____ NO _____

If YES, go back and rate severity of symptoms under Limited Symptom Attack (LSA) column.

b. If the patient reports less than 4 symptoms per typical attack, ask:

Do you have periods (attack/spells) when you have had a sudden, unexpected rush of fear/discomfort that is accompanied by four or more of these symptoms?

YES ____ NO ____

If YES, go back and rate severity of symptoms under Full Attack (FULL) column, switching rating for typical, recent panic attacks to the Limited Symptom Attack (LSA) column.

III. CURRENT EPISODE

Now I want to ask you a series of questions about this current period of panic attacks.

1a. How many panic attacks have you had in the past month?

_____ Full _____ Limited

b. How many panic attacks have you had in the past 6 months?

_____ Full _____ Limited

Using the following scale as a guide, rate how much you have been worried about, or how apprehensive you have been, of having another panic attack.

0-----	1-----	2-----	3-----	4-----	5-----	6-----	7-----	8
No	Rarely		Occasionally		Frequently		Constantly	
Worry/ No	worried/ Mild		worried/ Moderate		worried/ Severe		worried/ Extreme	
apprehension	apprehension		apprehension		apprehension		apprehension	

If no evidence of persistent concern/worry about panic over past month ask, Since your first attacks, has there been a period of a month or more when you were worried that you might have more attacks?

YES ____ NO _____

If YES, When was this?

FROM _____ TO _____

b. Specifically, what types of things do you anticipate happening as the result of the attacks? (Inquire about immediate and long-term consequences.)

c. Have the attacks caused you to change your behavior/lifestyle in any way?

YES ____ NO _____

If YES, how so? _____

Situational avoidance (i.e., agoraphobia):

Interoceptive sensitivity/avoidance (e.g., physical exertion, sex, caffeine, expressing strong emotions, hot places, thrilling movies, activities that heighten awareness of bodily sensations):

Safety signals (e.g., medications, people, access to telephones/car):

Distraction (loud music, keeping TV on, staying involved in activities):

Lifestyle changes (e.g., reduction in “stressful” activities):

(Patient must have 2a, 2b, OR 2C for at least one month in order to meet Panic Disorder criteria.)

3. In what ways have the panics interfered with your life (e.g., daily routine, job, social activities)? ; How much are you bothered about having the attacks?

Using Scale A as a guide, rate how much panic attacks have interfered with your life. interference: _____

Using the same scale, rate how much distress the panic attacks have caused you. distress: _____

(SCALE A)

0-----1-----2-----3-----4-----5-----6-----7-----8
None Mild Moderate Severe Very severe

4a. Can you recall your first panic attack that began this current period of attacks?

YES _____ NO _____

If YES, When did it happen? _____ Month _____ Year

b. Were you under any type of stress during this time?

YES _____ NO _____

What was happening in your life at the time?

Were you experiencing any difficulties or changes in:

(1) Family/relationship? _____

(2) Work/school? _____

(3) Finances? _____

(4) Legal matters? _____

(5) Health (self/others)? _____

c. On the day of this first attack, were you taking any type of drug? (Include alcohol/caffeine.)

YES _____ NO _____

If YES, specify type/amount: _____

5. Just prior to or since the panic attacks began, have you been regularly taking any types of drugs?

YES _____ NO _____

Specify (type; amount; dates of use): _____

6. Just prior to or since the panic attacks began, have you had any physical condition such as inner ear problems, mitral valve prolapse, pregnancy, hyperthyroidism, hypoglycemia?

YES _____ NO _____

Specify (type; date of onset/remission): _____

7. When did the panic attacks become a problem in that they occurred regularly and/or you became very worried or anxious about having more attacks, or the attacks caused a change in your behavior in some way? (Note: if patient is vague in date of onset, attempt to ascertain more specific information, e.g., by linking onset to objective life events).

Date of Onset: _____ Month: _____ Year: _____

8. What types of things seem to trigger the attacks? [Inquire about internal (thoughts, sensations, images) and external (feared situations, situations that elicit heightened self-focused attention, physical effects of various activities such as caffeine, exercise, etc). triggers.]

9. When a panic attack occurs, how do you handle it?

10. Besides this current period of panic attacks, have there been other, separate periods of time before this when you have had these attacks?

If YES, the clinician should consider inquiring about past episode, particularly if the clinician determines that this information may be important for clinical or diagnostic reasons.

Date(s) of prior episodes: _____

CURRENT PANIC DISORDER?

YES _____ NO _____

Appendix 2: Structured Clinical Interview for DSM-IV Axis II Personality Disorders (SCID II)

SCID-II QUESTIONNAIRE

INSTRUCTIONS: These questions are about the kind of person you generally are; that is, how you usually have felt or behaved over the past several years. Fill in “Yes” or “No.” Answer all the questions. If a question is unclear, pick the answer that best describes the kind of person that you are.

1. Have you avoided jobs or assignments that involved having to deal with a lot of other people? { Yes { No
2. Do you avoid getting involved with people unless you are certain they will like you? { Yes { No
3. Do you find it hard to be “open” even with people you are close to? { Yes { No
4. Do you often worry about being criticized or rejected in social situations? { Yes { No
5. Are you usually quiet when you meet people? { Yes { No
6. Do you believe that you are not as good, as smart, or as attractive as most other people? { Yes { No
7. Are you afraid to try new things? { Yes { No
8. Do you need a lot of advice or reassurance from others before you can make everyday decisions – such as what to wear or what in order in a restaurant? { Yes { No
9. Do you depend on other people to handle important areas in your life such as finances, child care, living arrangements? { Yes { No
10. Do you find it hard to disagree with people even when you think they are wrong? { Yes { No
11. Do you find it hard to start work on tasks when there is no one to help you? { Yes { No
12. Have you often volunteered to do things that are unpleasant? { Yes { No
13. Do you usually feel uncomfortable when you are by yourself? { Yes { No
14. When a close relationship ends, do you quickly need to find someone else you can rely on? { Yes { No
15. Do you worry a lot about being left alone to take care of yourself? { Yes { No
16. Are you the kind of person who focuses on details, order, and organization, or likes to make lists and schedules? { Yes { No
17. Do you have trouble finishing jobs because you spend so much time trying to get things exactly right? { Yes { No
18. Do you or other people feel that you are so devoted to work (school) that you have no time left for anyone else or for just having fun? { Yes { No
19. Do you have very high standards about what is right and what is wrong? { Yes { No
20. Do you have trouble throwing things out because they might come in handy some day? { Yes { No
21. Is it hard for you to let other people help out if they don’t agree to do things exactly the way you want? { Yes { No
22. Is it hard for you to spend money on yourself and other people even when you have enough? { Yes { No
23. Are you often so sure you are right that it doesn’t matter what other people say? { Yes { No
24. Have other people told you that you are stubborn or rigid? { Yes { No

25. When someone asks you to do something that you don't want to do, do you say "yes" but then work slowly or do a bad job? { Yes { No
26. Often, if you don't want to do something you just "forget" to do it? { Yes { No
27. Do you often feel that other people don't understand you, or don't appreciate how much you do? { Yes { No
28. Are you often gloomy and likely to get into arguments? { Yes { No
29. Have you often found that most of your bosses, teachers, supervisors, doctors, and others who are supposed to know what they are doing really don't? { Yes { No
30. Do you often think that it's not fair that other people have more than you do? { Yes { No
31. Do you often complain that only bad things happen to you? { Yes { No
32. Do you often go back and forth between telling someone off and then trying to make up by doing whatever they want? { Yes { No
33. Do you usually feel unhappy or like life is no fun? { Yes { No
34. Do you believe that you are basically an inadequate person and often feel not good about yourself? { Yes { No
35. Do you often put yourself down? { Yes { No
36. Are you a worrier? { Yes { No
37. Do you often judge others harshly and easily find fault with them? { Yes { No
38. Do you think that most people are basically no good? { Yes { No
39. Do you almost always expect the worst? { Yes { No
40. Do you often feel guilty about things you have or haven't done? { Yes { No
41. Do you often have to keep an eye out to stop people from using you or hurting you? { Yes { No
42. Do you spend a lot of time wondering if you can trust your friends or the people you work with? { Yes { No
43. Do you find that it is best not to let other people know too much about you? { Yes { No
44. Do you often pick up hidden meanings in what people say or do? { Yes { No
45. Are you the kind of person who holds grudges or takes a long time to forgive people who have insulted or slighted you? { Yes { No
46. Are there many people that you can't forgive because they did or said something to you a long time ago? { Yes { No
47. Do you often get angry or lash out when someone criticizes or insults you in some way? { Yes { No
48. Have you often suspected that your spouse or partner has been unfaithful? { Yes { No
49. When you are out in public and see people talking, do you often feel that they are talking about you? { Yes { No
50. Do you often get the feeling that things that appear to be unrelated are really meant to give you a special meaning? { Yes { No
51. Do you often detect hidden messages in seemingly unrelated events? { Yes { No
52. Have you ever felt that you could make things happen just by making a wish or thinking about them? { Yes { No
53. Have you had personal experiences with the supernatural? { Yes { No
54. Do you believe that you have a "sixth sense" that allows you to know and predict things that others can't? { Yes { No
55. Do you often think that objects or shadows are really people or animals or { Yes { No

- that noises are actually people's voices?
56. Have you had the sense that some person or force is around you, even though you cannot see anyone? { Yes { No
57. Do you often see auras or energy fields around people? { Yes { No
58. Are there very few people that you are really close to outside of your immediate family? { Yes { No
59. Do you often feel nervous when you are around other people? { Yes { No
60. Do you NOT feel close relationships with other people like family or friends? { Yes { No
61. Would you rather do things alone than with other people? { Yes { No
62. Could you be content without being sexually involved with another person? { Yes { No
63. Are there really very few things that give you a lot of pleasure? { Yes { No
64. Does it not matter to you what people think of you? { Yes { No
65. Do you find that nothing makes you very happy or very sad? { Yes { No
66. Do you like to be the center of attention? { Yes { No
67. Do you flirt a lot? { Yes { No
68. Do you often dress in a sexy way, even when you are going to work or doing errands? { Yes { No
69. Do you try to draw attention to yourself by the way you look or the way you dress? { Yes { No
70. Do you often make a point of being dramatic or colorful? { Yes { No
71. Do you find that your own opinions and feelings about things are not very strong so that you go along with other people's opinions? { Yes { No
72. Do you become very close with nearly everyone you meet? { Yes { No
73. Do most people fail to appreciate your very special talents or accomplishments? { Yes { No
74. Have people told you that you have too high an opinion of yourself? { Yes { No
75. Do you think a lot about the power, fame, or recognition that will be yours someday? { Yes { No
76. Do you think a lot about the perfect romance that will be yours someday? { Yes { No
77. When you have a problem, do you almost always insist on seeing the top person? { Yes { No
78. Do you feel it's worth spending time only with people who are special or important? { Yes { No
79. Is it very important to you that people pay attention to you or admire you in some way? { Yes { No
80. Do you think that it's not necessary to follow certain rules or social conventions when they get in your way? { Yes { No
81. Do you often feel that there are reasons why other people should give you especially good treatment? { Yes { No
82. Do you often find it necessary to step on a few toes to get what you want? { Yes { No
83. Do you often have to put your needs above other people's? { Yes { No
84. Do you often expect other people to do what you ask without question because of who you are? { Yes { No
85. Do you often feel that it's not important to deal with other people's concerns or feelings? { Yes { No

86. Does it burn you up when other people do well? { Yes { No
87. Do you feel that others are often envious of you? { Yes { No
88. Do you find that very few people are worth your time and attention? { Yes { No
89. Have you often become frantic when you thought that someone you really care about was going to leave you? { Yes { No
90. Do your relationships with other people you really care about have lots of ups and downs? { Yes { No
91. Have you abruptly changed your sense of who you are and where you are headed? { Yes { No
92. Does your sense of who you are often change dramatically? { Yes { No
93. Have there been lots of sudden changes in your goals, career plans, religious beliefs, and so on? { Yes { No
94. Have you often done things impulsively? { Yes { No
95. Have you tried to hurt or kill yourself or threatened to do so? { Yes { No
96. Have you ever cut, burned, or scratched yourself on purpose? { Yes { No
97. Are you a "moody" person? { Yes { No
98. Do you often feel empty inside? { Yes { No
99. Do you often have temper outbursts or get so angry that you lose control? { Yes { No
100. Do you hit people or throw things when you get angry? { Yes { No
101. Do even little things get you very angry? { Yes { No
102. Do you get suspicious of other people or feel especially spaced out when you are under a lot of stress? { Yes { No

THE FOLLOWING QUESTIONS ARE ABOUT THINGS THAT YOU MAY HAVE DONE BEFORE YOU WERE FIFTEEN

103. ...did you bully or threaten other kids? { Yes { No
104. ...did you start fights? { Yes { No
105. ...did you use a weapon in a fight, like a bat, brick, broken bottle, a knife or gun? { Yes { No
106. ...did you ever deliberately try to cause someone physical pain and suffering? { Yes { No
107. ...did you sometimes hurt animals on purpose? { Yes { No
108. ...did you ever forcibly take something from someone by threatening, robbing, or mugging him or her? { Yes { No
109. ...did you ever force someone to have sex with you? { Yes { No
110. ...did you set fires? { Yes { No
111. ...did you deliberately damage things that weren't yours? { Yes { No
112. ...did you ever break into a house, other building, or car? { Yes { No
113. ...did you lie a lot or con other people? { Yes { No
114. ...did you ever steal or shoplift things? { Yes { No
115. ...did you run away from home and stay away overnight? { Yes { No

BEFORE YOU WERE 13

116. ...would you often stay out very late, long after the time you were supposed to be home? { Yes { No
117. ...did you often skip school? { Yes { No

Appendix 3: Reflective Functioning Interview:

1. A. Can you tell me about one of your parents? What is that parent like?
B. How do you think your relationship came to be that way?
2. A. Can you tell me about your relationship?
B. Do you have any thoughts about how your relationship came to be that way?
(Alternative form of question: ...about how these conflicts and problems developed? ...about how it came to be such a close relationship?)
3. Can you tell me about a specific memory of that relationship or about that parent from childhood? (ages 5-12?)
4. Can you tell me how this relationship has changed over time?
(Ask why it has changed if they don't address this in their answer.)
5. Can you tell me what impact this parent has had on your life?
6. Can you tell me why you chose to talk about this parent?

REFERENCES

- Ainsworth, M.D., Blehar, M.C., Waters, E. & Wall, S. (1978). *Patterns of attachment: A psychological study of the strange situation*. New Jersey: Erlbaum.
- Alden, L.E., Wiggins, J.S., & Pincus, A.L. (1990). Construction of circumplex scales for the Inventory of Interpersonal Problems. *Journal of Personality Assessment*. 55(3-4), 521-536.
- Angold A, Costello EJ, & Erkanli A. (1999) Comorbidity. *Journal of Child Psychology and Psychiatry and Allied Disciplines*. 40(1):57–87.
- Bakkevig, J. F. & Karterud, S. (2010). Is the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, histrionic personality disorder category a valid construct? *Comprehensive Psychiatry*, 51(5), 462-470.
- Barlow, D. H., Raffa, S. D., & Cohen, E. M. (2002). Psychosocial treatments for panic disorders, phobias, and generalized anxiety disorder. In P.E. Nathan & J.M. Gorman (Eds.), *A Guide to Treatments that Work* (2nd ed .pp. 301-335). New York: Oxford University Press.
- Barlow, D.H., Gorman, J.M., Shear, M.K., & Woods, S.W. (2000). Cognitive-behavioral therapy, imiprimine, or their combination for panic disorder. *Journal of the American Medical Association*, 283, 2529-2536.
- Baron-Cohen, S, Leslie, A.M., & Frith, U. (1985). Does the autistic child have a ‘theory of mind’? *Cognition*, 21, 37-46.
- Barzega, G., Maina, G., Venturello, S. & Bogetto, F. (2001). Gender-related distribution of personality disorders in a sample of patients with panic disorder. *European Psychiatry*, 16(3), 173-179.
- Bateman, A.& Fonagy, P. (2004). *Psychotherapy for borderline personality disorder: Mentalization based treatment*. London: Oxford University Press.
- Bateman, A. & Fonagy, P. (2008). 8-year follow-up of patients treated for borderline personality disorder: mentalization-based treatment versus treatment as usual. *The American Journal of Psychiatry*, 165: 631-638.
- Bateman, A., Fonagy, P. & Luyten, P. (2012). Introduction and Overview. In A. Bateman & P. Fonagy (Eds.), *Handbook of Mentalizaing in Mental Health Practice* (1st ed. pp. Washington D.C.: American Psychiatric Publishing.
- Bender, D. S. & Oldham, J. M. (2005). Psychotherapies for borderline personality disorder. In Gunderson, J. G. & Hoffman, P. D. (Eds.) *Understanding and treating borderline personality disorder: A guide for professionals and families* (pp. 21-41). Arlington, VA, US: American Psychiatric Publishing, Inc.
- Bender, D. S., Morey, L. C., & Skodol, A. E. (2011). Toward a model for assessing level of personality functioning in DSM-5. Part I: A review of theory and methods. *Journal of Personality Assessment*. 93(4): 332-346.

- Berger, P., Sachs, G., Amering, M., Holzinger, A., Bankier, B., & Katschnig, H. (2004). Personality disorder and social anxiety predict delayed response in drug and behavioral treatment of panic disorder. *Journal of Affective Disorders*, 80(1) 75-78.
- Beutel, M. E., Scheurich, V., Knebel, A., Michal, M., Wiltink, J., Graf-Morgenstern, M., Tschan, R., Milrod, B., Wellek, S. & Subic-Wrana, C. (2013). Implementing Panic-Focused Psychodynamic Psychotherapy Into Clinical Practice. *Canadian Journal of Psychiatry*, 58(6): 326-334.
- Beutel, M.E., Stark, R., Pan, H., Silberswag, D. & Dietrich, S. (2010). Changes of brain activation pre- post short-term psychodynamic psychotherapy: An fMRI study of panic disorder patients. *Psychiatry Research: Neuroimaging*, 184: 96-104.
- Bigelow, A. E. (1999). Infants' sensitivity to imperfect contingency in social interaction. In P. Rochat (Ed.), *Early Social Cognition* (pp. 137-154). Hillsdale, NJ: Erlbaum.
- Bisaga, A., Katz, J.L., Antonini, A., Wright, C.E., Margouleff, C., Gorman, J.M., & Eidelberg, D. (1998). Cerebral glucose metabolism in women with panic disorder. *American Journal of Psychiatry*, 155, 1178–1183.
- Black, D. W., Wesner, R. B., Gabel, J. Bowers, W. & Monahan, P. (1994). Predictors of short-term treatment response in 66 patients with panic disorder. *Journal of Affective Disorders*, 30(4), 233-241.
- Bouchard, M.A., Target, M., Lecours, S., Fonagy, P., Tremblay, L., Schachter, A., & Stein, H. (2008). Mentalization in adult attachment narratives: Reflective functioning, mental states, and affect elaboration compared. *Psychoanalytic Psychology*, 25, 47- 66.
- Bowlby, J. (1969). *Attachment and Loss: Volume I: Attachment*. The International Psycho-Analytical Library, 79:1-401. London: The Hogarth Press and the Institute of Psycho-Analysis.
- Bowlby, J. (1973). *Attachment and Loss: Volume II: Separation, Anxiety and Anger*. The International Psycho-Analytical Library, 95:1-429. London: The Hogarth Press and the Institute of Psycho-Analysis.
- Bowlby, J. (1980). *Attachment and Loss: Volume III: Loss, Sadness and Depression*. The International Psycho-Analytical Library, 109:1-462. London: The Hogarth Press and the Institute of Psycho-Analysis.
- Brooks, R. B., Baltazar, P. L. & Munjack, D. J. (1989). Co-occurrence of personality disorders with panic disorder, social phobia, and generalized anxiety disorder: A review of the literature. *Journal of Anxiety Disorders*, 3(4), 259-285.
- Brown, T.A. & Barlow, D.H. (1995). Long-term outcome in cognitive-behavioral treatment of panic disorder: Clinical predictors and alternative strategies for assessment. *Journal of Consulting and Clinical Psychology*, 63, 754-765.
- Bruce, S.E., Yonkers, K.A., Otto, M.W., Eisen, J.L., Weisberg, R.B., Pagano, M., Shea, M.T., Keller, M.B. (2005). Influence of psychiatric comorbidity on recovery and recurrence in generalized anxiety disorder, social phobia, and panic disorder: A 12 year prospective study. *American Journal of Psychiatry*, 162, 1179-1187.

- Büchel, C. & Dolan, R.J. (2000). Classical fear conditioning in functional neuroimaging. *Current Opinion in Neurobiology*, 10, 219–223.
- Busch, F.N., Cooper, A.M., Klerman, G.L., Penzer, R.J., Shapiro, T., Shear, M.K. (1991). Neurophysiological, cognitive-behavioral, and psychoanalytic approaches to panic disorder: towards an integration. *Psychoanalytic Inquiry*, 11, 316-332.
- Busch, F.N., Milrod, B.L., Rudden, M., Shapiro, T., Singer, M., Aronson, A., Roiphe, J. (1999). Oedipal dynamics in panic disorder. *Journal of the American Psychoanalytic Association*, 47, 773-790.
- Bystritsky, A., Pontillo, D., Powers, M., Sabb, F.W., Craske, M.G. & Bookheimer, S.Y. (2001). Functional MRI changes during panic anticipation and imagery exposure. *NeuroReport*, 12, 3953–3957.
- Caron, C. & Rutter, M. (1991). Comorbidity in child psychopathology: Concepts, issues and research strategies. *Journal of Child Psychology and Psychiatry*, 32(7), 1063-1080.
- Carrera, M., Herrán, A., Ramírez, M. L., Ayestarán, A., Sierra-Biddle, D., Hoyuela, F., Rodríguez-Cabo, B. & Vázquez-Barquero, J. L. (2006). Personality traits in early phases of panic disorder: Implications on the presence of agoraphobia, clinical severity and short-term outcome. *Acta Psychiatrica Scandinavica*, 114(6), 417-425.
- Cerny, J.A., Vermilyea, B.B., Barlow, D.H., et al. (1984). Anxiety treatment project relaxation treatment manual. Unpublished manual.
- Chambless, D.L., & Gracely, E.J. (1989). Fear of fear and the anxiety disorders. *Cognitive Therapy and Research*, 13, 9-20.
- Chefetz, R.A. (2013). A Fluctuating Capacity to Mentalize: Affect Scripts and Self-State Systems as (not so) “Strange Attractors”: A Discussion of Margy Sperry's “Putting our Heads Together: Mentalizing Systems.” *Psychoanalytic Dialogues*, 23, 708-714.
- Chiesa, M. & Fonagy P. (2013). Reflective function as a mediator between childhood adversity, personality disorder and symptom distress. *Personality and Mental Health (In press)*.
- Choi-Kain, L. W. & Gunderson, J. G. (2008). Mentalization: Ontogeny, Assessment, and Application in the Treatment of Borderline Personality Disorder. *American Journal of Psychiatry*, 165, 1127-1135.
- Clair, A. L., Oei, T. P. & Evans, L. (1992). Personality and treatment response in agoraphobia with panic attacks. *Comprehensive Psychiatry*, 33(5), 310-318.
- Clark, D.M. (1986). A cognitive approach to panic. *Behavior Research and Therapy*, 24, 461-470.
- Clark, L. A. (2007). Assessment and diagnosis of personality disorder: Perennial issues and emerging conceptualization. *Annual Review of Psychology*, 58, 227–258.
- Clarkin, J. F., Caligor, E., Stern, B., & Kernberg, O. F. (2004). *Structured Interview of Personality Organization (STIPO)*. New York: Weill Medical College of Cornell University.

- Clarkin, J. F., Levy, K. N., Lenzenweger, M. F., & Kernberg, O. F. (2007). A multivariate RCT: Evaluating three treatments for borderline personality disorder. *American Journal of Psychiatry*, 164, 922-928.
- Cohen, J., Cohen, P., West, S.G., & Aiken, L.S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences*. Third Edition. Routledge:New York.
- Craske, M.G. & Waters, A.M. (2005). Panic Disorder, Phobias, and Generalized Anxiety Disorder. *Annual Review of Clinical Psychology*, 1, 197-225.
- Craske, M.G., Brown, T.A., & Barlow, D.H. (1991). Behavioral treatment of panic: a two-year follow-up. *Behavior Therapy*, 22, 289-304.
- Craske, M. G., Rauch, S. L., Ursano, R. Prenoveau, J., Pine, D. S., & Zinbarg, R. E. (2009). What is an anxiety disorder? *Depression and Anxiety*, 26(12), 1066-1085.
- Craske, M.G., Poulton, R., Taso, J.C., & Plotkin, D. (2001). Paths to panic disorder/Agrophobia: An exploratory analysis from age 3 to 21 in an unselected birth cohort. *Journal of the American Academy of Child and Adolescent Psychiatry*, 40, 556-560.
- Csibra, G., & Gergely, G. (2009). Natural pedagogy. *Trends in Cognitive Sciences*, 13, 148–153.
- Csibra, G., & Gergely, G. (2011). Natural pedagogy as evolutionary adaptation. *Philosophical Transactions of the Royal Society of London Series B, Biological Sciences*, 366, 1149–1157.
- Diamond, D. (2004). Attachment disorganization: The reunion of attachment theory and psychoanalysis. *Psychoanalytic Psychology*, 21, 276-299.
- Diamond, D., Yeomans, F. E., Stern, B., Levy, K., N., Hörz, S., Doering, S., Fischer-Kern, M., Delaney, J. & Clarkin, J. F. (2013). Transference focused psychotherapy for patients with comorbid narcissistic and borderline personality disorder. *Psychoanalytic Inquiry*, 33(6), 527-551.
- Dinardo, P.A., Brown, T.A., & Barlow, D.H. (1995). *Anxiety Disorder Interview Schedule for DSM-IV: Lifetime version (ADIS-IV-L)*. New York: Graywinds.
- American Psychiatric Association. (1987). *Diagnostic and Statistical Manual of Mental Disorders* (3rd ed., Revised). Washington, DC: American Psychiatric Association.
- American Psychiatric Association, (2000). *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR)* (4th ed.) Virginia: American Psychiatric Association.
- El-Gabalawy, R. K., Laurence Y., & Sareen, J. (2010). Comorbidity and associated severity of borderline personality disorder and physical health conditions in a nationally representative sample. *Psychosomatic Medicine*, 72(7), 641-647.
- Etkin, A. & Wager, T.D. (2007). Functional neuroimaging of anxiety: a meta-analysis of emotional processing in PTSD, social anxiety disorder, and specific phobia. *American Journal of Psychiatry*. 164, 1476–1488.
- Eysenck, H.J. (1967). Single-trial conditioning, neurosis, and the Napalkov phenomenon. *Behavior Research and Therapy*, 5, 63-65.

- Fischer-Kern, M., Fonagy, P., Kapusta, N. D., Luyten, P., Boss, S., Naderer, A., Blüml, V., & Leithner, K. (2013). Mentalizing in female inpatients with major depressive disorder *Journal of Nervous and Mental Disease*, 201(3), 201-207.
- Fischer-Kern, M., Schuster, P., Kapusta, N.D., Tmej, A., Rentrop, M., Buchheim, P., Doering, S., Buchheim, A., Hörz, S., Taubner, S., & Fonagy, P. (2010). The relationship between personality organization, reflective functioning, and psychiatric classification in borderline personality disorder. *Psychoanalytic Psychology*. 27:395-409.
- Fonagy, P. & Allison, E. (2014). The Role of Mentalizing and Epistemic Trust in the Therapeutic Relationship. *Psychotherapy*, 51 (3), 372-380.
- Fonagy, P. & Target, M. (2006). The mentalization-focused approach to self pathology. *Journal of Personality Disorders*, 20, 544-576.
- Fonagy, P. & Bateman, A. (2006.) Mechanisms of change in mentalization-based treatment of BPD. *Journal of Clinical Psychology*, 62, 411-430.
- Fonagy, P., Gergely, G., Jurist, E., & Target, M. (2002). *Affect Regulation, Mentalization and the Development of the Self*. New York: Other Press.
- Fonagy, P., Steele, H., Steele, M., Target, M. (1998). *Reflective Functioning Manual, version 5 for application to the Adult Attachment Interviews*, unpublished manuscript. University College London.
- Fonagy, P., Steele, M., Moran, G., Steele, H., & Higgitt, A. (1991). The capacity for Understanding mental states: The reflective self in parent and child and its significance for security of attachment. *Infant Mental Health Journal*, 13, 200-216.
- Fonagy, P., Steele, M., Steele, H., Leigh, T., Kennedy, R., Mattoon, G., & Target, M. (1995). Attachment, the reflective self, and borderline states. In S. Goldberg & J. Kerr (Eds.), *Attachment research: The state of the art* (pp. 233-278). New York: Analytic Press.
- Fonagy, P., Leigh, T., Steel, M., Steele, H., Kennedy, R., Mattoon, K., Target, M., & Gerber, A. (1996). The relation of attachment status, psychiatric classification, and response to psychotherapy. *Journal of Consulting and Clinical Psychology*, 64, 22-31.
- Fournier, Jay C. DeRubeis, Robert J. Shelton, Richard C. Gallop, Robert Amsterdam, Jay D. Hollon, Steven D. (2008). Antidepressant medications v. cognitive therapy in people with depression with or without personality disorder. *The British Journal of Psychiatry*. 192(2), 124-129.
- Freud, S. (1895). On the grounds for detaching a particular syndrome from neurasthenia under the description 'anxiety neurosis.' *Standard Edition*, 3, 90-115.
- Friborg, O., Martinussen, M., Kaiser, S., Øvergård, K. T. Jan, H. R. (2013). Comorbidity of personality disorders in anxiety disorders: A meta-analysis of 30 years of research. *Journal of Affective Disorders*. 145(2), 143-155.
- Fyer, A.J., Mannuzza, S., Chapman, T.F., Martin, L.Y., Klein, D.F. (1995). Specificity in familial aggregation of phobic disorders. *Archives of General Psychiatry*, 52, 564-573.

- Garson, G. D. (2012). Sampling (p. 21). Statistical Associates Publishers. Retrieved from <http://www.statisticalassociates.com/sampling.pdf>.
- Gergely, G. (2004). The role of contingency detection in early affect-regulative interactions and in the development of different types of infant attachment. *Social Development*, 13(3), 468-488.
- Gergely, G. (2007a). The social construction of the subjective self: The role of affect mirroring, markedness, and ostensive communication in self development. In L. Mayes, P. Fonagy, & M. Target (Ed.), *Developmental science and psychoanalysis* (pp. 45-82). London: Kamac.
- Gergely, G & Unoka, Z. (2008a). Attachment and mentalization in humans: The development of the affective self. In E. Jurist, A. Slade & S. Bergner (Eds.), *Mind to mind: Infant research, neuroscience, and psychoanalysis* (pp. 50-87). New York, NY: Other Press.
- Gergely, G. & Unoka, Z. (2008b). Attachment, affect-regulation, and mentalization: The developmental origins of the representational affective self. In C. Sharp, P. Fonagy, & I. Goodyer (Eds.), *Social cognition and developmental psychopathology* (pp. 305-342). New York, NY: Oxford University Press.
- Gergely, G., & Watson, J. S. (1996). The social biofeedback theory of parental affect-mirroring: The development of emotional self-awareness and self-control in infancy. *The International Journal of Psychoanalysis*, 77, 1-31.
- Gergely, G., & Watson, J. (1999). Early social-emotional development: Contingency perception and the social-biofeedback model. In P. Rochat (Ed.), *Early Social Cognition*, (pp. 101-36). Hillsdale NJ: Erlbaum.
- Gorman J.M., Kent J.M., Sullivan G.M., Coplan J.D. (2000). Neuroanatomical hypothesis of panic disorder, revised. *American Journal of Psychiatry*. 157(4):493-505.
- Grilo, C. M., McGlashan, T. H. & Skodol, A. E. (2000). Stability and course of personality disorders: The need to consider comorbidities and continuities between Axis I psychiatric disorders and Axis II personality disorders. *Psychiatric Quarterly Special issue: The Twelfth Annual New York State Office of Mental Health Research Conference*. 71(4), 291-307.
- Hoffart, A. (1994). State and personality in agoraphobic patients. *Journal of Personality Disorders*, 8(4), 333-341.
- Hoffman, S.G., Barlow, D.H., Papp, L.A., Detweiler, M.F., Ray, S.E., Shear, M.K., Woods, S.W., Gorman, J.M. (1998). Pretreatment attrition in a comparative treatment outcome study on panic disorder. *American Journal of Psychiatry*, 155, 43-47.
- Holmes, J. (2004). Disorganized attachment and borderline personality disorder: A clinical perspective. *Attachment and Human Development*, 6, 181-190.
- Horowitz, L. M., Rosenberg, S. E., Baer, B. A., Ureno, G., & Villasenor, V. S. (1988). Inventory of interpersonal problems; Psychometric properties and clinical applications. *Journal of Consulting and Clinical Psychology*, 56, 885-892.

- Hunsley, J. (2003). Cost effectiveness and medical cost-offset considerations in psychological service provision. *Canadian Psychology/Psychologie canadienne*, 44(1), 61-73.
- Hyer, S. E. & Lyons, M. (1988). Factor analysis of the DSM-III personality disorder clusters: A replication. *Comprehensive Psychiatry*, 29(3), 304-308.
- Isenberg, N., Silbersweig, D., Engelien, A., Emmerich, S., Malavade, K., Beattie, B., Leon, A.C., & Stern, E. (1999). Linguistic threat activates the human amygdala. *Proceedings of the National Academy of Science of the United States of America* 96, 10456–10459.
- Kagan, J., Reznick, J.S., Snidman, N. (1987). The physiology and psychology of behavioral inhibition in children. *Child Development*, 58, 1459-1473.
- Kass, F., Skodol, A., E., Charles, E., Spitzer, R. L., Williams, J. B. (1985). Scaled ratings of DSM-III personality disorders. *The American Journal of Psychiatry*, 142(5), 627-630.
- Katerndahl, D. A. & Realini, J. P. (1995). Where do panic attack sufferers seek care? *The Journal of Family Practice*, 40, 237–243.
- Kennard, B.D., Ginsburg, G.S., Feeny, N.C., Sweeney, M., & Zagurski, R. (2005). Implementation Challenges to TADS Cognitive-Behavioral Therapy. *Cognitive and Behavioral Practice*, 12(2), 230-239.
- Kessler, R.C.; Chiu, W.T.; Jin, R.; Russo, A.M.; Shear, K.; Walters, E.E. (2006). The epidemiology of panic attacks, panic disorder and agoraphobia in the national comorbidity survey replication. *Archives of General Psychiatry*, 63, 415-424.
- Klein, D.F. (1993). False suffocation alarms, spontaneous panics, and related conditions: an integrative hypothesis. *Archives of General Psychiatry*, 50, 306-317.
- Klerman, G. L., Weissman, M. M., Ouellette, R., Johnson, J., & Greenwald, S. (1991). Panic attacks in the community: social morbidity and health care utilization. *The Journal of American Medical Association*. 265:742-746.
- Korczak, D. J., Goldstein, B. I., & Levitt, A. J. (2007). Panic disorder, cardiac diagnosis and emergency department utilization in an epidemiologic community sample. *General Hospital Psychiatry*, 29(4), 335-339.
- Kovacs, M. (1992). *Children's Depression Inventory (CDI) manual*. Toronto: Multi-Health System.
- LeDoux, J. (1998). Fear and the brain: where have we been, and where are we going? *Biological Psychiatry*, 44, 1229–1238.
- LeDoux J. (2003). The emotional brain, fear, and the amygdala. *Cellular Molecular Neurobiology*. 23, (4-5): 727-38.
- Lenzenweger MF, Lane MC, Loranger AW, Kessler RC (2007). DSM-IV personality disorders in the National Comorbidity Survey Replication. *Biological Psychiatry*, 62(6), 553-564.
- Levitt, J. T., Hoffman, E. C., Grisham, J. R. & Barlow, D. H. (2001). Empirically supported treatments for panic disorder. *Psychiatric Annals*, 31(8), 478-487.

- Levy, K.N., Clarkin, J.F., Yeoman, F.E., Scott, L.N. et al. (2006). The mechanisms of change in the treatment of borderline personality disorder with transference focused psychotherapy. *Journal of clinical psychology*, 62, 481-501.
- Levy, K.N., Meehan, K.B., Kelly, K.M., Reynoso, J.S., Weber, M., Clarkin, J.F., & Kernberg, J.F. (2006). Change in attachment patterns and reflective function in a randomized control trial of transference-focused psychotherapy for borderline personality disorder. *Journal of Consulting and Clinical Psychology*, 74, 1027-1040.
- Liber, J. M., Widenfelt, B. M., Leeden, A. J. M., Goedhart, A. W., Utens, E. & Treffers, P. (2010). The relation of severity and comorbidity to treatment outcome with cognitive behavioral therapy for childhood anxiety disorders. *Journal of Abnormal Child Psychology* 38(5), 683-694.
- Linden, D.E.J. (2006). How psychotherapy changes the brain — the contribution of functional neuroimaging. *Molecular Psychiatry*. 11, 528–538.
- MacKinnon, D. F. & Pies, R. (2006). Affective instability as rapid cycling: Theoretical and clinical implications for borderline personality and bipolar spectrum disorders. *Bipolar Disorders*, 8(1), 1-14.
- Main, M., & Goldwyn, R. (1994). Adult Attachment Rating and Classification System, Manual in draft, Version 6. 0. Unpublished Manuscript: University of California at Berkeley.
- Main, M & Solomon, J., (1990). Procedures for identifying infants as disorganized/disoriented during the Ainsworth Strange Situation. In Greenberg, M. T., Cicchetti, D., & Cummings, M. (Eds.), *Attachment in the preschool years: Theory, research, and intervention* (pp. 121-160). The University of Chicago Press: Chicago.
- Main, M. & Hesse, E. (2000). Disorganized Infant, Child, and Adult Attachment: Collapse in Behavioral and Attentional Strategies. *Journal of the American Psychoanalytic Association*, 48: 1097-1127.
- Main, M. & Solomon, J. (1986). Discovery of a new, insecure-disorganized/disoriented attachment pattern. In T. B. Brazelton & M. Yogman (Eds), *Affective development in infancy*, pp. 95-124. Norwood, New Jersey: Ablex.
- March, J. S. (1997). *Multidimensional Anxiety Scale for children (MASC): Technical Manual*. Toronto: Multi-Health Systems Inc.
- Marchesi, C., De Panfilis, C., Cantoni, A., Fontò, S., Giannelli, M. R., & Maggini, C. (2006). Personality disorders and response to medication treatment in panic disorder: A 1-year naturalistic study. *Progress in Neuro-Psychopharmacology & Biological Psychiatry*, 30(7), 1240-1245.
- Markowitz, J. S., Weissman, M. M., Ouellette, R., Lish, L. D. & Kleman, G. L. (1989). Quality of life in panic disorder. *Archives of General Psychiatry*, 46: 984-992.
- Marks, I.M., Swinson, R.P., Basoglu, M., Kuch, K., O’Sullivan, G., Lelliott, P.T., Kirby, M., McNamee, G., Sengun, S., Wickwire, K. (1993). Alprazolam and exposure alone and combined in panic disorder with agoraphobia: a controlled study in London and Toronto. *British Journal of Psychiatry*, 162, 776-787.

- Massion, A.O., Dyck, I.R., Shea, M.T., Phillips, K.A., Warshaw, M.G. & Keller, M.B. (2002). Personality disorders and time to remission in generalized anxiety disorder, social phobia and panic disorder. *Archives of General Psychiatry*, 59(5), 434-440.
- McGlashan, T. H., Grilo, C. M., Sanislow, C. A., Ralevski, E., Morey, L. C., Gunderson, J. G., Skodol, A. E., Shea, M. T., Zanarini, M. C., Bender, D., Stout, R. L., Yen, S., & Pagano, M. (2005). Two-Year Prevalence and Stability of Individual DSM-IV Criteria for Schizotypal, Borderline, Avoidant, and Obsessive-Compulsive Personality Disorders: Toward a Hybrid Model of Axis II Disorders. *The American Journal of Psychiatry*, 162(5), 883-889.
- Miles J and Shevlin M (2001) *Applying Regression and Correlation: A Guide for Students and Researchers*. Sage: London.
- Milrod, B., Busch, F., Cooper, A. (1997). *Manual of Panic Focused Psychodynamic Psychotherapy*. APA Press, Washington, DC.
- Milrod, B., Busch, F., Leon, A.C., Aronson, A., Roiphe, J., Rudden, M., Singer, M., Shapiro, T., Goldman, H., Richter, D., & Shear, M. (2001). A pilot open trial of brief psychodynamic psychotherapy. *The Journal of Psychotherapy Practice and Research*, 10(4), 239-45.
- Milrod, B., Leon, A.C., Busch, F., Rudden, M., Schwalberg, M., Clarkin, J., Aronson, A., Singer, M., Turchin, W., Klass, E.T., Graf, E., Teres, J.J., Shear, M.K. (2007). A randomized controlled clinical trial of psychoanalytic psychotherapy for panic disorder. *American Journal of Psychiatry*, 164, 265-272.
- Milrod, B. Emptiness in agoraphobia (2007). *Journal of the American Psychoanalytic Association*, 55:1007-1026.
- Mitte, K. (2005). Meta-analysis of cognitive-behavioral treatments for generalized anxiety disorder: A comparison with pharmacotherapy. *Psychological Bulletin*, 131(5), 785-795.
- Morey, L. C. (1986). A comparison of three personality disorder assessment approaches. *Journal of Psychopathology and Behavioral Assessment*. 8(1), 25-30.
- Müller, C., Kaufhold, J., Overbeck, G., & Grabhorn, R. (2006). The importance of reflective functioning to the diagnosis of psychic structure. *Psychology and psychotherapy*. 79 (4), 485-494.
- Nakash-Eiskovits, O.R., Dutra, L., & Westen, D. (2002). Relationship between attachment patterns and personality pathology in adolescence. *Journal of the American Academy of Child and Adolescent Psychiatry*, 41, 1111-1123.
- Ninan, P.T., & Dunlop, B.W. (2005). Neurobiology and etiology of panic disorder. *Journal of Clinical Psychiatry*, 66 suppl. 4, 3-7.
- Oldham, J. M., Skodol, A. E., Kellman, H. D., Hyler, S. E., & Rosnick, L. (1992). Diagnosis of DSM-III-R personality disorders by two structured interviews: Patterns of comorbidity. *The American Journal of Psychiatry*, 149, 213-220.
- O'Rourke, D., Fahy, T.J., Brophy, J. & Prescott, P. (1996). The Galway Study of Panic Disorder III: Outcome at 5 to 6 years. *British Journal of Psychiatry*, 168(4), 462-469.

- Ozkan, M. & Altindag, A. (2005). Comorbid personality disorders in subjects with panic disorder: Do personality disorders increase clinical severity? *Comprehensive Psychiatry*, 46(1), 20-26.
- Phillips, R.G. & LeDoux J. E. (1992). Differential contribution of amygdala and hippocampus to cued and contextual fear conditioning. *Behavioral Neuroscience* 106(2): 274-85.
- Pine, D. (2009). Integrating research on development and fear learning: A vision for clinical neuroscience? *Depression and Anxiety*, 26(9), 775-779.
- Pollack, M.H. & Otto, M.W. (1997). Long-term Course and Outcome of Panic Disorder. *Journal of Clinical Psychiatry*, 58 suppl. 2, 57-60.
- Pollack, M.H., Rapaport, M.H., Clary, C.M., Mardekian, J. & Wolkow, R. (2000). Sertraline treatment of panic disorder: response in patients at risk for poor outcome. *Journal of Clinical Psychiatry*, 61, 922-927.
- Powers, A. & Westen, D. (2009). Personality subtypes in patients with panic disorder. *Comprehensive Psychiatry*, 50(2), 164-172.
- Praško, J., Horáček, J., Záleský, R., Kopeček, M., Novák, T., Pašková, B., Škrdlantová, L., Belohlávek, O. & Höschl, C., (2004). The change of regional brain metabolism (18FDG PET) in panic disorder during the treatment with cognitive behavioral therapy or antidepressants. *Neuroendocrinology Letters* 25, 340–348.
- Råstam, M., Gillberg, C., Gillberg, I. C. & Johansson, M. (1997). Alexithymia in anorexia nervosa: A controlled study using the 20-item Toronto Alexithymia Scale *Acta Psychiatrica Scandinavica*, 95(5), 385-388.
- Reich, J. (1988). DSM-III personality disorders and the outcome of treated panic disorder. *The American Journal of Psychiatry*, 145(9), 1149-1152.
- Reich, J.H. & Vasile, R.G. (1993). Effect of personality disorders on the treatment outcome of Axis I conditions: An update. *Journal of Nervous and Mental Disease*, 181(8), 475-484.
- Rudden, M. G., Milrod, B., Aronson, A., & Target, M. (2008). Reflective functioning in panic disorder patients: Clinical observations and research design. In F. N. Busch (Ed.), *Mentalization: Theoretical considerations, research findings, and clinical implications* (pp. 185–205). New York: Analytic Press.
- Rudden, M.G., Milrod, B., Target, M., Ackerman, S., & Graf, E. (2006). Reflective Functioning in panic disorder patients: A pilot study. *Journal of the American Psychoanalytic Association*, 54 (4): 1339-43.
- Russell, T. A., Schmidt, U., Doherty, L., Young, V., & Tchanturia, K. (2009). Aspects of social cognition in anorexia nervosa: Affective and cognitive theory of mind. *Psychiatry Research*, 168(3), 181-185.
- Sakai, Y., Kumano, H., Nishikawa, M., Sakano, Y., Kaiya, H., Imabayashi, E., Ohnishi, T., Matsuda, H., Yasuda, A., Sato, A., Diksic, M., & Kuboki, T. (2005). Cerebral glucose metabolism associated with a fear network in panic disorder. *Neuroreport*, 16(9): 927-31.

- Sakai, Y., Kumano, H., Nishikawa, M., Sakano, Y., Kaiya, H., Imabayashi, E., Ohnishi, T., Matsuda, H., Yasuda, A., Sato, A., Diksic, M., & Kuboki, T. (2006). Changes in cerebral glucose utilization in patients with panic disorder treated with cognitive-behavioral therapy. *NeuroImage*, 33(1): 218-226.
- Sanderson, W.C., Wetzler, S., Beck, A.T. & Betz, F. (1994). Prevalence of personality disorders among patients with anxiety disorders. *Psychiatry Research*, 51(2), 167-174.
- Shea, M.T., Stout, R.L., Yen, S., Pagano, M.E., Skodol, A.E., Morey, L.C., Gunderson, J.G., McGlashan, T.H., Grilo, C.M., Sanislow, C.A., Bender, D.S. & Zanarini, M.C. (2004). Associations in the Course of Personality Disorders and Axis I Disorders Over Time. *Journal of Abnormal Psychology*, 113(4), 499-508.
- Shear, M.K., Brown, T.A., Barlow, D.H., Money, R., Sholokmska, D.E., Woods, S.W., Gorman, J.M., & Papp, L.A. (1997). Multicenter collaborative panic disorder severity scale. *American Journal of Psychiatry*, 154, 1571-1575.
- Shear, M.K., Cooper, A.M., Klerman, G.L., Busch, F.N., Shapiro, T. (1993). A psychodynamic model of panic disorder *American Journal of Psychiatry*, 150, 859-866.
- Siever, L. J. & Davis, K. L. (1991). A psychobiological perspective on the personality disorders; *The American Journal of Psychiatry*, 148(12), 1647-1658.
- Skodol, A. E., Bender, D. S., Morey, L. C., Clark, L. A., Oldham, J. M., Alarcon, R. D., Krueger, R. F., Verheul, R., Bell, C. C. & Siever, L. J. (2011). Personality disorder types proposed for DSM-5. *Journal of Personality Disorders, Special issue: Proposals for DSM-5*, 25(2), 136-169.
- Skodol, A.E., Clark, L.A., Bender, D.S., Krueger, R.F., Morey, L.C., Verheul, R., Alarcon, R.D., Bell, C.C., Siever, L.J. & Oldham, J.M. (2011). Proposed changes in personality and personality disorder assessment and diagnosis for DSM-5 Part I: Description and rationale. *Personality Disorders: Theory, Research, and Treatment*, 2(1):4-22.
- Skodol, A. E., Geier, T., Grant, B. F., & Hasin, D. S. (2014). Personality disorders and the persistence of anxiety disorders in a nationally representative sample. *Depression & Anxiety*, 31(9): 721-728.
- Skodol, A. E., Oldham, J. M., Hyler, S. E., Stein, D. J., Hollander, E., Gallaher, P. E., & Lopez, A. E. (1995). Patterns of anxiety and personality disorder comorbidity. *Journal of Psychiatric Research*, 29(5): 361-374.
- Skodol, A. E., Shea, M. T., Yen, S., White, C. N. & Gunderson, J. G. (2010). Personality disorders and mood disorders: Perspectives on diagnosis and classification from studies of longitudinal course and familial associations. *Journal of Personality Disorders*, 24(1), 83-108.
- Skodol, A. E., Gunderson, J. G., Shea, M. T., McGlashan, T. H., Morey, L. C., Sanislow, C. A., Bender, D. S., Grilo, C. M., Zanarini, M. C., Yen, S., Pagano, M. E., & Stout, R. L. (2005). The Collaborative Longitudinal Personality Disorders Study (CLPS): Overview and implications. *The Journal of Personality Disorders*, 19(5): 487-504.

- Slaap, A. & den Boer, J.A. (2001). The prediction of nonresponse to pharmacotherapy in panic disorder: A review. *Depression and Anxiety*, 14, 112-122.
- Slade, A., Aber, J.L., Bresgi, B.I., Berger, B., & Kaplan (2004). *The Parent Development Interview –Revised*. Unpublished protocol. The City University of New York.
- Slade, A., Sadler, L., De Dios-Kenn, C.D., Webb, D., Currier-Ezepchick, J., Mayes, L. (2005). Minding the baby: A reflective parenting program. *The Psychoanalytic Study of the Child*, 60, 74-100.
- Slade, A. (2005) Parental reflective functioning: An introduction. *Attachment & Human Development*, 7, 269-281.
- Slade, A., Grienenberger, J., Bernbach, E., Levy, D .et al. (2005). Maternal reflective functioning, attachment, and the transmission gap: A preliminary study. *Attachment & Human Development*, 7, 283-298.
- Smoller, J.W., & Tsuang, M.T. (1998). Panic and Phobic Anxiety: Defining phenotypes for genetic studies. *American Journal of Psychiatry*, 155, 1152-1162.
- Smoller, J.W., Yamaki, L.H., Fagerness, J.A., Biederman, J., Racette, S., Laird, N.M., Kagan, J., Snidman, N., Faraone, S.V., Hirshfeld-Becker, D., Tsuang, M.T., Slaugenhaupt, S.A., Rosenbaum, J.F. & Sklar, P.B. (2005). The Corticotropin-Releasing Hormone Gene and Behavioral Inhibition in Children at Risk for Panic Disorder. *Biological Psychiatry*, 57(12), 1485-1492.
- Solbakken, O. A., Hansen, R. S. & Monsen, J. T. (2011). Affect integration and reflective function: Clarification of central conceptual issues. *Psychotherapy Research*. 21(4): 482-496.
- Sperry, M. (2013). Putting our Heads Together: Mentalizing Systems. *Psychoanalytic Dialogues*, 23, 683-699.
- Starcevic, V. (2005). Psychiatric comorbidity: Concepts, controversies and alternatives. *Australasian Psychiatry*, 13(4), 375-378.
- Starcevic, V., Bogojevic, G., Marinkovic, J., & Kelin, K. (1999). Axis I and Axis II comorbidity in panic/agoraphobic patients with and without suicidal ideation. *Psychiatry Research*, 88(2), 153-161.
- Stein, M.B., Goin, M.K., Pollack, M.H., Roy-Byrne, P., Sareen, J., Simon N.M., & Campbell-Sills, L. (2009). *Practice guideline for the treatment of patients with panic disorder (Second edition)*. Arlington, VA: American Psychiatric Association.
- Stone, M.H. (1993). Long-term outcome in personality disorders. *British Journal of Psychiatry*, 162, 299-313.
- Svartberg, M., Stiles, T.C. & Seltzer, M.H. (2004). Randomized, controlled trial of the effectiveness of short-term dynamic psychotherapy and cognitive therapy for cluster C personality disorders. *The American Journal of Psychiatry*, 161(5), 810-817.

- Swinson, R.P., Cox, B.J., & Woszczyzna C.B. (1992). Use of medical services and treatment for panic disorder with agoraphobia and for social phobia. *Canadian Medical Association Journal*, 147:878-883.
- Telch, M.J., Kamphuis, J.H. & Schmidt, N.B. (2011). The effects of comorbid personality disorders on cognitive behavioral treatment for panic disorder. *Journal of Psychiatric Research*, 45(4), 469-474.
- Toni, C., Perugi, C., Frare, F., Mata, B., Vitale, B., Mengali, F., Recchia, M., Serra, G., Akiskal, H.S. (2000). A prospective naturalistic study of 326 panic-agoraphobic patients treated with antidepressants. *Pharmacopsychiatry*, 33: 121-131.
- Tonna, M., De Panfilis, C., Provini, C. & Marchesi, C. (2011). The effect of severity and personality on the psychotic presentation of major depression. *Psychiatry Research*, 190(1), 98-102.
- Torgersen, S., Kringlen, E. & Cramer, V. (2001). The prevalence of personality disorders in a community sample. *Archives of General Psychiatry*, 58(6), 590-596.
- Trivedi, M. H. & Greer, T. L. (2014). Cognitive dysfunction in unipolar depression: Implications for treatment. *Journal of Affective Disorders*, 152, 19-27.
- Tyrer, P. (2005). The problem of severity in the classification of personality disorder. *Journal of Personality Disorders*, 19(3), 309-314.
- Uguz, F., Akman, C., Sahingoz, M., Kaya, N. & Kucur, R. (2009). One year follow-up of post-partum-onset depression: The role of depressive symptom severity and personality disorders. *Journal of Psychosomatic Obstetrics & Gynecology*, 30(2), 141-145.
- Van Velzen, C.J.M. & Emmelkamp, P.M.G. (1999). The relationship between anxiety disorders and personality disorders: Prevalance rates and comorbidity models. In J. Derksen, C. Maffei & H. Groen,(Eds.) *Treatment of personality disorders*. (pp. 129-153). Dordrecht, Netherlands: Kluwer Academic Publishers.
- Verheul, R. & Widiger, T.A. (2004). A meta-analysis of the prevalence and usage of the Personality Disorder Not Otherwise Specified (PDNOS) diagnosis. *Journal of Personality Disorders*, 18(4), 309-319.
- Vollebergh, W., Iedema, J., Bijl, R.V., de Graaf, R., Smit, F., & Ormel, J. (2001). The structure and stability of common mental disorders: The NEMESIS study. *Archives of General Psychiatry*; 58:597–603.
- Ward, A., Ramsay, R., Turnbull, S., Steele, M., Steele, H. & Treasure, J. (2001). Attachment in anorexia nervosa: A transgenerational perspective. *British Journal of Medical Psychology*, 74(4), 497-505.
- Watson, D. (2005). Rethinking the mood and anxiety disorders: A quantitative hierarchical model for DSM-V. *Journal of Abnormal Psychology, Special issue: Toward a Dimensionally Based Taxonomy of Psychopathology*, 114(4), 522-536.
- Widiger, T.A., Verheul, R., & van den Brink, W. (1999). Personality and psychopathology. In L. O. Pervin & O. P. John (Eds.) *Handbook of personality: Theory and research (2nd ed.)*, pp. 347-366. New York, NY, US: Guilford Press.

- Wilberg, T., Karterud, S., Urnes, Ø., Pedersen, G., & Friis, S. (1998). Outcomes of poorly functioning patients with personality disorders in a day treatment program. *Psychiatric Services*, 49(11), 1462-1467.
- Yates, W.R. (2009). Phenomenology and epidemiology of panic disorder. *Annals of Clinical Psychiatry*, 21(2), 95-102.
- Yeomans, F.E., Clarkin, J.F., Diamond, D., & Levy, K.N. (2008). An object relations treatment of borderline patients with reflective functioning as the mechanism of change. In F.N. Busch (Ed.) *Mentalization: Theoretical considerations, research findings, and clinical implications*, (pp. 159-181). Mahwah, NJ, US: Analytic Press.
- Zakzanis, K. K., Campbell, Z., & Polsinelli, A. (2010). Quantitative evidence for distinct cognitive impairment in anorexia nervosa and bulimia nervosa. *Journal of Neuropsychology*, 4(1), 89-106.
- Zimmerman, M., Rothschild, L., & Chelminski, I. (2005). The prevalence of DSM-IV personality disorders in psychiatric outpatients. *The American Journal of Psychiatry*, 162(10), 1911-1918.