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THE STRUCTURE OF COMMON AND SEVERE PSYCHOPATHOLOGY:
ANALYSES OF SYNDROMES AND SYMPTOMS

by

Michael Scott Chmielewski

<u>An Abstract</u>

Of a thesis submitted in partial fulfillment of the
requirements for the Doctor of Philosophy degree
in Psychology in
the Graduate College of
The University of Iowa

May 2012

Thesis Supervisors: Professor Emeritus David Watson
Assistant Professor Kristian Markon

ABSTRACT

One of the main goals of research in clinical psychology is to enhance the understanding and conceptualization of psychopathology. As such, it is essential that the model used to classify mental illness be as valid as possible. The *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev; *DSM-IV-TR*, American Psychiatric Association, 2000) provides the current model of psychopathology. However, there has been growing dissatisfaction with the current version of the *DSM* and there is an increasing view that the *DSM* taxonomy is scientifically unsound (Brown & Barlow, 2005; Watson & Clark, 2006; Widiger & Samuel, 2005).

Quantitative structural models of psychopathology (e.g., Internalizing/Externalizing; Krueger, 1999) have provided an alternative to the *DSM* model and have greatly advanced the conceptualization of psychopathology. Although these models represent a significant improvement, they still have several limitations. First, they exclude many of the "severe" disorders (e.g., psychotic disorders). Second, the placement of some disorders (e.g., OCD and PTSD) in the model has not been consistent. Finally, they are based on categorical diagnoses, which are less valid and reliable than dimensional alternatives (Markon, Chmielewski, & Miller, 2011). Thus, the use of categorical diagnosis as the foundation for empirical models of psychopathology likely results in suboptimal models. Moreover, it has been argued that many diagnoses are excessively heterogeneous, suggesting that analyzing the symptoms that underlie the disorders could result in more fine-grained models that more closely "carves nature at its joints."

The current study addresses the limitations of current quantitative models to create an expanded model of psychopathology that likely has increased validity. Structural analyses were conducted at both the syndromal level (which serves as a proxy for dimensional *DSM* diagnosis) and the symptom level in a large patient sample using both self-report and interview data. A three-factor model, containing Internalizing, Externalizing, and Psychoticism/Oddity dimensions emerged across both sets of analyses The emergence of this model at both the syndromal and symptom level provides strong evidence that a third higher order Psychoticism/Oddity dimension is necessary for a more complete model of psychopathology. The association of these dimensions with normal personality traits and other external correlates also was examined and implications for the conceptualization and structure of psychopathology are discussed.

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Graduate College
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CERTIFICATE OF APPROVAL

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PH.D. THESIS

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This is to certify that the Ph. D. thesis of

Michael Scott Chmielewski

has been approved by the Examining Committee
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LIST OF ABBREVIATIONS

ADHD – Attention Deficit Hyperactivity Disorder

AIC – Akaike Information Criteria

ASPD – Antisocial Personality Disorder

BAI – Beck Anxiety Inventory

BPD – Borderline Personality Disorder

BDI-II – Beck Depression Inventory-II

BFI – Big Five Inventory

BIC – Bayesian Information Criteria

CFA – Confirmatory Factor Analysis

CFI – Comparative Fit Index

CES – Curious Experiences Survey

DDIS – Dissociative Disorders Interview Schedule

DID – Dissociative Identity Disorder

DPS – Dissociative Processes Scale

DSM – Diagnostic and Statistical Manual of Mental Disorders

DUS – Drug Use Survey

EFA – Exploratory Factor Analysis

GAD – Generalized Anxiety Disorder

ICC – Intraclass correlation coefficient

ICD – International Statistical Classification of Diseases and Related Health Problems

IDAS – Inventory of Depression and Anxiety Symptoms

IDAS-CR – Clinician-Rating version of the IDAS

ISES – Iowa Sleep Experiences Survey

MDD – Major Depressive Disorder

MIS – Magical Ideation Scale

MLR – Robust Maximum Likelihood

NCS – National Comorbidity Survey

OCD - Obsessive-compulsive Disorder

OCI-R – Obsessive-Compulsive Inventory—Revised

OI – Oddity Interview

PANAS – Positive and Negative Affect Schedule

PAS – Perceptual Abberation Scale

PERMAG – sum of Chapman PAS and MIS

PTSD – Post Traumatic Stress Disorder

QED – The Questionnaire of Experiences of Dissociation

REF – Referential Thinking Scale

RMSEA – Root Mean Square Error of Approximation

RSAS – Revised Social Anhedonia Scale

SCID – Structured Clinical Interview for DSM-IV Axis I Disorders

SCOPI – Schedule of Compulsions, Obsessions, and Pathological Impulses

SIAS – Social Interaction Anxiety Scale

SMAST – Short form of the Michigan Alcoholism Screening Test

SNAP – Schedule for Nonadaptive and Adaptive Personality

SPS – Social Phobia Scale

SPQ – The Schizotypal Personality Questionnaire

SRMR – Standardized Root Mean Squared Residual

STA – Schizotypy Traits Questionnaire

STPD – Schizotypal Personality Disorder

TLI – Tucker-Lewis Index

ULS – Unweighted Least Squares

CHAPTER I

INTRODUCTION

One of the main goals of research in clinical psychology is to enhance the understanding and conceptualization of psychopathology. As such, it is essential that the model used to classify mental illness be as valid as possible. Not only is an accurate model of psychopathology essential for the basic science of psychology, but the validity of the model also has important implications for mental health care (i.e., improving the conceptualization and understanding of mental illness can lead to more effective treatments). The *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev; *DSM–IV–TR*, American Psychiatric Association, 2000) provides the current model of psychopathology in the United States and, arguably, the world at large. In the *DSM* model, mental illness is divided into distinct categorical diagnoses. That is, an individual either has a disorder or they do not and there is no explicit recognition that being diagnosed with one disorder increases the likelihood of being diagnosed with another one. However, there has been growing dissatisfaction with the current version of the *DSM*. It has been criticized for being atheoretical (the *DSM* does not consider genetic diatheses, trait vulnerabilities, environmental influences, etc.), needlessly complex, and cumbersome (Watson, 2003b). More fundamentally there is an increasing view that the *DSM* taxonomy is scientifically unsound for a number of reasons (Clark & Watson, 2006; Watson, 2003b, 2005; Watson & Clark, 2006).

First, there is excessive comorbidity (the tendency for multiple disorders to co-occur in an individual at rates that are substantially higher than chance) among the *DSM's* theoretically distinct categories. For example, in the 1994 National Comorbidity Survey

(NCS), 79% of all lifetime mental disorders observed were in persons who had a history of more than one disorder (Kessler et al., 1994). Moreover, over 59% of the past-year disorders occurred in people with a lifetime history of more than 3 disorders (Kessler et al., 1994). Over the past decade, a large literature has emerged documenting the comorbidity between various disorders (see Clark et al, 1995, Mineka et al., 1998, Widiger & Sankis, 2000). For example, 45% of the participants in the NCS replication met diagnostic criteria for multiple disorders across a 12-month period (Kessler et al., 2005). Moreover, Zimmerman, Chelminski, and McDermut, (2002) documented that over 60% of patients diagnosed with MDD met current diagnostic criteria for at least one additional Axis 1 disorder. What has been learned is that diagnostic comorbidity is the rule, not the exception. That is, it is unusual to find individuals who meet criteria for only a single mental disorder, at least in clinic settings. Moreover, it is important to note that comorbidity is rampant across all areas of the *DSM* and is not specific to any class of disorders or Axis.

Second, there is growing evidence that continuous (dimensional) models of psychopathology may be more valid than the current categorical system (Clark, 2005; Markon, Chmielewski, & Miller, 2011; Watson, 2005; Widiger & Samuel, 2005). For example, symptoms of depression appear to be continuously distributed (Hankin, Fraley, Lahey, & Waldman, 2005) and continuous models of depression have greater validity than categorical models (Aggen, Neale, & Kendler, 2005). Moreover, dimensional models of psychopathology have greater reliability than categorical *DSM* diagnoses (Chmielewski & Watson, 2009a; Markon et al., 2011; Watson, 2009a). It is, therefore, not surprising that psychologists have been calling for dimensional models for some time

and those calls have only increased (Clark, 2007, 2005; Watson, 2009a; Widiger & Samuel, 2005). For example, in 2005 the *Journal of Abnormal Psychology* dedicated a special section to the move towards a dimensional model of psychopathology. In addition, psychiatrists—who traditionally are staunch proponents of categorical diagnoses—have started to realize the utility of dimensional approaches to psychopathology. For example, in the editorial for a special issue of *Schizophrenia Bulletin* containing papers from an American Psychiatric Association sponsored *DSM-V* psychosis conference, Regier (2007) wrote: "The question of dimensional approaches now has permeated thinking of traditional Axis I disorders. Indeed, the relevance of dimensional approaches to all mental disorder diagnoses and to promising endophenotypes of disorders prompted the addition of a workgroup/conference to focus on how dimensional constructs might be added to the classification in its entirety" (p. 844).

Finally, in the current diagnostic system, an individual meets criteria for one of the disorders if they have enough symptoms from that specific diagnostic category to cross a threshold. The specific combinations of symptoms within that category (many different combinations of symptoms are possible) usually do not matter as long as the threshold is crossed. However, many of the *DSM* disorders tend to be heterogeneous; that is, they consist of symptoms that are weakly related to each other (see Clark, 2005; Brown & Barlow, 2005; Markon, 2010; Watson 2003b, 2005, 2009a, 2009b; Widiger & Samuel, 2005). The heterogeneity among symptoms subsumed within a given diagnosis, therefore, can lead to patients with the same diagnosis looking quite different from each other. This heterogeneity may be due, in part, to the fact that the symptoms included in

some of the disorders were based more on clinical opinion than on empirical research data on the actual associations between symptoms.

Models of Comorbidity

The Two-Factor Model

The previously discussed diagnostic comorbidity could be viewed as noise or as a methodological artifact; however, it is becoming increasingly understood that the diagnostic comorbidity in the *DSM* is actually a meaningful signal that can help to enhance our understanding of psychopathology. As long as two decades ago, Watson, Clark, and Carey (1988) argued that the comorbidity observed between the mood and anxiety disorders was systematic and meaningful. The root of their argument came from the mood literature, which provided overwhelming evidence that various specific mood states are subsumed under two higher order dimensions, Negative Affect and Positive Affect (Watson & Tellegen, 1985; Watson, Wiese, Vaidya, & Tellegen, 1999). Negative Affect, which can be defined as a general tendency to experience negative emotions, subsumes specific negative emotions such as sadness, guilt, fear, anger, and disgust. As such, individuals who are more likely to experience sadness are also more likely to experience fear. Similarly, Positive Affect can be defined as the tendency to experience positive emotions and contains specific emotions such as joviality, attentiveness, and self-assurance.

Watson, Clark, and Carey (1988) argued that the mood and anxiety disorders were highly comorbid because both types of disorders contained high levels of general negative affect (or the related personality trait of neuroticism). Fear/anxiety, which is the core of the anxiety disorders, and sadness/depression, which is the core of the mood

disorders, both are components of general negative affect/neuroticism and thus, are very likely to co-occur. In other words, individuals high in negative affect/neuroticism are likely to experience both depressed and anxious moods and therefore are likely to meet criteria for both mood and anxiety disorders. Based on other findings from the mood literature, which demonstrated that positive affect was more related to sadness than anxiety, Watson, Clark, and Carey; (1988) also argued that depression could be distinguished from anxiety based on levels of positive affect. Thus, the two-factor model posited that negative affect was a non-specific factor common to both the mood and anxiety disorders, whereas low positive affect was specific to depression.

The Tripartite Model

Clark and Watson (1991) expanded upon the two-factor model with their highly influential tripartite model. In this model, physiological hyperarousal was proposed as a factor specific to the anxiety disorders. Thus, symptoms of anxiety and depression could be viewed as indicators of (a) a negative affect or general distress dimension (i.e., anxious and depressed mood), (b) a low positive affect or anhedonia dimension specific to depression (i.e., loss of interest or enjoyment), or (c) a hyperarousal factor specific to anxiety (e.g., shortness of breath and racing heart). This tripartite model has received substantial support in the literature (see Mineka et al., 1998, for a review). Moreover, considerable evidence replicated across a variety of samples has documented very strong correlations between the core features of anxiety (e.g., feeling nervous, feeling afraid) and depression (e.g., feeling depressed, feeling sad) (see Watson, 2005). Although the tripartite model has received extensive support, it nevertheless became clear that some aspects of the model were not correct. Most notably, it was found that anxious arousal

did not characterize all anxiety disorders and was instead specific only to panic disorder (see Brown et al., 1998; Zinbarg et al., 1994). Moreover, it was demonstrated that, in addition to depression, low positive affect was associated with social phobia (Brown et al., 1998), a fact that also was noted originally by Watson et al. (1988).

The Integrative Hierarchical Model

To address the limitations of the tripartite model, Mineka, Watson, and Clark (1998) proposed the integrative hierarchical model, which modified the tripartite model by incorporating aspects of Barlow's hierarchical model of anxiety disorders (Barlow, 1991; Zinbarg & Barlow, 1996). In the integrative hierarchical model, each disorder was hypothesized to contain both common and unique components. As in the earlier models, negative affect was still the broad general distress factor common to both the mood and anxiety disorders. Moreover, this broad factor was still hypothesized to be the cause of the high levels of comorbidity between the mood and anxiety disorders. However, physiological hyperarousal was no longer hypothesized to be specific to all the anxiety disorders and instead was proposed as a specific, perhaps unique, component of panic disorder. Furthermore, it was hypothesized that each disorder contains specific unique components; however, most of those were not articulated. Since the publication of the integrative hierarchical model, evidence has suggested that, in addition to panic disorder, hyperarousal is related to post-traumatic stress disorder (PTSD) (see Brown, Lehman, Grisham, & Mancill, 2001); other evidence has further documented the relation between low positive affect and social phobia (Naragon-Gainey, Watson, Gamez, & Simms, 2005; Watson, & Markon, 2009).

The integrative hierarchical model also expanded the tripartite model by demonstrating that the amount of variance attributable to the general distress/negative affect component versus that attributable to more specific or unique components is not uniform and instead varies across different disorders (Mineka et al., 1998). For example, major depressive disorder (MDD) and generalized anxiety disorder (GAD) both contain large amounts of general distress variance whereas specific phobia and social phobia contain significantly smaller negative affect components (Mineka et al., 1998). Moreover, Mineka et al. (1998) expanded the scope of the negative affect factor and hypothesized that it was relevant to much of psychopathology, not just the mood and anxiety disorders. Similarly, Mineka et al. (1998) indicated that positive affect had broader relations with psychopathology than originally articulated in the tripartite model, and now linked it with other disorders or symptoms, such as the anhedonia seen in schizophrenia, which since has received some research support (Horan, Blanchard, Clark, & Green, 2008). Finally, they concluded that it was unlikely that any symptom would be characteristic of only a single disorder within the *DSM*. For a more thorough review of the two-factor, tripartite, and integrative hierarchical models, see Watson (2005).

The Internalizing/Externalizing Model

Shortly after publication of the integrative hierarchical model, an Internalizing/Externalizing quantitative model of psychopathology was proposed (Krueger, Caspi, Moffit, & Silva 1998). This scheme was based on patterns of comorbidity between 10 common *DSM-III-R* (American Psychiatric Association, 1987) diagnoses in a large epidemiological sample. It expanded upon the above models by including, in addition to the mood and anxiety disorders, substance use disorders and

antisocial behaviors, and by directly modeling the comorbidity among all these disorders. Krueger et al. (1998) conducted confirmatory factor analyses on the birth cohort that was part of the Dunedin Multidisciplinary Health and Development study. Analyses were conducted on data from when the participants were 18 years old and then again when they were 21 years old. A two-factor model consisting of an Internalizing factor (major depression, dysthymia, GAD, agoraphobia, social phobia, simple phobia, and obsessive-compulsive disorder [OCD]) and an Externalizing factor (antisocial personality, marijuana dependence, alcohol dependence) provided the best fit to the data and replicated across both time points.

What is particularly interesting about this finding is that the two-factor model bore a striking resemblance to findings from the child psychopathology literature published approximately 20 years prior (Achenbach & Edelbrock, 1978). Across numerous measures and methodologies two primary factors of childhood psychopathology have emerged: Internalizing (containing depressed, anxious, somatic, obsessive and compulsive symptoms) and Externalizing (containing aggressive, delinquent, and attention deficit symptoms). Moreover, both of these dimensions have demonstrated stability across time (Ollendick & King, 1994), suggesting they may represent underlying dimensions of psychopathology that are present throughout the lifespan.

Krueger (1999) updated the adult Internalizing/Externalizing model using National Comorbidity Survey (NCS) diagnostic data on 10 common *DSM-III-R* mental disorders. In this sample, a three-factor Internalizing/Externalizing model provided the best fit to the data across both lifetime and 12 month diagnoses. This model consisted of

a higher order externalizing factor (alcohol dependence, drug dependence, antisocial personality disorder [ASPD]) and a higher order internalizing factor with highly correlated, though distinguishable, subfactors of distress/anxious misery (major depression, dysthymia, GAD) and fear (panic disorder, agoraphobia, social phobia, simple phobia). It is worth noting that (1) GAD formed a factor with the depressive disorders and not with the other anxiety disorders, which is in line with the integrative hierarchical model's assertion that major depression and GAD both contain high levels of general distress/negative affect; and (2) in line with previous models, the correlation between the subfactors of the internalizing dimension was quite high ($r = .73$).

This three-factor Internalizing/Externalizing model was replicated later by Vollebergh et al. (2001) in the NEMESIS data set (a large epidemiological study in the Netherlands) using nine of the same *DSM-III-R* diagnoses. Moreover, Vollebergh et al. (2001) documented the stability of this structure across a 1-year period. This same basic three-factor structure also was found in parent and self-reports in a large sample of children and adolescents (Lahey et al., 2004). Finally Slade and Watson (2006) replicated the same basic structure using diagnoses from another large epidemiological sample from Australia, which included both DSM-IV and ICD-10 diagnoses. They also incorporated disorders that were not included in Krueger (1999), such as OCD (which loaded on the fear subfactor), as well as neurasthenia (in the ICD-10 analyses) and PTSD (both of which loaded on the distress/anxious misery subfactor). Thus, the same basic hierarchical internalizing/externalizing structure emerges across different countries, different methods, different ages, and different diagnostic/classification systems.

Genetic data. Kendler et al. (2003) provided even more support for the Internalizing/Externalizing model through analyses of genetic risk for common psychiatric disorders in the Virginia Twin Registry. They concluded that the genetic and environmental risk factors are very similar across gender and that the observed patterns of comorbidity are largely genetic in origin. Moreover, they concluded that "The structure of these genetic risk factors bears a conspicuous resemblance to the phenotypic structure of adult psychiatric disorders proposed by Krueger et al and Vollebergh et al." (p. 935). Kendler et al.'s (2003) model of the genetic risk factors consisted of a higher order externalizing dimension (alcohol dependence, substance abuse/dependence, antisocial behavior, conduct disorder) and a higher order internalizing dimension that again contained two subfactors: Distress/Anxious Misery (anchored by major depression and GAD, with panic disorder splitting across factors) and Fear (anchored by animal phobia and situational phobia, with panic disorder cross loading).

Limitations of the Internalizing/Externalizing model. The Internalizing/Externalizing model helps to explain the comorbidity observed between common *DSM* disorders (viz., disorders co-occur because they are indicators of the same underlying core process/trait vulnerability). Along the same lines, the model helps to explain why treatments developed for one disorder also work for other disorders: They all may be influencing the core trait that underlies these disorders (Krueger, 1999). Moreover, the model provides a step forward in the search for genetic contributions to psychopathology, because the traits that underlie the Internalizing/Externalizing model are heritable and can be viewed as broad risk factors. Thus, the model has led to a call for replacing the *DSM-IV* system of grouping disorders by "shared phenomenological

features," and instead grouping them into empirically based groups representing the actual similarities between disorders. Although grouping disorders by what they have in common is not new, applying this idea to adult psychopathology—utilizing empirical research evidence and formal quantitative models rather than relying solely on clinical judgment—is new.

Although the Internalizing/Externalizing model represents a leap forward, it currently is incomplete. For example, it is unclear exactly where OCD fits in the model. Some studies have found that OCD loads on the fear subfactor (Slade & Watson, 2006), but others have not replicated this finding (see Watson, 2005). Along the same lines, Tackett, Quilty, Sellbom, Rector, and Bagby (2008) and Sellbom, Ben-Porath, and Bagby (2008) documented that OCD was not particularly similar to either the fear or distress disorders, suggesting that it might not correspond with either subfactor and instead might represent its own subgroup or be part of a different spectrum.

Even more striking, many of the more "severe" disorders (e.g., psychotic disorders, dissociative disorders, etc.) have been excluded from these models because of the relatively low number of people who meet full diagnostic criteria for them in the epidemiological studies on which they were based. Regrettably, data on the co-occurrence of many of the excluded disorders are sparse. Much of the literature takes the form of case reports and studies that use small sample sizes. However, the available information does begin to suggest some possible relationships between the excluded disorders.

Comorbidity Among Excluded Disorders

Schizophrenia and OCD

There is considerable overlap between schizophrenia and OCD in symptom presentation, affected brain areas, demographics, neurotransmitters involved, neuropsychological performance, and pharmacotherapy outcome (see Poyurovsky & Koran, 2005; Tumkaya et al., 2009). Because of this, there have been calls for the creation of new subtypes of schizophrenia or a new "schizo-obsessive disorder" hybrid (see Faragian, Kurs, & Poyurovsky, 2008; Fenton & McGlashan, 1986; Poyurovsky et al., 2003). The exact percentage of patients with schizophrenia who meet diagnostic criteria for OCD varies: Poyurovsky and Koran's (2005) review indicated that 8 to 45% of individuals with schizophrenia meet criteria for OCD (see their Table A7), Braga et al.'s (2004) review estimated the percentage to be between 0 and 35% (see their Table A6), and Pokos and Castle (2006) reported ranges from 4% to 37.5%.

Regardless of the exact percentage, there is agreement that the rates are much higher than those found in the general population. Moreover, there is evidence that this comorbidity exists throughout the lifespan. For example, Nechmad et al. (2003) found that 26% of their child and adolescent schizophrenia patients (13 of 50) also met DSM criteria for OCD, and Poyurovsky and Koran (2005) reported that 16% (eight of 50) of their geriatric schizophrenic patients also met DSM criteria for OCD. Furthermore, it does not appear that this comorbidity is due to the effects of chronic illness or the side effects of pharmacological treatment for schizophrenia (Poyurovsky & Koran, 2005). However, Poyurovsky and Koran's (2005) review of the literature also concluded that a diagnosis of OCD did not increase the likelihood of being diagnosed with schizophrenia

(although none of the reviewed studies were prospective). In contrast, Adler and

Strakowski (2003) concluded that an OCD diagnosis makes one significantly more likely

to be diagnosed with schizophrenia later in life. Finally, Flor-Henry (1983) reviewed

several follow-up studies suggesting that 7 to 12% of patients originally diagnosed with

OCD later met diagnostic criteria for schizophrenia; this represents a 24-fold increase

over the likelihood of developing schizophrenia in the general population. In general, the

reviewed evidence suggests that the overlap between OCD and schizophrenia may serve

as a sign that there are underlying processes common to both disorders.

STPD and OCD

Schizotypal personality disorder (STPD) often is included in the schizophrenia

spectrum of disorders (Fowles, 2003), and appears similar to schizophrenia in terms of

genetic vulnerability, biology, phenomenological presentation, and treatment response

(Siever & Davis, 2004). As such, it is not surprising that studies have found an

association between STPD and OCD. However, the rate of co-occurrence between STPD

and OCD remains unclear with observed rates varying substantially (Poyoruvsky &

Koran, 2005). For example, Jenike et al. (1986) reported that 14 out of 43 (33%) patients

at their OCD clinic met criteria for STPD. Conversely, other studies have reported rates

as low as 0% (e.g., Rasmussen & Tsuang, 1986). In general, however, the few relevant

studies have found an elevated co-occurrence relative to the general population

(Poyurovsky & Koran, 2005). In fact, researchers have proposed that there may be a

schizotypy subtype of OCD (e.g., Sobin et al., 2000; Suhr et al., 2006).

Schizophrenia and Dissociation

Diagnostic comorbidity between schizophrenia and dissociation also is quite high. For example, 24 to 49% of patients who meet criteria for dissociative identity disorder (DID) have been diagnosed previously with schizophrenia (Ross & Norton, 1998; Ross et al., 1990; Putnam, Guroff, Silberman, Barban, & Post, 1986). Moreover, Haugen and Castillo (1999) found that half of their patients diagnosed with schizophrenia concurrently met diagnostic criteria for DID. Therefore, it is not surprising that differential diagnosis between schizophrenia and the dissociative disorders has been quite difficult (Irwin, 2001). Although many authors argue that patients with DID are prone to be "misdiagnosed" with schizophrenia (Bliss, 1980; Boon & Draiijer, 1993; Putnam et al., 1986), problems in differential diagnosis between the two disorders, rather than "misdiagnoses," could signal that the diagnoses share common underlying vulnerabilities.

Sleep Disorders, Dissociation, and Schizophrenia

In addition, there is some evidence that the above excluded disorders are associated with various sleep disorders (Koffel & Watson, 2009). Wilcox (1985) found that individuals diagnosed with narcolepsy reported significantly more symptoms of schizophrenia than did a sex- and age- matched control group. Moreover, the odds-ratio for a diagnosis of schizophrenia (6.72) indicated a substantially elevated risk for this disorder among individuals diagnosed with narcolepsy. There is also evidence that nightmare disorder is more common among individuals with a dissociative disorder (Agargun et al., 2003) than in the general population. Moreover, the American Academy of Sleep Medicine added a new sleep disorder to their nomenclature of sleep disorders, sleep-related dissociative disorder. The diagnosis is essentially a *DSM-IV-TR* dissociative

disorder, but with symptoms occurring during both during sleep and waking times (American Academy of Sleep Medicine, 2005; Koffel & Watson, 2009).

Summary of Comorbidity Patterns

Although the data are limited, the available literature suggests that many of the disorders currently excluded from the Internalizing/Externalizing model demonstrate considerable comorbidty. Moreover, there is evidence of overlap in terms of symptom presentation, treatment outcome, and neuropsychological findings (Fowles, 2003; Poyurovsky & Koran, 2005; Siever & Davis, 2004; Tumkaya et al., 2009). This overlap has 1) made differential diagnoses between some disorders extremely difficult and led some researchers to suggest that misdiagnosis is the problem; 2) led to calls for new subtypes of existing diagnostic categories incorporating features from other disorders; and 3) led to calls for the creation of new diagnostic categories designed to account for the individuals who express this overlap in their presentation.

Although many view this overlap as noise to be corrected either by more thorough assessment, the creation of subtypes, or the creation of additional disorders, there is another interpretation of the available data. Instead of being treated as something that should be eliminated, this overlap may best be viewed as a signal, albeit limited and preliminary, that a common factor (akin to neuroticism/negative affect for the internalizing spectrum or disinhibition/impulsivity for the externalizing spectrum) may underlie the psychotic disorders, schizotypal personality disorder, the dissociative disorders, certain sleep disorders, and OCD. The above evidence, suggesting that co-occurrence rates between these disorders are far beyond the product of their base rates in the population, is similar to the evidence of co-occurrence between the mood and anxiety

disorders that eventually led to the hierarchical models reviewed earlier. Nevertheless, the wide range of comorbidity estimates makes it difficult to draw any solid conclusions.

The picture is further complicated by the fact that many other studies have found that the above disorders are also comorbid with disorders from the internalizing spectrum. For example, schizophrenia co-occurs at rates above chance not only with OCD but also with other anxiety disorders. Braga et al.'s (2004) review indicates that between 3.3% and 43% of individuals diagnosed with schizophrenia also meet criteria for panic disorder, and between 8.2% and 36.3% meet criteria for social phobia. Other reviews have found that between 0.8% and 31% of individuals diagnosed with schizophrenia meet criteria for GAD, and 0% to 27.5% for agoraphobia (Pokos & Castle, 2006). These rates are similar to those reported between schizophrenia and OCD. Similarly, OCD is highly comorbid with the mood disorders, with between 25% and 80% of individuals diagnosed with OCD meeting criteria for a depressive disorder (e.g., Abramowitz et al., 2007; Barlow et al., 1986; Bellodi et al., 1991; Crino & Andrews, 1996; Hong et al., 2004; Kolada et al.,1994; Nestadt et al., 2001; Rasmussen & Tsuang, 1986). Moreover, approximately 14 to 20% of individuals diagnosed with OCD also meet criteria for panic disorder (Austin et al., 1990; Rasmussen & Eisen, 1994; Torres et al., 2004).

Thus, it is possible that what has led to the diagnostic comorbidity among these excluded disorders is neuroticism/negative affect and that they are, therefore, part of the internalizing dimension. In support of this possibility, several studies have found that psychosis could be considered an internalizing disorder (e.g., Harkness, McNulty, Finger, Arbisi, & Ben Porath, 1999; Verona, Sachs-Ericsson, & Joiner, 2004). However, other studies have found evidence that is contrary to this idea. For example, Wolf and

colleagues (1988) demonstrated, in a sample of 205 psychiatric patients, that schizophrenia was not associated with the disorders currently included in the internalizing/externalizing spectra, although schizoaffective disorder was.

The situation is even further complicated if one examines the childhood and adolescent literature (where the Internalizing/Externalizing model originated). For example, Ross, Heinlein, and Tregellas (2006), in a study of 82 children aged 4 to 15 years who were diagnosed with schizophrenia or schizoaffective disorder, reported that 99% of their participants had a comorbid disorder. Surprisingly, the most common co-occurrences were with externalizing disorders such as ADHD (84%) and ODD (43%), followed by mood and anxiety disorders such as depression (30%) and separation anxiety disorder (25%).

Limitations of Comorbidity Models

One significant limitation of the comorbidity models is that they are based on the categorical diagnoses of the *DSM*. The use of *DSM* categorical diagnoses is potentially quite problematic if one is attempting to discover the structure of psychopathology for several reasons. First, emerging evidence suggests that the *DSM* categories are not nearly as reliable as is currently believed and that dimensional measures of psychopathology are more reliable (Chmielewski & Watson, 2009a; Watson, 2009a). In fact, a recent meta-analysis indicated that switching to a dimensional approach would result in a 15% increase in reliability (Markon et al., 2011). Second, it is well established that the artificial dichotomization of dimensional constructs results in significant losses to validity (Cohen, 1983; Watson, 2003a; Widiger, 1992; Widiger & Clark, 2000). A recent meta-analysis documented that a switch to a dimensional approach would result in a 37%

increase in validity (Markon et al., 2011). As such, if psychopathological constructs are continuous, as the evidence increasingly suggests, then the use of categorical constructs as the building blocks for empirical models of psychopathology is suboptimal. Moreover, basing analyses on the *DSM* categories has led to many of the above diagnoses being excluded from the model due to the low base rates of individuals who meet full diagnostic criteria for the disorders. Utilizing a dimensional approach would address these limitations and allow the less common (although extremely serious) disorders to be incorporated into the models. Therefore a dimensional approach was taken in the current study.

The idea of viewing psychotic disorders dimensionally is not as radical as it may seem at first glance. For example, the long studied concept of schizotypy suggests a continuum between normality and psychosis (e.g., Claridge & Beech, 1995; Meehl, 1962). Moreover, the idea of dimensional approaches to the psychotic disorders is gaining considerable momentum (see Regier, 2007). Furthermore, it is estimated that between 5 and 20% of the population reports symptoms, delusions and hallucinations, that could be considered low-level psychotic symptoms (see Verdoux & van Os, 2002).

Similarly, dimensional representations of OCD symptoms are becoming increasingly common (see Watson, Wu, & Cutshall, 2004). For example, subclinical obsessions and intrusive thoughts are very common, with studies reporting that up to 80% of undergraduates experience intrusive thoughts or impulses (Salkovskis & Harrison, 1984). In addition, subclinical manifestations of OCD symptoms are quite close in form and content to those of individuals who meet full diagnostic criteria for OCD (Rachman

& deSilva, 1978). Finally, dissociative experiences are quite common in the general

population (e.g., Ross, Joshi, & Currie, 1991).

Dimensional Analyses of the Excluded Disorders

In addition to dealing with base rate issues and increased validity and reliability,

another advantage of considering a dimensional approach, for the purposes of this study,

is that additional research is available regarding the correlations between dimensional

measures of psychosis, OCD, and dissociation. I review this evidence next.

Psychotic, Schizotypal, and OCD-Symptoms

There is considerable evidence that clinically relevant obsessive-compulsive

symptoms are more common in patients diagnosed with schizophrenia than in the general

population (Berman et al., 1995; Poyurovsky et al., 2005; Tumkaya et al., 2009; Whitney

et al., 2004), further establishing a potential link between schizophrenia and OCD.

Moreover, moderate to strong correlations between schizotypal and obsessive-compulsive

dimensions have been found consistently in student samples (e.g., Chmielewski &

Watson, 2008; Dinn et al., 2002; Roth & Baribeau, 2000) and OCD patients (Norman et

al., 1996; Rossi & Daneluzzo, 2002).

OCD, Schizotypal, and Dissociation Symptoms

Moderate to strong correlations have also been found between obsessive-

compulsive symptoms and dissociation (Chmielewski & Watson, 2008; Watson et al.,

2004). Moreover, Watson et al. (2004) demonstrated that neuroticism could not account

for the association between the symptom dimensions in their large student sample, further

suggesting that these phenomena may share a core underlying factor that differs from

negative affect/neuroticism. In addition, there is evidence to link obsessive-compulsive

symptoms and schizotypy. For example, obsessive-compulsive features accounted for 24% of the variance in schizotypal symptoms in a sample of college students (Roth & Baribeau, 2000). Moreover, Norman and colleagues (1996) reported data from a clinical sample suggesting that the link between obsessive-compulsive and schizotypal symptoms is stronger than that between obsessive-compulsive symptoms and symptoms of the other anxiety disorders.

Dissociation, Psychotic, and Schizotypal Symptoms

It also appears that there is considerable overlap between dissociation and psychosis. For example, dissociative experiences are not only a hallmark of the dissociative disorders but they also are quite common in schizophrenia and other psychotic disorders (e.g., Giesbrecht et al., 2008; Merckelbach, a` Campo, Hardy, & Giesbrecht, 2005). In fact, there is evidence that patients who meet diagnostic criteria for DID actually experience more Schneiderian first-rank symptoms of schizophrenia (e.g., auditory hallucinations, thought broadcasting, delusions of control, etc.) than do patients who meet criteria for schizophrenia (Ellason & Ross, 1995; Simeon et al., 2004). Ross et al. (1990) used clinician ratings of 236 patients who had been diagnosed by their clinicians with DID[1], as well as data on an additional 102 patients who had been diagnosed by trained researchers utilizing the Dissociative Disorders Interview Schedule (DDIS). In the group rated by clinicians, the DID patients had an average of 4.5 Schneiderian symptoms; in the group assessed using structured interviews, the DID patients had an average of 6.4 Schneiderian symptoms (Ross et al., 1990). In contrast, Ross et al.'s (1990) review of the literature indicated that the average number of

Schneiderian symptoms endorsed by individuals diagnosed with schizophrenia was only 1.3.

Moreover, this relationship between dissociation and psychosis is not limited to clinical samples. For example, several studies in undergraduate samples have documented strong correlations between measures of schizotypy and dissociation (Merckelbach et al., 2000; Moskowitz et al., 2005; Pope & Kwapil, 2000; Watson, 2001). However, it is worth noting that dissociative symptoms also are common in individuals diagnosed with PTSD (Holmes et al., 2005), which is tentatively considered part of the internalizing spectrum, so the association with psychotic disorders is not unique.

Other Constructs That May be Included.

Other evidence has established important links between symptoms of narcolepsy—such as cataplexy, sleep paralysis, and hypnagogic/ hypnopompic hallucinations—and indicators of schizophrenia, schizotypy, and dissociation (Giesbrecht & Merckelbach, 2006; Watson, 2001, 2003c). Howland (1997), for instance, reviewed data indicating that psychotic symptoms are relatively common in narcolepsy, with as many as 30% of narcoleptics reporting prominent hallucinatory experiences. Other studies have reported that the rates of schizophrenia and STPD are increased in individuals who report more nightmares (see Hartmann, Russ, Oldfield, Sivan, & Cooper, 1987; Koffel & Watson, 2009). Moreover, Watson (2001, 2003c) demonstrated that hypnagogic and hypnopompic hallucinations, nightmares, waking dreams, and other sleep-related experiences were moderately correlated with various indicators of dissociation and schizotypy. These data provide evidence that certain sleep experiences

may also share trait vulnerability with the symptoms of schizophrenia, schizotypy, and dissociation (see Koffel & Watson, 2009).

Heterogeneity

Although the use of dimensions likely would allow the incorporation of these excluded disorders into existing models, simply dimensionalizing the current *DSM* categories, although an important step, is only one part of the solution. As previously discussed, many of the disorders within the *DSM* are quite heterogeneous. In fact, many symptoms combined within the *DSM's* diagnostic categories are distinct enough that they are best viewed as separate dimensions (see Watson, 2003b, 2005). Thus, if there is symptom heterogeneity within the disorders included in the Internalizing/Externalizing model, then it is unlikely that the model is as valid as possible. It is, therefore, especially interesting that researchers have begun to argue that even the symptoms subsumed under depression are heterogeneous (Ingram & Siegle, 2002; Joiner et al., 2005). Moreover, there is emerging evidence suggesting that it is optimal to assess the specific symptom dimensions of depression separately (see Watson et al., 2007; Watson et al., 2008).

Impact of Heterogeneity on Models of Psychopathology

If the symptom dimensions that underlie the disorders currently subsumed within the Internalizing/Externalizing model display differential correlational patterns with other constructs, then any resulting structures based on these *DSM* syndromes might differ from what would emerge if the symptom dimensions were assessed independently (Watson, 2005, 2009a). This could also have important implications for the disorders whose placement is currently unclear. For example, numerous studies have documented the presence of several replicable symptom dimensions within OCD (e.g., Summerfeldt,

Richter, Antony, & Swinson, 1999; Watson & Wu, 2005; Wu & Watson, 2003) and it is becoming increasingly recognized that OCD is a heterogeneous construct (Watson et al., 2004; Wu & Carter, 2008). Moreover, it has been shown that the dimensions subsumed within OCD have differential patterns of correlation with other constructs (Wu & Watson, 2005). Thus, structural analyses based on the symptoms of OCD may lead to different results than those conducted on the diagnostic entity of OCD.

The heterogeneity present in the *DSM* is particularly relevant when trying to expand the Internalizing/Externalizing model to include psychotic disorders, dissociative disorders, and STPD. For example, it is widely acknowledged that schizophrenia is a very heterogeneous disorder. As part of a special series of articles marking the 20th anniversary of *Schizophrenia Research*, Tandon, Nasrallah, and Keshavan (2009) stated: "The current subtypes of schizophrenia in DSM-IV-TR and ICD-10 should be deleted. Instead, the heterogeneity of schizophrenia is better described by clinical dimensions" (p. 16). Along similar lines, there is evidence that the factors that underlie schizotypal personality disorder are so heterogeneous that they may not constitute a single disorder (Chmielewski & Watson, 2008).

These findings are not limited to schizophrenia or STPD. For example, Watson et al. (2004) examined links between dissociative tendencies and specific types of OCD symptoms. They found that dissociation measures were moderately to strongly correlated with certain types of OCD symptoms—such as obsessive intrusions, checking, and obsessions of doubt—and were more weakly related to others (e.g., washing, ordering, hoarding). Similarly, the specific dimensions that underlie STPD have demonstrated different correlational patterns with dissociative tendencies, OCD, and the Big Five

(Chmielewski & Watson, 2008). Moreover, Watson (2001) reported that the dissociation dimension of detachment/depersonalization was not differentiable from schizotypy; in contrast, other dimensions of dissociation, although still highly correlated, could be distinguished from schizotypy. As such, it is possible that analyses of empirically based symptom dimensions underlying these disorders could yield different results than simply dimensionalizing the current DSM categories; this suggests that both sets of analyses are important to expand our understanding of psychopathology. The former are important because the current *DSM* categorical model is likely to be retained in *DSM-V* and the later because they can be used to create more accurate models of psychopathology.

<div align="center">**Oddity/Peculiarity/Thought Disorder**</div>

Recently, researchers have started to investigate the links between many of these excluded constructs, as well as the common factor that may underlie them (see Markon, 2010; Tackett, Silberschmidt, Krueger, & Sponheim, 2008; Watson, Clark, & Chmielewski, 2008). The majority of this work has taken place in the context of personality pathology; nevertheless, the findings are still relevant to the current work. For example, Watson, Clark, and Chmielewski (2008) and Tackett et al. (2008) focused on incorporating *DSM* Axis II Cluster A characteristics (i.e., odd/eccentric personality disorders) into an expanded dimensional model of personality pathology. Both report evidence of a factor of personality pathology beyond the Big Five. Tackett, Silberschmidt et al.'s (2008) factor, which they labeled *Peculiarity*, was defined by the STPD/schizotypy symptoms of ideas of reference, odd beliefs, odd behavior, odd speech, suspiciousness, unusual perceptions, and perceptual aberrations. Notably, the STPD/schizotypy symptoms of excessive social anxiety and lack of close friends did not

load on the Peculiarity factor (the former split between Introversion and Emotional Dysregulation, whereas the later loaded primarily on Introversion), again documenting the importance of assessing individual symptom dimensions separately.

Watson, Clark, and Chmielewski (2008), in a series of three studies, reported the existence of a factor they labeled *Oddity*. Their Oddity factor contained the same symptoms as the Tackett, Silbershmidt et al. (2008) study; moreover excessive social anxiety and lack of close friends loaded on an Extraversion factor (along with the STPD/schizotypy symptom of constricted affect, which was not assessed in the Tackett, Silberscmidt et al., 2008 study). Furthermore, Watson et al. (2008) presented data indicating that dissociation (e.g., depersonalization, obliviousness), unusual perceptions, mistrust, and perhaps symptoms of OCD also were subsumed under this factor. Watson et al. (2008) suggested that an additional personality factor of Oddity/Peculiarity (which is independent of the Big Five) was necessary for a complete model of personality pathology, whereas Tackett et al. (2008) were agnostic as to whether Openness was associated with Oddity/Peculiarity. Others have argued that Oddity/Peculiarity may be simply a maladaptive variant of openness to experience (for discussions, see Widiger, Livesley, & Clark, 2009; Widiger & Simonsen, 2005) and there is some evidence to support this claim (Camisa et al., 2005; Lee & Ashton, 2004; Ross, Lutz, & Bailey, 2002; Wiggins & Pincus, 1998). Nevertheless, these studies provide additional support for the hypothesis that many of the disorders/symptom dimensions currently excluded from the Internalizing/ Externalizing model share a common underlying factor (regardless of whether it is Oddity/Peculiarity or Openness) that currently is not well captured in the model. However, neither study assessed the disorders within the

Internalizing/Externalizing model, neither used a patient population, and both were restricted to self-report data.

In analyses intended to expand the Internalizing/Externalizing model, Markon (2010) has conducted what is perhaps the most thorough exploration of this area. Using symptom level data derived from interviews conducted by trained lay persons in the 8405 participants from the British Psychiatric Morbidity Survey, Markon (2010) found that four superordinate dimensions (Internalizing, Externalizing, Thought Disorder, and Pathological Introversion) provided the best fit to the data. Those four dimensions were based on 20 subordinate dimensions that exist at a level between individual *DSM* symptoms and the superordinate factors.

Several other findings from the Markon (2010) study are worth highlighting. First, the Thought Disorder factor contained the subordinate dimensions of Paranoia, Eccentricity (odd beliefs or magical thinking), Schizoid Characteristics (e.g., lack of close friends, lack of pleasure, abnormally elevated mood, arrogant attitudes, work or financial irresponsibility, etc.), Inflexibility, Disorganized Attachment (unstable relational idealization and devaluation, fears of abandonment, recurring suspicions of infidelity), Hostility (which also had a significant, albeit lower, loading on the Externalizing factor), and Hallucinations & Delusions (which also had a significant, albeit lower loading, on the internalizing dimension). The inclusion of schizoid characteristics and hostility are in contrast to what past research would suggest. For example, Watson et al., (2008) and Tackett, Silberschmidt et al., (2008) both reported that lack of close friends and lack of pleasure would fall within the internalizing disorders given that they loaded on the neuroticism factor. Second, in contrast to some of the evidence previously reviewed,

Obsessions and Compulsions loaded on the Internalizing factor and not the Thought Disorder factor. Third, in contrast to past models, the Internalizing factor did not split into fear and distress subfactors (see Markon, 2010, for possible explanations). Finally, it is worth noting that the Pathological Introversion factor contained the subordinate dimensions of Social Anxiety, Unassertiveness, and Dependence. Moreover, it did not contain Schizoid Characteristics.

Although the Markon (2010) analyses significantly expanded the Internalizing/ Externalizing model and begin to incorporate some of the excluded symptom dimensions, the data were from a study that was not specifically designed to address the issue of how many of the excluded syndromes/symptom dimensions fit into the model; as such, many of them were not included or were not thoroughly assessed. For example, dissociative tendencies were only represented with a single marker from borderline personality disorder (BPD), which ultimately was grouped together with other BPD symptoms into the "emotional lability" cluster that loaded on Internalizing. Moreover, only the obsessions and compulsions dimensions of OCD were included. In addition, the assessment of symptoms was limited to interviews conducted by laypersons. Although the interviewers were extensively trained and numerous checks were in place, it would have been preferable to include both self-report data and interviews conducted by individuals with a greater understanding of psychopathology. This is because there is evidence that many of the symptoms of the disorders discussed above (e.g., manic symptoms, negative symptoms, symptoms of disorganized psychosis, etc.) are difficult to assess in a lay interview (Kessler et al., 2005; Markon, 2010). As such, the results (as with any structural study) are a function of the variables entering the analyses and it is

possible that more thorough assessment of many of these constructs may lead to somewhat different findings. Nevertheless, the study provides additional evidence supporting the hypothesis that dimensions of psychosis, schizotypy, and so on, share a common underlying factor.

Summary

Although the disorder-based comorbidity models have advanced the field significantly and can continue to provide useful information, they do have considerable limitations. The major limitation is their reliance on the dichotomous indicators of the *DSM* (Watson, 2009a). As noted earlier, these diagnostic categories may be quite unreliable (Chmielewski & Watson, 2009; Watson 2009a), and thus could add considerable measurement error into the models (Watson, 2009a). In addition, diagnostic criteria and hierarchical exclusion rules may be applied differently across different studies (see Watson 2009a), which could lead to vast differences in the reported comorbidity between disorders, as documented by the wide range of values reviewed earlier. Another important limitation of using the categorical *DSM* diagnoses as the basis for quantitative models is that the low prevalence rates for many *DSM* disorders makes it virtually impossible to incorporate them into the models (Watson, 2005, 2009a). Moreover, the evidence indicating that subthreshold manifestations of these excluded disorders are 1) rather common and 2) closely resemble the full diagnoses, suggests that important manifestations of psychopathology are left out of the current model. Therefore, it appears that dimensional analyses of the *DSM* syndromes are necessary to expand the model and further our understanding of psychopathology.

However, the significant heterogeneity within many of the *DSM* syndromes has led to calls for supplementing analyses of the *DSM* syndromes with analyses on the symptom dimensions that underlie psychopathology (see Watson, 2009a). Although a few studies have started to examine these symptom dimensions, they have been limited and have not painted a complete picture. First, some studies have been conducted in the context of personality pathology and thus have not included many symptoms from Axis I. Second, the studies not focused on personality pathology have included a limited assessment of the symptoms that may underlie dissociation, psychosis, and OCD. Third, some of the studies that have been done have restricted themselves to analyses of *DSM* defined symptoms. Although on one hand this strategy makes sense, it ultimately is less informative than when symptoms are based on analyses that were specifically created to clarify the underlying structure of domains of psychopathology (see Watson, 2009a). For example, in creating the Inventory of Depression and Anxiety Symptoms (IDAS), Watson et al. (2007) demonstrated that some symptoms currently included in the diagnosis of major depression were nonspecific to depression. As such, analyses that go beyond the confines of the *DSM* may be optimal. Fourth, the available studies have not used patient samples. Finally, these studies have been limited to one method of assessing the symptom dimensions.

CHAPTER II

CURRENT STUDY

The current study was designed specifically to expand the Internalizing/ Externalizing model by incorporating many of the disorders that have been excluded from it. By analyzing dimensional representations of the *DSM*-based syndromes, instead of categorical diagnoses, this study provides an expanded understanding of the structure of common and severe mental disorders. However, the study also was designed to move beyond models based on *DSM* syndromes, thereby circumventing the problems tied to this approach, such as diagnostic heterogeneity, by analyzing symptom dimensions that underlie these syndromes. As such, it provides an enhanced understanding of how psychopathology is structured. Therefore two separate sets of analyses, one at the syndromal level and one at the symptom level, were conducted.

In addition, measures of normal personality were included in the protocol. Given the increased interest in the relations between psychopathology and normal personality, it is surprising that no studies have assessed the association between the internalizing/externalizing domains and the Big Five, although researchers have studied the relation of individual disorders to the Big Five. As such, this appears to be an important gap in the current literature that needs to be filled. Thus, the associations of normal personality traits with the internalizing dimension, the externalizing dimension, and the oddity dimension was investigated. Moreover, the inclusion of normal personality measures can provide some insight into the growing debate in the personality pathology literature as to whether the symptoms that underlie Cluster A disorders (as well as dissociation and perhaps obsessions and compulsions) can be assessed within the

framework of the Big Five. Some researchers have argued that these symptoms can be explained as a maladaptive variant of openness (see Widiger & Simonsen, 2005), whereas others have argued that a sixth factor of personality, Oddity/Peculiarity, is necessary to model them properly (Watson, Clark, & Chmielewski, 2008).

More fundamentally, the inclusion of measures of normal personality allows for the comparison of the structures defined by individual symptom dimensions with those of normal personality traits. Given evidence that personality pathology and normal personality can be modeled using the same structural framework (Markon, Krueger, & Watson, 2005)—as well as the hypothesis that psychopathology and personality are both manifestations of broad underlying genetically based dimensions of temperament (Clark, 2005)—it is quite possible that the symptom-level analyses will result in a structure similar to the Big Five with Oddity/Peculiarity replacing openness (see Watson et al., 2008; Tackett et al., 2008).

The current study makes use of a very large set of measures, including both self-report scales and semistructured interviews. A wide range of potential Oddity measures were included because available measures of some of the constructs possibly subsumed within the Oddity domain have psychometric properties that are either unknown or suboptimal. For example, measures of STPD have been shown to have non-optimal psychometric properties (Chmielewski & Watson, 2008). Therefore, this study included nearly all of the most widely used measures of potential oddity domain markers, thereby allowing for analyses of their psychometric properties to ensure that the best measures are included in the final analyses. Conversely, many of the measures included in the study psychometrically are quite sophisticated (e.g., the IDAS) and were specifically

designed to clarify the underlying structure of psychopathology without being limited to *DSM* defined symptoms (see above).

The current study used a large clinical sample to help ensure that the full range of symptomatology would be present. To my knowledge this is the first study (1) to assess dimensional representations of the common and severe mental disorders, (2) to assess the symptoms that may underlie those disorders, (3) to assess symptoms underlying broader conceptualizations of psychopathology, (4) to conduct analyses examining quantitative model of psychopathology in a large patient sample and (5) to include both self-report and interview measures of (1) through (3). To explicate the structure of psychopathology further, multivariate data analyses (e.g., factor analysis, structural equation modeling, etc.) were conducted at both the syndromal and symptom levels. Twenty-seven self-report scales (with over 60 subscales) representing various syndromes and symptoms of psychopathology (though weighted toward the "Oddity" domain), as well as three semi-structured interviews, were included in the protocol.

Syndromal Level Analyses

The first set of analyses was conducted at the syndromal level, using dimensional data assessing the *DSM* diagnostic constructs. For example, depression was analyzed as a single dimension (i.e., a total score on a depression measure). These analyses can be considered proxies for analyses of diagnostic comorbidity (e.g., analyzing depression as a single dimension can be considered a proxy for analyzing MDD as a single diagnostic category). Conducting analyses in this manner begins to address certain problems with using *DSM*'s categorical diagnoses, such as the base rate issues that typically have led to the exclusion of many of the *DSM* diagnoses. Thus, these analyses may provide an

approximation of what might have emerged if diagnoses had not been excluded due to base rate issues. As previously discussed, these dimensional ratings are likely to be more reliable than their dichotomous counterparts and, as such, can provide a more accurate model of *DSM*-defined psychopathology. The results of these analyses also can offer further suggestions for reorganizing the current *DSM* categories into a quantitative hierarchical model in later *DSM* editions (see Watson, 2005). The following syndromes were included: major depressive disorder, panic disorder, social phobia, PTSD, OCD, psychotic disorder, dissociative disorder, STPD, antisocial personality disorder, alcohol abuse/dependence, and drug abuse/dependence.

Based on the above literature review, I proposed that, at the syndromal level, many previously excluded disorders would form a third "Oddity" factor of psychopathology. Therefore, a series of confirmatory factor analyses (CFAs) were conducted to determine which model provided the best fit to the syndromal data. The first model(s) was based on exploratory factor analyses of the included syndromes; the second set of models were based on the diagnostic classes of the *DSM;* the third model and its variants tested the possibility that the excluded disorders are part of the internalizing spectrum, as some past research has suggested (Harkness et al., 1999; Verona et al., 2004); and the fourth model and its variants represent the hypothesized Internalizing/Externalizing/Oddity model. More information about these various models is included in the Syndromal Analyses section of Chapter 3.

Symptom Level Analyses

The second set of analyses were more exploratory in nature (exploratory factor analyses; EFAs), and were conducted on the symptom dimensions that underlie the above syndromes (e.g., analyzing the individual symptom dimensions included in depression rather than a single dimension of depression). As such, these analyses eliminate the problem of disorder heterogeneity and allow for a "bottom up" structural approach. In such an approach, symptoms of mental illness are combined into larger dimensions of psychopathology based on their empirical relationships with each other. The dimensions then can be analyzed further to determine whether a higher order structure underlies them. Thus, this study can be one step towards building a model of psychopathology that more closely represents the empirical data and that more accurately models the nature of psychopathology, in other words, a model that more closely "carves nature at its joints." More information about these analyses is included in the Hypothesis and Data analyses section.

Associations With Normal Personality

Finally, measures of normal personality and trait affect also were included 1) to fill the aforementioned gaps in the current literature regarding the association of the Internalizing/ Externalizing model to the Big Five, 2) to address questions regarding the nature of the traits that may underlie the hypothesized Oddity domain, and 3) to examine the association between the symptom structure of psychopathology and normal personality. In addition, a measure of sleep experiences was included, as research has indicated (Koffel & Watson, 2009) that overlap exists between normal-range sleep phenomena and potential oddity symptoms.

CHAPTER III

GENERAL METHODS

Participants and Procedures

Psychiatric patients ($N = 448$; 66% female; diagnostic rates are presented in Table A1), recruited from the Adult Psychiatry Clinic at the University of Iowa Hospital and Clinics and the Community Mental Health Center of Mideastern Iowa, participated in the study. Patients were approached individually and asked whether they were interested in participating in a research study. If interested, subjects either were scheduled for a time to come to the lab or, if that was not possible (due to their living several hours away or because of limited funding during the final weeks of the study), were given a packet of self-report measures to complete at home and return in the mail. Most ($N = 352$) participants came to the lab and completed both sessions of the interviews and the self-report measures in small-group sessions (381 participants completed at least one session). During these sessions, participants were taken to a private room where semi-structured interviews were conducted. The self-report measures and interviews were conducted over two 2-hour sessions completed within a 1-week period. Participants were paid for their participation.

Self-Report Measures

Psychotic/Schizotypy/Cluster A

The first three scales were developed as part of the Chapmans' long-standing and influential research on psychosis proneness. For all scales, coefficient alphas, average inter-item correlations, means, and standard deviations in the current sample are reported in Table A2.

Perceptual Aberration Scale (PAS; Chapman, Chapman, & Raulin, 1978*).* The PAS is a widely used 35-item true/false measure tapping bizarre or distorted perceptions (e.g., "Often I have a day when indoor lights seem so bright that they bother my eyes"; "Now and then, when I look in the mirror, my face seems quite different than usual."). Coefficient alpha for the scale ranged from .89 to .94 across college student and patient samples (Chapman, Chapman, & Raulin, 1978). The PAS has been shown to predict psychotic disorders prospectively (Chapman et al., 1994; Gooding et al., 2005) and to differentiate patients with psychotic disorder from controls (Horan, Reise et al., 2008). In samples of schizophrenic patients, the PAS has been shown to covary with symptom severity, as assessed by semistructured diagnostic interviews, over time (Horan, Reise et al., 2008).

Magical Ideation Scale (MIS; Eckblad & Chapman, 1983*).* The MIS is a widely used 30-item true/false measure tapping odd or unconventional beliefs about a variety of events and experiences (e.g., "I have had the momentary feeling that someone's place has been taken by a look-alike"; "I have occasionally had the silly feeling that a TV or radio broadcaster knew I was listening to him [sic]"). Coefficient alpha was .82 and .85 (average inter-item correlation [AIC] = .13 to .16) in two large college-student samples (Eckblad & Chapman, 1983), indicating the scale's content is rather broad and may be somewhat heterogeneous. The MIS has been shown to predict psychotic disorders prospectively (Chapman et al., 1994; Gooding et al., 2005) and to differentiate patients with psychotic disorder from controls (Horan, Reise et al., 2008). In samples of schizophrenic patients, the MIS has been shown to covary with symptom severity, as assessed by semistructured diagnostic interviews, over time (Horan, Reise et al., 2008).

Revised Social Anhedonia Scale (RSAS; Eckblad et al., 1982). The RSAS is a widely used 40-item true/false measure tapping deficits in the ability to experience pleasure from interactions with other people (e.g., "I attach very little importance to having close friends," "Making new friends isn't worth the energy it takes"). Coefficient alpha was .79 in two large college student samples (Eckblad et al., 1982), indicating that the scale is rather heterogeneous (AIC= .09). The RSAS has been shown to predict the onset of schizophrenia spectrum disorders prospectively (Gooding et al., 2005; Kwapil, 1998) and to differentiate psychotic patients from their relatives and controls (Katsanis, Iacono, & Beiser, 1990).

Schedule for Nonadaptive and Adaptive Personality-Second edition (SNAP; Clark et al., in press). The SNAP is a 390-item dichotomous (true/false) measure of trait dimensions relevant to the Axis II personality disorders. The SNAP contains three temperament scales (Negative Temperament, Positive Temperament, and Disinhibition) that assess the core of the higher order dimensions and 12 more specific trait scales. In addition, scales assessing each of the *DSM-IV* personality disorders can be scored. The following trait subscales relevant to Cluster A disorders were included: Eccentric Perceptions (15 items; e.g., "At times I somehow feel the presence of someone who is not really there"; "Based on my experiences, I believe I have ESP or some kind of special ability"), Mistrust (19 items; e.g., "I am sure I am being talked about"; "I wonder if the people I know can really be trusted"), and Detachment (18 items; e.g., "It often seems that I simply have no feelings"; "I don't particularly like spending time with people"). The median coefficient alphas across a variety of community, student, and patient samples were .81, .87, and .84 respectively (Clark et al., in press). The validity of the

SNAP scales has been documented by their association with self-report and interview measures of personality pathology (see Clark et al., in press). Moreover, the Eccentric Perceptions scale correlated .32 with STPD, the Mistrust scale correlated .52 with paranoid personality disorder, and the Detachment scale correlated .56 with schizoid personality disorder diagnoses derived using the Structured Interview for *DSM-IV* Personality (*SIDP-IV*; Pfohl et al., 1997) (Clark et al., in press).

Schizotypal Personality Questionnaire (SPQ; Raine, 1991). The SPQ is a widely used 74-item dichotomous (yes/no) self-report questionnaire composed of nine rationally created subscales that were designed to assess the nine *DSM-III-R* criteria for STPD (e.g., "Do you sometimes feel that things you see on the TV or read in the newspaper have a special meaning for you?"; "I am sure I am being talked about behind my back"; "People sometimes comment on my unusual mannerisms and habits"). Coefficient alpha for the SPQ total score was .90 in one sample and .91 in a second sample, indicating relatively broad, heterogeneous item content (AIC = .11 to .12); the mean subscale coefficient alpha was .72 in one sample and .71 in a second sample (Raine, 1991). The validity of the SPQ total score has been demonstrated by correlations between the SPQ and other self-report measures of schizotypy ranging from .59 to .81 (Raine, 1991) and by a correlation of .60 between the total score and the Structured Clinical Interview for *DSM–IV* Axis II Personality Disorders diagnosis of STPD (Raine, 1991). Structural analyses at the subscale level (e.g. 9 variables) have resulted repeatedly in three higher order factors: a Cognitive-Perceptual factor, an Interpersonal factor, and a Disorganized factor (Raine et al., 1994). However, restricting structural analyses to only nine variables results in a potentially restricted number of variables (i.e. at least 3 variables are necessary to define

a factor, thus a maximum of three dimensions could emerge). Chmielewski and Watson (2008) could not recover the SPQ's nine subscales at the item level (e.g. 74 variables) via factor analyses; moreover, their item-level analyses failed to support the 3-factor model of STPD. Instead they found five dimensions (Social Anhedonia, Unusual Beliefs and Experiences, Social Anxiety, Mistrust, and Eccentricity/Oddity) underlying the SPQ and STPD. Preliminary analyses were conducted to determine which set of findings (three- vs. five-factor) replicates in the current sample. These results were replicated in the current study (see results section), therefore factor scores assessing the five dimensions will be used in the symptom level analyses.

Schizotypy Traits Questionnaire (STA; Claridge & Broks, 1984). The STA is a commonly used 37-item yes/no measure of "schizophrenic-like features" based on the *DSM-III* diagnosis of STPD. The STA contains three 8-item subscales, Magical Ideation (e.g., "Do you believe in telepathy?"), Paranoid Ideation and Suspiciousness (e.g., "Do you often feel that other people have it in for you?"), and Unusual Perceptual Experiences (e.g., "Does your voice ever seem distant, far away?"). Coefficient alpha was .85 (AIC = .13) for the total score, .70 (AIC = .23) for Magical Thinking, .74 for Unusual Perceptual Experiences (AIC = .26), and .59 (AIC = .15) for Paranoid Ideation (Rawlings, Claridge, Freeman, 2001). However, recent factor analyses of the STA have suggested it consists of four factors (magical thinking, paranoid suspiciousness, unusual perceptual experiences, and social anxiety) (Rawlings et al., 2001). Preliminary analyses were conducted to determine which structure replicated in the current sample (see results section). The four-factor structure did not replicate, therefore the standard subscales,

were be used in the symptom level analyses. The STA differentiated individuals with a history of psychotic disorder diagnoses from normal controls (Jackson & Claridge, 1991).

Referential Thinking Scale (REF; Lenzenweger, Bennett, & Lilenfeld, 1997). The REF is a 34-item true/false measure that focuses on a wide variety of referential thoughts (i.e., ideas of reference) and experiences that are hypothesized to be relatively stable and trait-like (Lenzenweger et al., 1997). These thoughts or experiences reflect a distortion of reality in which objects, events, or people take on a special meaning for an individual when most people would regard them as common or indifferent to them (e.g., "When I hear a favorite song, I think that it was probably written with me in mind"; "Small animals seem to take special notice of me as I walk by"; "When I see something broken, I often wonder if others blame me for it"). Coefficient alpha was found to be above .80 (AIC = .11) in a variety of student samples and the 4-week dependability correlation (see Chmielewski & Watson, 2009b) was .86 in a small student sample (N=45) (Lenzenweger et al., 1997). The convergent/divergent validity of the REF was documented by it having moderate to strong correlations with other measures of schizotypy, low to moderate correlations with measures of depression and anxiety, and low correlations with measures of self-monitoring and self-consciousness (Lenzenweger et al., 1997).

Dissociation

Dissociative Processes Scale (DPS ; Harrison & Watson, 1992; see also Watson, 2001, 2003a)*. The DPS is a 33-item factor-analytically derived scale that contains three subscales: Obliviousness (e.g., "I will sometimes walk into a room, and not remember why I went in there"), Detachment (e.g., "Sometimes when I am looking in the mirror I feel like I am seeing someone else"), and Imagination (e.g., "If I want to, I can imagine

some things so vividly that they hold my attention like a good movie or book does").

Participants respond on a 5-point scale ranging from 1 = *strongly disagree* to 5 = *strongly*

agree. Coefficient alpha for the total score and all subscales exceeded .80 in a large

student sample across two time points (Chmielewski & Watson, 2008). The DPS has

demonstrated strong correlations with other measures of dissociation (Watson, 2001;

Watson, 2003a).

      Curious Experiences Survey (CES; Goldberg, 1999). The CES is a 31-item

revised version of the widely used Dissociative Experiences Scale (Bernstein & Putnam,

1986) created to improve the psychometric properties of the DES and make it easier for

respondents to complete (see Goldberg, 1999). The revisions included shortening and

rewording items, adding three new items, and switching to a simpler 5-point response

format ranging from 1 = *This never happens to me* to 5 = *This always happens to me*

(Goldberg, 1999). Coefficient alpha for the total scale was .90 (AIC = .30) in a large

community sample. Similar to the DES, the CES contains three subscales:

Depersonalization (8 items, alpha = .88, AIC = .48; e.g., "Had the experience of looking

in a mirror and not recognizing myself"), Absorption (8 items, alpha = .75 (AIC = .27);

e.g., "Found that I became so involved in a fantasy or daydream that it felt like it was

really happening to me"), and Amnesia (5 items, alpha = .69 (AIC = .31); e.g., "Found

writings, drawings, or notes among my belongings that I must have done but cannot

remember doing").

      The Questionnaire of Experiences of Dissociation (QED; Riley, 1988) is a

26-item scale with a true/false format (e.g., "My soul sometimes leaves my body," "I

have had periods where I could not remember where I had been the day [or days]

before"). The QED items were drawn from the clinical literature, and the instrument was intended primarily for research on dissociative disorders. Coefficient alpha for the QED was at or above .80 (AIC $\geq$ .13) in two large student samples (Riley, 1988). Dunn, Ryan, Paolo, & Miller (1993) provided initial evidence of the QED's utility as a screening tool for DID.

OCD

Schedule of Compulsions, Obsessions, and Pathological Impulses (SCOPI; Watson & Wu, 2005). The SCOPI is a factor-analytically derived 47-item measure of OCD symptoms and pathological impulses. Participants respond on a 5-point scale ranging from 1 = *strongly disagree* to 5 = *strongly agree*. The SCOPI contains 5 subscales: Obsessive Checking (14 items; e.g., "I spend a lot of time checking things over and over again"), Obsessive Cleanliness (12 items; e.g., "I worry a lot about germs"), Compulsive Rituals (8 items; e.g., "I have little rituals that I follow even though I know they are silly"), Hoarding (5 items; "I find it difficult to throw things away, even when I know I don't need them"), and Pathological Impulses (8 items; e.g., "Occasionally, I will have a sudden urge to steal something"). Coefficient alpha for the SCOPI subscales and the SCOPI OCD score (which consists of all scales except Hoarding and Pathological Impulses) have exceeded .80 in many large student samples (Chmielewski & Watson, 2008; Watson & Wu, 2005). Two-month retest correlations of the SCOPI subscales ranged from .79 to .82 (Watson & Wu, 2005). The SCOPI has demonstrated strong convergence with other measures of OCD and can differentiate patients who meet criteria for OCD from other psychiatric patients and controls (Watson & Wu, 2005).

Obsessive-Compulsive Inventory—Revised (OCI–R; Foa et al., 2002). The OCI–R is a widely used factor-analytically derived 18-item measure of OCD symptoms containing six 3-item subscales: Checking (e.g., "I check things more often than necessary"), Washing (e.g., "I wash my hands more often and longer than necessary"), Ordering (e.g., "I get upset if objects are not arranged properly"), Hoarding (e.g., "I collect things I don't need"), Obsessing (e.g., "I find it difficult to control my own thoughts"), and Neutralizing (e.g., "I feel compelled to count while I am doing things"). Participants rate how frequently they have experienced each symptom during the past month on a 5-point scale ranging from 0 = *never* to 4 = *almost always*. Across a variety of samples, the coefficient alpha of the total score exceeded .80 and those of the subscales tended to be above .70 (Foa et al., 2002). The OCI-R has demonstrated strong convergence with other measures of OCD (Watson & Wu, 2005) and has been shown to differentiate individuals who meet diagnostic criteria for OCD from those who do not (Foa et al., 2002).

Internalizing

Inventory of Depression and Anxiety Symptoms (IDAS; Watson et al., 2007, 2008)*. The IDAS is a factor-analytically derived 64-item instrument designed to assess specific symptom dimensions of major depression and related anxiety disorders. It contains 10 specific symptom scales: Suicidality (6 items; e.g., "I had thoughts of suicide"), Lassitude (6 items; e.g., "I felt exhausted"), Insomnia (6 items; e.g., "I slept very poorly"), Appetite Loss (3 items; e.g., "I did not feel much like eating"), Appetite Gain (3 items; e.g., "I ate more than usual"), Ill Temper (5 items; e.g., "I was furious"), Well-Being (8 items; e.g., "I was proud of myself"), Panic (8-items; e.g., "I was trembling or shaking"), Social

Anxiety (5 items; e.g., "I was worried about embarrassing myself socially") and

Traumatic Intrusions (4 items; e.g., "I had memories of something scary that happened").

It also contains two broader scales: Dysphoria (10 items; e.g., "I felt depressed"), which

assesses the general factor underlying the mood and anxiety disorders but does not

contain overlapping items with the other scales; and the broader General Depression (20

items), which contains all 10 IDAS Dysphoria items plus items from several other scales.

Participants indicate the extent to which they had experienced each item "during the past

two weeks, including today" on a 5-point scale ranging from 1 = *not at all* to 5 =

extremely.

Coefficient alphas across a variety of samples typically exceeded .80 for all of the

scales (see Watson et al., 2007, Table A6). One-week retest correlations in a sample of

250 psychiatric patients ranged from .72 (Ill Temper) to .84 (General Depression) with a

mean of .79 (Watson et al., 2007). Watson et al., (2008) demonstrated the criterion

validity of the IDAS scales using point biserial correlations with SCID-derived *DSM*

diagnoses in a large patient sample (see Watson et al., 2008, Table A7). Of particular

interest for this study, General Depression correlated .62 with MDD, Traumatic Intrusions

correlated .43 with PTSD, Panic correlated .47 with panic disorder, and Social Anxiety

correlated .39 with social phobia.

Beck Depression Inventory-II (BDI-II; Beck et al., 1996*).* The BDI-II is one of

the most widely used and best validated self-report measures of depressive symptom

severity (see Joiner et al., 2005). It contains 21 items (e.g., "Sadness") each consisting of

four statements (e.g., "I do not feel sad," "I feel sad much of the time," "I am sad all the

time," "I am so sad or unhappy that I can't stand it"). Respondents choose the statement

that best characterizes how they have been feeling "during the past two weeks, including today." Watson et al. (2007) reported BDI-II coefficient alphas ranging from .93 to .95 across a variety of samples. Watson et al. (2008) reported a biserial correlation of .62 between the BDI-II and SCID-derived MDD diagnoses in a large psychiatric patient sample.

Beck Anxiety Inventory (BAI; Beck & Steer, 1990). The BAI assesses affective and somatic symptoms of anxiety. It contains 21 items (e.g., "numbness or tingling," "heart pounding or racing," "unable to relax") rated on a 4-point scale (ranging from 0 = *not at all to* 3 = *severely/I could barely stand it*). Respondents indicate to what extent they have been bothered by each symptom "during the past week, including today." Watson et al. (2007) reported BAI coefficient alphas ranging from .92 to .94 across a wide variety of samples. Watson et al. (2008) reported a biserial correlation of .50 between the BAI and SCID-derived panic disorder diagnoses in a large psychiatric patient sample.

Social Phobia Scale (*SPS*; Mattick & Clarke, 1989). The SPS is a commonly used 20-item scale that measures fear of situations or themes in which the individual would be observed by other people (e.g., "I would find it difficult to drink something if in a group of people"). Participants indicate how characteristic each statement is of them on a 1 = *not at all* to 5 = *extremely* scale. Across a variety of samples, Heimberg et al. (1992) reported coefficient alphas ranging from .89 to .94. Heimberg et al. (1992) also reported that the SPS could differentiate between individuals diagnosed with social phobia and those diagnosed with agoraphobia or controls, and that it was strongly related to other measures of performance anxiety.

Social Interaction Anxiety Scale (*SIAS*; Mattick & Clarke, 1989)*.* The SIAS is a commonly used 19-item scale that measures an individual's typical levels of anxiety during social interactions (e.g., "I find myself worrying that I won't know what to say in social situations"). Participants indicate how characteristic a statement is of them on a 1 = *not at all* to 5 = *extremely* scale. Across a variety of samples, Heimberg et al. (1992) reported coefficient alphas ranging from .88 to .93. Heimberg et al. (1992) also reported that the SPS could differentiate between individuals diagnosed with social phobia and those diagnosed with agoraphobia or controls, and that it was strongly related to other measures of social interaction anxiety.

Externalizing

Schedule for Nonadaptive and Adaptive Personality-Second edition (*SNAP;* Clark et al., in press). See above section for a description of the measure as a whole. Two scales relevant to the externalizing spectrum were included: the "non-overlapping" version of the trait Disinhibition scale which eliminates items in the Disinhibition temperament scale that overlap with other scales (16 items; e.g., "I've done a lot of things for which I could have been or was arrested"; "The way I behave often gets me into trouble on the job, at home, or at school), and the Impulsivity scale (19 items; e.g., "I am more likely to be fast and careless than to be slow and plodding"; "I often act without thinking"). The median coefficient alphas across a variety of community, student, and patient samples were .84 and .79 respectively (Clark et al., in press). The validity of the SNAP scales has been documented by their association with self-report and interview measures of personality pathology (see Clark et al., in press). Moreover, the

Disinhibition scale correlated .56 with *SIDP-IV* antisocial personality disorder diagnoses

(Clark et al., in press).

     Short form of the Michigan Alcoholism Screening Test (*SMAST*; Selzer et al.,

1975)*.* The SMAST is a 13-item yes/no measure designed to assess alcohol use and the

consequences of alcohol use (e.g., "Have you ever gotten into trouble at work because of

your drinking?"). Coefficient alpha for the SMAST was .87 in a group of individuals

diagnosed as alcoholics and .83 in a group of controls (Selzer et al., 1975). The SMAST

is often used as a screener for alcohol abuse and dependence.

     *Drug Use Survey (*DUS; Clark & Watson, 1999). The drug use survey is a

10-item measure designed to assess whether and how frequently individuals have used

various drugs. Participants respond on a 1 (never) to 7 (40 times or more) scale with

regard to how many times they have used marijuana, cocaine, amphetamines, diet pills,

tranquilizers, psychedelics, narcotics, amyl/butyl nitrates, inhalants, or ecstasy.

Other Measures

     Iowa Sleep Experiences Survey (ISES; Watson, 2001). The ISES is 24-item

measure that assesses the frequency of various sleep and dream experiences. It contains

two factor-analytically derived scales: General Sleep Experiences (15 items; e.g., "I

experience intense, dreamlike images as I begin to fall asleep"; "I have recurring dreams")

and Lucid Dreaming (3 items; e.g., "I am able to control or direct the content of my

dreams"). Participants respond on a scale ranging from 1 = *never* to 7 = *several times a*

week. Coefficient alpha for the General Sleep Experiences scales was .83 in one student

sample and .85 in another; coefficient alpha for the Lucid Dreaming subscale was .75 in

one student sample and .78 in a second (Watson, 2001). The General Sleep Experiences

scale has been shown to be moderately to strongly correlated with measures of dissociation and schizotypy in student samples.

Big Five Inventory (BFI; John & Srivastava, 1999). The BFI is a widely used factor-analytically derived measure of the Big Five model of personality. It contains 8-item Neuroticism (e.g., "Worries a lot") and Extraversion (e.g., "Is outgoing, sociable") scales, a 10-item Openness scale (e.g., "Values artistic, aesthetic experiences"), and 9-item Agreeableness (e.g., "Has a forgiving nature") and Conscientiousness (e.g., "Perseveres until the task is finished") scales. Participants read an initial statement "I see myself as someone who . . . " then read each item and respond on a 5-point scale ranging from 1 = *strongly disagree* to 5 = *strongly agree*. Mean coefficient alpha for each of the above subscales was .83, .87, .82, .80, and .77, respectively, in large student samples (Chmielewski & Watson, 2009b). The BFI scales are highly correlated with their counterpart scales from other Big-Five measures (Watson et al., 1994; Watson & Hubbard, 1996).

Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988*).* The PANAS is a widely used measure of the higher order dimensions of affective experience. It consists of two 10-item scales assessing positive affect (e.g., "excited," "proud," "active") and negative affect (e.g., "nervous," "irritable," "guilty"). Participants rate each word or phrase on a 5-point scale ranging from 1 = *very slightly or not at all* to 5 = *extremely* with regard to what extent they generally feel that way, that is, how they feel on average. The PANAS is one of the most widely used measures of trait affectivity.

Interview Measures

Clinician-Rating version of the IDAS (IDAS-CR; Watson et al., 2008). The IDAS-CR is an interview version of the IDAS that consists of a single clinician rating on each of the 10 specific symptom scales assessed by the IDAS (see above) and IDAS Dysphoria. Each rating is made on a 3-point scale (absent, subthreshold, present). To make these ratings, clinicians asks a standard initial probe question, as well as several standard follow-up questions, for each symptom. In addition, clinicians are free to ask additional questions to ensure the individual receives a proper rating on the dimension. For the IDAS-CR Dysphoria rating, for example, the interviewers begin with the standard probe question, "Did you feel sad, depressed, or down over the past two weeks?" Regardless of how they respond, participants are asked various follow-up questions, such as "Have you felt inadequate?"; "Have you had trouble concentrating?"; and "Have you found yourself worrying much of the time?" The interviewers also clarified whether or not reported symptoms had been present "more days than not" over the past 2 weeks and whether they had (a) been noticed by others or (b) interfered with the patient's day-to-day activities.

Watson et al. (2008) reported the convergent and discriminant validity of the IDAS-CR scales with parallel self-report ratings on the IDAS. The convergent coefficients in a large patient sample ranged from .52 (Well-Being) to .71 (Appetite Loss), with a mean value of .62, reflecting a very strong level of convergent validity. Moreover, there is strong evidence of discriminant validity in these ratings (see Watson et al., 2008).

Oddity Interview (OI). The OI was created specifically for this study. It was modeled after the IDAS-CR, has the same format as the IDAS-CR, and was designed to assess the constructs tapped by the self-report measures that were not assessed either by

the IDAS-CR or the SCID psychotic disorder module, which included potential "oddity" symptoms, internalizing symptoms, and externalizing features. Interviewers rated patients on the following 17 domains: checking/doubting, cleaning/washing, intrusive thoughts/obsessions, ordering, hoarding, obliviousness, depersonalization, absorption, sleep experiences, social anhedonia, social anxiety, supernatural beliefs/magical ideation, paranoia, ideas of reference, eccentricity/oddity, impulsivity, disinhibition. Each rating was made on a 3-point scale (absent, subthreshold, present). To make these ratings, interviewers asked a standard initial probe question, as well as several standard follow up questions. In addition, interviewers were free to ask additional questions to ensure the individual received an accurate rating on the dimension.

Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-IV; First et al., 1997). Patients were interviewed using the psychotic-disorders module of the *SCID-IV*. Unlike the other modules of the SCID, there are no skip outs, so all participants were asked all items. The module asks separate sets of items regarding hallucinations and delusions, so dimensional ratings for each can be created by summing the respective item sets. Additionally, all the items were summed to create an overall dimensional rating of psychosis. Intraclass correlation coefficients, means, and standard deviations in this study are provided in Table A3.

In addition, the SCID screener questions (each question is on a 1 to 3 scale) from the following modules also were used in the interview: depression, PTSD, social phobia, panic disorder, alcohol abuse/dependence, drug abuse/dependence, and OCD. In general, there is one screener item for each of the modules; however, depression and OCD both have two questions.

Interviewers

Interviewers for the IDAS-CR and SCID were masters' level clinicians who underwent extensive training on the IDAS-CR and SCID interviews. Moreover, these interviewers all had experience conducting semi-structured interviews in patient populations. Interviewers for the OI interview were advanced undergraduate research assistants who underwent 2 months of intensive training and passed both written tests and mock interviews before interviewing patients. To help ensure valid and reliable interviews for the OI, reliability checks were conducted throughout the course of the study, and I listened to interviews from every OI interviewer on a regular basis. For both the OI and SCID/IDAS-CR interviews, weekly meetings were held to address any rating issues that may have arisen in the previous week. Psychiatrists and clinical psychologists could be contacted to address any questions that the interview staff had.

Interview Reliability

The IDAS-CR and SCID interviews were conducted as part of a larger research project; the interview data from that project were linked to the current study. All interviews in the larger study were audiotaped and 49 of them were chosen randomly to be rated by a second interviewer to assess interrater reliability. Intraclass correlation coefficients (ICC), means, and standard deviations for the IDAS-CR and SCID are provided in Table A3. ICC's for the IDAS-CR ranged from good to excellent (Fleiss, Cohen, & Everitt, 1969). Interrater reliability for the SCID screener variables and the psychotic module were all excellent, except for Delusions, which was only fair (ICC = .53) (Fleiss, Cohen, & Everitt, 1969).

All OI interviews were audiotaped; 31 of them were chosen randomly to be rated by a second interviewer to assess interrater reliability. Intraclass correlation coefficients, means, and standard deviations are provided in Table A3. With the exception of the value for SCID Delusions (ICC = .53) and Ideas of Reference (ICC = .40), which were in the fair range (ICC = .40), all ICC's ranged from good to excellent (Fleiss, Cohen, & Everitt, 1969). Although the ICC for Ideas of Reference was on the low end of the "fair" range, it documented relatively strong correlations with SPQ Ideas of Reference and the Referential Thinking Scale (r = .49 and .46 respectively). These correlations were higher than correlations with all other self-report and interview psychosis and STPD related variables (mean r = .26). Finally, the variable was included only in the symptom-level interview analyses and the same structure was obtained when the variable was excluded. As such, the decision was made to retain the variable.

Data Preparation

Missing data were imputed in a similar manner to past studies (Watson et al., 2007). If no more than 5% of responses from an established scale were missing, the scale was prorated. If between 5% and 30% of the items in an instrument were missing, or the scale was not well established, item-level multiple imputation was used to impute the missing items. If more than 30% of the items were missing, or the entire scale was missing and it could be reasonably predicted from other scales, then multiple imputation was conducted at the scale level.

CHAPTER IV

SYNDROMAL STRUCTURE

As previously indicated, syndromal level analyses were conducted on dimensional

representations of the *DSM* syndromes to serve as proxies for comorbidity analyses

conducted on the current *DSM* diagnoses and to provide information on how diagnosis

might be restructured in future revisions of the *DSM* to reflect the comorbidities among

these categories. These analyses used composites created from the self-report and

interview data to assess the *DSM* diagnostic constructs.

As such, these analyses were conducted on the 381 patients who came to the lab

and completed the self-report measures and at least one of the interview sessions. First,

preliminary analyses were conducted to determine the optimal set of variables to be

included in the composites. Then, exploratory factor analyses were conducted on the

included syndrome composites to generate another model in addition to the *a priori*

models. Finally, CFA's of the EFA suggested model as well as the *a priori* models were

conducted. Details on each of these stages are provided below.

Analyses

Candidate Variables

In general, the total scores from the various scales were candidates for inclusion

in the composite representing that syndrome. For example, instead of each of the six

OCI-R subscales, only the OCI-R total score would be included in OCD. However, there

are some exceptions. Because the IDAS contains the broad, nonspecific General

Depression scale (which contains items tapping the broad general factor underlying

depression as well as Suicidality, Lassitude, Insomnia, Appetite Loss, and reverse-keyed

Well-Being), the IDAS items were not summed into a total score. Instead the General

Depression scale was considered for possible inclusion. To represent psychotic disorder,

the Chapman PAS and MIS scales were summed into a Chapman Psychotic scale; this is

extremely common in the literature and the resulting scale is widely referred to as

PERMAG. Similarly the SPS and SIAS were combined into the SPSSIAS scale; this is

sometimes done in the literature, as the two are companion scales.

The same general principles apply to the interview data. For example, a general

depression score was created from the IDAS-CR interview by summing the Dysphoria,

Suicidality, Lassitude, Insomnia, Appetite Loss, and reverse-keyed Well-Being variables

(these are the same scales that provided items for the self-report IDAS General

Depression scale). Along the same lines, an OI-interview OCD score was created by

summing the Checking/Doubting, Cleaning/Washing, Obsessions/Intrusive Thoughts, and

Hoarding variables from the OI interview. An OI interview dissociation score was

created by summing the OI Obliviousness, Depersonalization, and Absorption variables.

An OI STPD score was created by summing the Supernatural Beliefs/Magical Ideation,

Paranoia, Eccentricity/Oddity, Social Anhedonia, and Social Anxiety variables from the

interview. Finally, the items from the SCID psychosis module (which assess

Hallucinations and Delusions) were summed into a SCID psychosis variable.

Table A4 reports the syndromes included in these analyses as well as the

candidate variable for each composite. The general approach taken was that if the

instrument was specifically designed to assess Axis II pathology (e.g., SNAP, SPQ, STA)

then it was included under the appropriate Axis II disorder. If it was intended to assess

psychosis or dimensional models of psychosis (e.g., schizotypy) then it was included in

the psychosis factor. Although the split between STPD (e.g. Axis II) and Schizotypy (e.g. Psychosis) may seem questionable, it is critical to understand that this is a longstanding debate in the field. Indeed, Meehl (1990) stated that STPD was not isomorphic with his model of schizotypy.

It also is necessary to address further some of the specifics of the syndromes and candidate variables in Table A4. First, the Dissociative Disorder and Psychotic Disorder syndromes do not represent specific *DSM* diagnoses. Analyzing all psychotic disorders as a single "psychotic disorder" or all the dissociative disorders as a single "dissociative disorder" is quite common in the literature; consequently, this is the approach taken in the current study.

Second, in this study, the Psychotic Disorder syndrome is defined by delusions/magical ideation and hallucinations/perceptual aberrations (see Table A4). Delusions and hallucinations are the most common symptoms specified across the different psychotic disorders, and delusions are the only one that appears across all psychotic disorders. Thus, by assessing delusions and hallucinations, the core features of the psychotic disorders are represented. This creates a much more homogeneous syndrome than would be obtained by modeling Schizophrenia (i.e., social anhedonia and other constructs would have to be included), which has both advantages and disadvantages. The advantage is that structural models should fit better than if the heterogeneous construct of schizophrenia were modeled; the disadvantage is that it is not a true representation of heterogeneous *DSM* syndromes such as schizophrenia. In support of this decision, a recent special issue of *Psychological Medicine* (2009) included a series of papers proposing a meta-structure for the *DSM-V* and the *ICD-11*. The paper on

psychosis (Carpenter et al., 2009) used the same basic symptoms as this study—rather than negative symptoms—for their conclusions regarding psychosis, thus further supporting the current approach. Another reason for taking this approach is more practical. Although there is an independent self-report measure of social anhedonia (i.e., Revised Social Anhedonia) that could be combined with the other Chapman scales, no independent counterpart exists for the interview variables: OI Social Anhedonia is summed into the STPD interview and summing it into the total score on both the Schizophrenia syndrome interview variable and a STPD syndrome interview variable clearly would be problematic.

The candidate variables for ASPD include a self-report scale composed of items from the SNAP higher order Disinhibition scale that also are included in the SNAP ASPD diagnostic scale. The full SNAP ASPD diagnostic scale was not included because 1) As the externalizing domain was not the focus of this study only enough variables to anchor the externalizing factor were included. Thus, space constraints did not allow for the inclusion of the SNAP diagnostic scales. 2) Interview-based diagnoses of ASPD correlated very similarly with the SNAP Disinhibition scale ($r = .56$) and the SNAP ASPD diagnostic scale ($r = .61$) (Clark et al., in press), further suggesting that it was not necessary to include both scales for the study's purposes. Similarly, OI disinhibition is the candidate interview marker for ASPD. To make this rating, interviewers asked questions such as "Do you do things that are illegal?" and "Do you do whatever is necessary to get what you want or need?" suggesting that it taps the key features of ASPD.

Preliminary Analyses

Analyses of scale and interview reliability, convergent validity, and discriminant validity were conducted to determine which measures to include in each DSM syndrome composite. These analyses were essential because it was unclear how many of the self-report measures relate to their interview counterparts. Moreover, it was important that the self-report variables and interview variables be balanced (in terms of the number of indicators) for each of the *DSM* syndrome composites so the nature of the composite was not shifted towards the predominant method (Cole, Ciesla, & Steiger, 2007). Because many syndromes contain only a single candidate interview variable, these analyses were essential in choosing the optimal self-report variable to pair with the interview. Similarly, if adequate pairings were not possible then the syndrome was dropped from further analyses. All preliminary analyses were conducted using SAS 9.2.

Exploratory Structural Analyses

Although several *a priori* models were tested (see below), exploratory factor analyses (EFA) were conducted to generate additional candidate models. The following criteria were used to determine the optimal factor solution(s): (a) factor interpretability, (b) strength of factor loadings, (c) small number of high cross-loadings (defined as secondary loadings of |.30| and greater), (d) examination of the scree plot, and (e) examination of parallel analyses[2].

Confirmatory Structural Analyses

Confirmatory Factor Analyses were conducted in Mplus 6.1 with the robust maximum likelihood (MLR) estimator on all competing models (see Table A5). MLR estimation is designed to select the model most likely to have resulted in the observed

data because it is robust to nonnormality (Satorra, 2002) and allows for the use of the

Akaike (AIC) and Bayesian (BIC) information criteria. The AIC and BIC penalize

models for each additional parameter and thus specifically support models that represent

the observed data in the most parsimonious manner (Markon & Krueger, 2004). Model 1

and its variants were based on the results of the above EFA. Model 2 and its variants

were based on the diagnostic classes of the *DSM* (see Watson, 2005) which contain a

mood factor (in these analyses this only includes depression), an anxiety factor (social

phobia, panic disorder, PTSD, and OCD), a dissociative disorder factor, a substance

abuse/dependence factor, a psychotic disorder factor, an Axis II Cluster A factor (STPD),

and an Axis II Cluster B factor (ASPD). The *DSM* does not specifically acknowledge

empirical associations between its different diagnostic classes, which can be interpreted

as suggesting that the different diagnostic classes are independent; thus the factors were

not permitted to correlate in the first variant, model 2.1 (see Watson, 2005). As this

model is unlikely to fit well, a variant that allows the factors to be correlated also was

tested (model 2.2).

It could be argued that this model misrepresents the *DSM* (see Watson, 2005 for a

discussion). However, there are several points in support of this interpretation. First,

although the *DSM* states that it is essentially a rational model, it is often not treated in that

manner. For example, the *DSM* guides current thinking in the field and has considerable

influence over psychopathology research. Therefore, this quantitative model is intended

to represent the current status of the *DSM* and the influence that it has on the field.

Second, the *DSM* is so complex and cumbersome that perfect agreement on exactly how

to model the *DSM* quantitatively is unlikely (see Watson, 2005). Finally, similar

quantitative representations of the *DSM* have emerged in the recent literature (see Krueger, 1999; Lahey et al., 2008; Watson, 2005).

The remaining models are all variants of the two following models: 1) the currently excluded syndromes are modeled as part of the internalizing domain and 2) the currently excluded syndromes are modeled as part of a separate oddity factor. The different variants of each of these models address two issues. First, as previously documented, where OCD should be placed is unclear and, as such, OCD is currently not included in the Internalizing/Externalizing model. In addition, although PTSD has been included as part of the distress subfactor of the Internalizing dimension (Slade & Watson, 2006; Watson, 2005) or simply as a marker of Internalizing (Roysamb et al., 2011), this placement is somewhat tentative (see Watson, 2005). Given that PTSD is related to both fear disorders and dissociation it could potentially load on the fear subfactor of Internalizing or on the hypothesized Oddity factor with dissociation. Therefore, all likely placements of OCD and PTSD were evaluated. Second, models in which the internalizing domain splits into subfactors (designated version #.1) and those in which only there is only a higher order internalizing factor (version #.2) both were analyzed because although distress and fear subfactors of internalizing have emerged in many comorbidity studies, not all studies have found them (e.g., Krueger et al., 1998). Moreover, a recent study using dimensional variables (Markon, 2010) did not find that the internalizing dimension contained subfactors. Finally, because the features of depression and GAD could not be distinguished from each other empirically in the IDAS, the distress subfactor was marked by only two syndromes (depression and PTSD) and

was represented only by depression in the analyses that model different placements of PTSD.

Model 3 examined the possibility that the excluded disorders fall under the internalizing spectrum, as some past research has suggested (Harkness et al., 1999; Verona et al., 2004). Version 3.1a contained two correlated higher order factors: Internalizing, with Distress (depression and PTSD), Fear (social phobia and panic disorder), and Psychosis (psychotic disorder, dissociative disorder, OCD and STPD) subfactors, and Externalizing (alcohol abuse/dependence, drug abuse/dependence, and ASPD). Version 3.1b maintained this basic structure but placed OCD with the fear disorders whereas variant 3.1c included OCD with the distress disorders. Variants 3.1d, 3.1e, and 3.1f incorporated the above with various placements of PTSD (see Table A5). Finally, model 3.2 contained two correlated higher order factors; Internalizing without subfactors (depression, PTSD, social phobia, panic disorder, OCD, psychotic disorder, dissociative disorder, and STPD) and Externalizing (alcohol abuse/dependence, drug abuse/dependence, and ASPD).

The variants of Model 4 represent the hypothesized Internalizing/ Externalizing/ Oddity model. As indicated above, each of these models were run at least twice: one run in which the internalizing factor had distress and fear subfactors, and one in which there were no subfactors (even if it is not specifically stated below). In each of these models the three higher order factors were permitted to correlate.

The variants of model 4A represent the specific model hypothesized based on the literature review in which 1) PTSD falls under the distress subfactor of the internalizing disorders or the broad internalizing factor and 2) OCD fell under the Oddity factor. I

made this hypothesis based on two pieces of evidence: 1) comorbidity model data indicating that, when included, PTSD loads on the distress subfactor of the higher order internalizing factor and 2) research from our lab investigating a sixth factor of personality in which OCD, assessed dimensionally in a community sample, loaded on the Oddity factor and not on a neuroticism/negative affectivity factor. However, the available data are far from unequivocal and it was possible that the more general hypothesis—that an Oddity factor would emerge—could have held true even if the more specific hypothesis did not. Thus, I tested a third variant of this model (including 4A1.b, in which the basic model above was held the same, but PTSD loaded on the fear subfactor). As such, I also tested a wide variety of competing models 1) to ensure that the best fitting model to the data was identified and 2) to provide a stringent test of the specific hypothesis.

Despite the specific prediction that OCD would be subsumed within the Oddity domain, it also was quite likely that OCD would split between Oddity and Internalizing. This hypothesis is based on the fact that 1) OCD has, on occasion, emerged as a marker of the internalizing domain 2) OCD assessed dimensionally has emerged as part of the oddity domain and 3) OCD subsumes content from both the internalizing (i.e., anxiety) and oddity (i.e., beliefs or behaviors that are unusual) domains. The hypothesis that OCD might split between the Internalizing and Oddity factors was represented in the variants of Model 4B.

As indicated, some past studies have found that OCD falls under the internalizing domain. Therefore, this possibility was modeled in the variants of Model 4C. Although there is not much evidence supporting the placement of PTSD within the Oddity domain, it does overlap with the Dissociative disorders, which the available evidence supports

including in the Oddity domain; thus, it was possible that PTSD also might fall within the Oddity domain. Therefore, the variants of Model 4D place OCD within the Internalizing domain and PTSD within the Oddity domain and the variants of Model 4E placed them both within the Oddity domain. All of the models are presented in further detail in Table A5. When preliminary analyses of a model indicated it could not be analyzed (e.g., if no viable markers of a syndrome emerged), then the models were respecified accordingly.

Model fit was evaluated with a variety of fit indices, each based on somewhat different criteria, thus providing a comprehensive assessment of model fit (Bollen, 1989). Whenever possible and appropriate, the following indices were used: the overall model chi-square, the Comparative Fit Index (CFI), the standardized root mean squared residual (SRMR), and the root mean square error of approximation (RMSEA). Evaluation of model fit followed generally accepted cutoffs; CFI $\geq .95$ = good fit, $\geq .90$ = adequate fit; SRMR $\leq .08$ = good fit, $\leq .10$ = adequate fit; RMSEA $\leq .06$ good fit, $\leq .08$ adequate fit (see Bentler, 1990; Browne & Cudeck, 1993; Hu & Bentler, 1999; MacCallum, Browne & Sugawara, 1996). When possible, competing models were compared with the nested chi-square difference test and the Bayesian information criterion.

Association With Normal Traits and Sleep Experiences

Upon completion of these analyses, the factors emerging in the associations between the best fitting model and the BFI and PANAS scales were examined. These results addressed questions concerning how each of the dimensions relates to normal personality traits. This is an important step as, to date, no study has reported how the dimensions of the internalizing/externalizing model relate to the Big Five. Moreover, analyzing the associations of the Oddity dimension with the Big Five and trait affect may

provide clues as to what may or may not underlie the dimension. This is especially relevant given the current debate in the literature regarding the association between psychosis/schizotypy and openness. In addition, given recent evidence that sleep experiences (e.g., nightmares, vivid dreaming, narcolepsy) are associated with schizotypy and dissociation (Koffel, 2009), the association between the factors that emerge and sleep experiences was examined.

Results

Preliminary Analyses

Coefficient alphas for the vast majority of the self-report measures were above the .80 cutoff recommended by Clark and Watson (1995) and none was below the more lenient .70 cut off recommended by Nunnally (1978) (see Table A2). In addition, the vast majority of AIC's fell within the .15 and .50 range recommended by Clark and Watson (1995) (see Table A2). Moreover, all interviews achieved at least good to excellent interrater reliabilities, with the exception of SCID Delusions and OI Ideas of Reference, which showed fair interrater agreement (Cicchetti, 1994). As such, all of the self-report and interview measures were considered to have adequate reliability and none was eliminated from consideration following the reliability analyses.

Convergent correlations between the self-report and interview measures of OCD are presented in Table A6. The SCOPI OCD scale and the OCI-R total score correlated strongly and showed a similar pattern of correlations with the two interview measures: The OI OCD score correlated stronger with the self-report OCD scales than the SCID OCD screener did, and also had higher divergent correlations with non-OCD measures (the full correlation matrix is available in Table B1). Importantly, both the OI OCD and

the SCID OCD screener had stronger associations with the other OCD measures than they did with indicators of any other syndrome. Given that all four OCD measures (two self-report and two interview) demonstrated strong psychometric properties, I created an OCD composite by standardizing the four measures and summing them into a composite variable.

The convergent correlations between the interview measure of STPD (OI STPD) and the two self-report measures of STPD are presented in Table A7. Although the STPD and STA total scores correlated strongly ($r = .88$), the SPQ had a significantly stronger correlation ($p<.01$, two-tailed, Fisher's Z-test) with the OI STPD score than the STA did. Additionally, both the SPQ and the STA had poor discriminant validity with the SPS ($r = .74$ and .68 respectively), so the SPS was dropped from further analyses (see below). However, the STA total score was associated equally with OI dissociation and OI STPD (rs = .66 and .63 respectively). Given the need to differentiate between both constructs as much as possible, and past evidence demonstrating the two constructs are separable (Cicero & Kerns, 2010; Watson, 2001), the STA total score was dropped and the STPD composite was formed by standardizing and summing the SPQ total score and the OI STPD score.

Table A8 reports the association between the three self-report measures of dissociation (e.g., QED, DPS total score, and CES total score) and the OI interview measure of dissociation. The DPS had a stronger correlation with the OI interview than the CES ($p<.01$); the differences among the other self-report measures were not significant. In addition, both the DPS and QED demonstrated a strong pattern of discriminant validity in general (see Table B1). In contrast, both the QED and CES total

score were as strongly associated with PERMAG and the STA as they were with the other self-report dissociation measures indicating problems with discriminant validity (the complete correlation matrix is available in Table B1). In contrast, the DPS was more strongly correlated with the other self-report dissociation measures than with any other self-report measures. The largest discriminant correlation for the DPS was with the STA ($r = .69$) which is significantly lower than the DPS's correlation with both the CES (r = .77, p < .001) and the QED (r = .79, p <.001). Therefore, the Dissociation composite was formed by standardizing and summing the DPS total score and the OI Dissociation score as it was the only dissociation measure to demonstrate a strong pattern of convergent and discriminant validity.

The convergent association between the self-report and interview psychosis measures was moderate ($r = .38$); moreover, there were some discriminant validity problems with self-report measures of STPD, dissociation, and OCD (the complete correlation matrix is provided in Table B1). This could, in part, be attributed to symptom overlap inherent in the *DSM* between psychosis and STPD and also represents difficulties inherent in multi-method assessment. Given that only these two measures of psychosis were available and the discriminant validity problems were not overwhelming, the decision was made to retain both measures as indicators of psychosis. Therefore, the Psychosis composite was formed by standardizing and summing PERMAG and the SCID psychosis module.

The convergent correlation matrix for the two self-report and two interview measures of depression is reported in Table A9. All four measures demonstrated strong convergent correlations with each other. In addition, they demonstrated strong

discriminant validity in relation to other constructs (see Table B1). As such, all four measures were standardized and summed to create the depression composite.

The association between the self-report scale and the two interview measures of PTSD are presented in Table A10. IDAS-CR Intrusions was slightly, though non-significantly, more strongly correlated with IDAS Traumatic Intrusions than was the SCID PTSD screener; moreover, both interview measures demonstrated good discriminant validity as they were both significantly more strongly correlated with the IDAS Intrusions scale than with any other measures included in the study (p < .001). Given the aforementioned desire to keep the number of interview and self-report measures balanced in each composite, the IDAS-CR and IDAS PTSD scales were standardized and combined into the PTSD composite.

Table A11 presents the convergent correlations for the two self-report (viz., SPSSIAS and IDAS Social Anxiety) and two interview measures of social anxiety. Both the SPSSIAS and the IDAS Social Anxiety scales demonstrated strong convergent validity with the interview measures. However, there were significant discriminant validity problems with the SPSSIAS in that it was more strongly correlated with the SPQ (r=.77) that with any of the other social anxiety measures (i.e. IDAS Social Anxiety, r = .71, p < .05; IDAS-CR Social Anxiety, r = .58, p < .001; SCID Social Phobia r = .48, p < .001). Additionally, all of the social phobia measures had high correlations with the measures of schizotypy (see Table B1). As such, the SPS and SIAS were examined individually (see Table A11). Both the SPS and the SIAS demonstrated strong convergent validity with the other social anxiety measures. However, in general, the evidence of discriminant validity was stronger for the SIAS and the IDAS Social Anxiety

scale than it was the SPS (see Table B1). Therefore, the social phobia composite was created by standardizing and summing the SIAS, the IDAS Social Anxiety scale, the IDAS-CR Social Anxiety scale, and the SCID Social Phobia screener.

Convergent correlations between the two self-report and two interview measures of panic are presented in Table A12. Convergent and discriminant (Table B1) validity was good for both interview measures. Both self-report scales demonstrated some discriminant validity problems with the depression and social anxiety measures (e.g., associations with self-report measures of depression were higher than with interview measures of panic). However, their discriminant validity pattern with other syndromes was generally good. Such results are not surprising given that depression, panic, and social anxiety have all been documented to fall within the internalizing spectrum. As such, it was felt that these discriminant validity problems were not serious enough to warrant the elimination of these self-report scales (which would have resulted in only interview variables entering the panic composite). Therefore, all four measures were standardized and summed to create the panic composite.

The convergent correlations between the candidate externalizing measures (i.e. the two ASPD measures, two Alcohol Abuse/Dependence measures, and the two Substance Abuse/Dependence measures) are presented in Table A13. In general, all of these measures demonstrated excellent discriminant validity with the measures hypothesized to fall within the Internalizing and Oddity domains (see Table B1). The association between the two measures of Antisocial personality was strong (r=.49), as was the evidence of discriminant validity with measures hypothesized to fall within the Internalizing and Oddity spectra. However, the association between SNAP ASPD and the

DUS was only slightly lower than the association between SNAP ASPD and OI

disinhibition (r = .46 and .49 respectively). Given that drug abuse is common among

individuals diagnosed with ASPD, that both ASPD and substance abuse fall under the

Externalizing spectrum, and that a refined assessment of the Externalizing factor was not

necessary, this does not represent a significant problem in the validity of the ASPD scales.

As such, the ASPD composite was formed by standardizing and summing the SNAP

ASPD scale and the OI disinhibition score.

The convergent correlations between the two Alcohol Abuse/Dependence

measures (r=.21) and the two Substance Abuse/Dependence measures (r=.30) were mild

to moderate, but lower than the correlations with Antisocial Personality. However, both

sets of measures demonstrated excellent discriminant validity with the measures

hypothesized to fall within the Internalizing and Oddity domains (see Table B1).

Nevertheless, their patterns of convergent/discriminant validity were not as strong when

compared to Antisocial Personality. Specifically, the self-report measures of both

constructs were more strongly correlated with each other (r=.50) than they were their

interview counterparts. However, they were more strongly correlated with their interview

counterparts than they were with interview ratings of the other symptom, indicating that

they could be discriminated from each other at some level. As such, these results reflect

difficulties that sometimes emerge in measuring across different methods (e.g., self-report

vs. interview), as well as the strong association between the two domains. Given that

there was some level of discriminant validity across the two domains, composites were

created for each domain by standardizing and summing the variables within that domain.

Additionally, as noted earlier, Externalizing symptoms were underrepresented due to

length constraints (so more measures of the Internalizing and potential Oddity domains could be included). As such, a high fidelity of measurement within the Externalizing spectrum for each specific syndrome was not critical; it only was necessary to have enough syndrome composites to anchor the externalizing domain.

Exploratory Factor Analyses

As noted earlier, to ensure that all reasonably plausible models were included in the CFAs, I conducted principal factor analyses (PFAs) in SAS 9.2 with promax rotation on the eleven syndrome composites created above. An examination of the scree plot suggested three to five factors (eigenvalues for the first 7 unrotated factors are presented in Table A14). This is in line with the results from the parallel analyses, which indicated a maximum of four factors should be extracted in the data (see Table A14). Therefore, the three, four, and five factor solutions were analyzed. The adequacy of each solution was determined by the following criteria: (a) factor interpretability, (b) strength of factor loadings, and (c) absence of high cross-loadings (cross-loadings were defined as secondary loadings |.30| and greater). The three-factor solution (Table A15) consisted of dimensions representing Oddity (STPD, dissociation, psychosis, OCD, and social phobia), Internalizing (Depression, panic disorder, PTSD, and Social Phobia), and Externalizing (Drug Abuse/Dependence, Alcohol Abuse/Dependence, and ASPD). Of particular note was the fact that social phobia split between the Oddity and Internalizing factors.

The four-factor solution (Table A16) included an Oddity factor (psychosis, dissociation, OCD, and STPD), an Internalizing factor (PTSD, panic disorder, and Depression), an Externalizing factor (Drug Abuse/Dependence, Alcohol Abuse/Dependence, and ASPD), and a Social Withdrawal factor (Social Phobia and

STPD), with STPD splitting between Social Withdrawal and Oddity in this solution. Finally, the five-factor solution was essentially identical to the four-factor solution with no variables having their highest loading on the fifth factor.

Given that the purpose of the EFA in this context was to provide additional models to be tested in the CFA, it is not necessary to select between the three-factor and four-factor models. What is important is that these analyses, combined with the bivariate correlations, suggest that there is a strong affinity between STPD and social phobia. As such, I included a series of CFA models in which STPD splits between Internalizing and Oddity. As with the a priori models, all likely placements of OCD and PTSD were evaluated. The first model (Int/Ext/Odd EFA1 in Table A17) was an Internalizing, Externalizing, Oddity model in which OCD and STPD marked both Internalizing and Oddity. The second model (Int/Ext/Odd EFA2 in Table A17) expanded this model by having PTSD load on both Internalizing and Externalizing as well. In the third model (Int/Ext/Odd EFA3 in Table A17), PTSD and STPD split whereas OCD loaded only on Oddity. The fourth model (Int/Ext/Odd EFA4 in Table A17) was identical except that OCD loaded only on Internalizing. In the fifth model (Int/Ext/Odd EFA5 in Table A17), STPD split, PTSD was a marker of Internalizing and OCD was a marker of Oddity.

Confirmatory Factor Analyses

Table A17 provides fit indices for each of the initially hypothesized models as well as the empirical models based on the previous EFA. An examination of the table demonstrates that none of the models resulted in a traditionally good fit. Nevertheless, some models performed better than others. The model based on the structure of the *DSM* that did not allow the factors to be correlated demonstrated particularly bad fit. In

contrast, the variants of the Internalizing/Externalizing/Oddity model (including those suggested by the EFA) demonstrated the best fit and began to approach traditional criteria for good fit.   Although the BIC and AIC could be used to select the best fitting model, it was hypothesized that the specific association between STPD and social phobia was leading to the failure of the internalizing/externalizing/oddity models to achieve a good fit. This hypothesis was based on 1) the discriminant validity problems noted in the preliminary analyses between the two variables (but not other constructs from the internalizing or oddity domains), 2) the results of the EFA suggesting a strong affinity between the two constructs, and 3) the fact that one of the diagnostic criteria for STPD is excessive social anxiety. These considerations all suggest that the failure of the Internalizing/Externalizing/Oddity model to achieve good fit is due to the fact that it does not account for the specific association between STPD and social phobia. As such, this specific shared variance was modeled by adding a correlated error term between social phobia and STPD in the best fitting a-priori model, as shown in Table A17. The original model contained Internalizing, Externalizing, and Oddity factors with OCD splitting between Internalizing and Oddity (i.e., model Int/Ext/Odd 4B.2; Table A5 provides a more detailed description of this model). The modified model including the correlated error term is listed as Int/Ext/Odd 4B.2M in Table A17. In addition, variants of the a-priori models in which OCD was only a marker of Oddity (Int/Ext/Odd 4A.2M in Table A17) and in which OCD was only a marker of Internalizing (Int/Ext/Odd 4C2.M in Table A17) were specified. Beyond modeling the specific variance between STPD and Social Phobia, no other changes were made.

The modified Internalizing/Externalizing/Oddity model in which OCD split between Oddity and Internalizing (Int/Ext/Odd 4B2M in Table A17) not only provided the best fit to the data according to the BIC (14752.121) and AIC (14605.411) but also achieved good fit by traditional standards: CFI = .961, SRMR = .043, RMSEA = .061. However, it should be noted that model the model in which OCD only loaded on Oddity (model Int/Ext/Odd 4A.2M in Table A17) also resulted in a good fit to the data (CFI = .957, SRMR = .045, RMSEA = .064) and had fit indices that were only slightly below the previous model (BIC = 14753.046; AIC = 14610.197). The difference between these two models is considered "small" and it could be argued that the added complexity is not worth the improvement in fit. Nevertheless, the model in which OCD split between Oddity and Internalizing (Int/Ext/Odd 4B2M) was ultimately chosen as the best fitting model based on the AIC and BIC. This model is depicted Figure C1. Although the three factor models clearly provided a better fit to the data than the two factor models (see Table A17) there is a strong association (r=.77) between Internalizing and Oddity in the best fitting model. In addition, OCD is more strongly associated with Oddity (r=.54) than with Internalizing (r=.22) in the best fitting model.

Associations With Normal Traits and Sleep Experiences

Factor scores[3] were created in Mplus to assess each of the factors in this model. These factor scores then were correlated with measures of normal personality (BFI), trait affect (PANAS), and sleep experiences (a composite created by standardizing and summing ISES General Sleep Experiences and OI sleep experiences; note that the convergent correlation between the last two measures was strong [r = .58; Table A18] and

significantly higher than their correlations with any of the other cross-method measures (p <.001).

The associations between the Internalizing, Oddity, and Externalizing dimensions and these external correlates are presented in Table A19. As would be expected, there is a strong association between Internalizing and Neuroticism/Negative Affect. However, Oddity also has a moderately strong association with Neuroticism and Negative Affect. Extraversion has its strongest, though small, association with Internalizing and a weak, though statistically significant association with Oddity, likely due to the social anxiety and social anhedonia content subsumed within STPD. Agreeableness and Conscientiousness had moderate correlations with all three factors. Openness was unrelated to all three factors, including Oddity. Finally, sleep experiences has moderately strong associations with Oddity and Internalizing and a moderate correlation with Externalizing.

Given the moderate to strong associations among the Internalizing, Externalizing, and Oddity factors, regression analyses were conducted with the three factors entered as the predictor variables for each of the external correlates (see Table A20). This provides information regarding the unique association between each factor and the external correlates. Once the shared variance is controlled, Internalizing is by far the most strongly associated with Neuroticism, Negative Affect, Positive Affect, and Extraversion; in contrast, these variables now are unrelated—or only weakly related—to Externalizing and Oddity. It is worth noting that the association between Internalizing and Neuroticism increased quite dramatically from .58 in the bivariate analyses to .77 in the regression analyses, indicating the presence of a substantial suppressor effect; other associations

with Internalizing increased as well. Additionally, it is important to note that Oddity is

now uniquely associated with Sleep Experiences and that the strongest correlate of

Externalizing was low Conscientiousness.

CHAPTER V

SYMPTOM STRUCTURE

As previously indicated, symptom level analyses were conducted to address

issues of heterogeneity and potentially to provide an alternative model to the *DSM-IV* that

better captures the nature of psychopathology. Although some specific predictions could

be made about what might emerge from these symptom level analyses (e.g., the STPD

symptoms of social anxiety and social anhedonia should cohere with symptoms from the

internalizing domain, whereas the STPD symptom of unusual beliefs or experiences

should cohere with the symptoms of dissociation, especially depersonalization; a five-

factor model paralleling normal personality traits with oddity replacing openness may

emerge), not enough is known about the associations of all the symptoms included to

specify a full model. Moreover, the number of symptom dimensions included makes it

difficult to specify an *a priori* model that will fit the data well. As such, the symptom

level analyses were exploratory in nature. These analyses were conducted in the full

sample of patients because of 1) the increased number of variables in the analyses, 2) the

aforementioned uncertainty of how the symptoms might relate (i.e., prestructuring is

more difficult), and 3) the questionable psychometric properties of the STPD subscales.

However, these constrictions limit the analyses to self-report data.   Therefore, separate

EFAs were conducted with the interview data to determine whether the same basic

pattern would emerge.

Analyses

Candidate Variables

In general, only the measures or subscales that represent specific symptom dimensions (e.g., MIS, PAS, SPS) were included as candidate variables in this series of analyses (see Table A21). As previously discussed, many of these subscales are based on factor analyses of psychopathology domains or other empirical methods of deriving symptoms of psychopathology, and thus it could be argued that they represent a more accurate picture of psychopathology than *DSM* symptoms (see Watson, 2009a). However, some scales are less adequate psychometrically (e.g., measures of STPD; Chmielewski & Watson, 2008). Moreover, in some cases recent evidence supports an empirical alternative to the measures' subscales (viz., SPQ; Chmielewski & Watson, 2008); I return to this issue shortly.

Rather than summing the interview variables from the IDAS-CR and OI, the individual symptom variables were used. Moreover, the SCID items that assess hallucinations and those that assess delusions were summed into separate variables. Finally, if a SCID screener question closely matched one of the symptoms assessed by self-report or another interview it was included as a potential marker of the symptom (e.g., the SCID substance use/abuse screener asks whether participants smoked marijuana in the last month and the alcohol abuse screener asks whether they consumed 5 or more drinks on one occasion in the past month).

Although Table A21 presents the hypothesized associations between the OI and the self-report measures it was unknown how well many of these variables would converge. Additionally, there were cases in which it was unknown what the association

between variables would be; therefore, these scales were not assigned to a hypothetical symptom dimension in Table A21 and instead were left blank). For example, the CES is an improved version of the DES. Although past research has indicated that the total scores of the DPS and the DES are highly correlated (Watson, 2001; Watson, 2003a), their subscales did not display a simple convergent/discriminant pattern. Thus, it was unclear how the CES subscales would correspond with the DPS subscales.

Preliminary Analyses

Chmielewski and Watson (2008) documented that the structure of the SPQ was represented better by five factors than the nine *DSM*-based subscales or its three higher-order factors. Similarly, recent research has found that four factors better represent the structure of the STA than its three subscales do (Rawlings et al., 2001). Thus, preliminary analyses were conducted to determine whether these findings hold true in this sample. EFAs were conducted on both scales utilizing Mplus 6.1 (due to its ability to account for the dichotomous nature of the SPQ and STA items) with promax rotation and the Unweighted Least Squares (ULS) estimator. The following criteria were used to determine the optimal factor solution: (a) factor interpretability, (b) strength of factor loadings, (c) number of high cross-loadings, defined as secondary loadings of |.30| and greater, (d) examination of the scree plot, and (e) examination of parallel analyses. In general, items that loaded at least .40 on the target factor and had cross-loadings lower than .30 on all other dimensions were included in the scale representing that factor. However, internal consistency and item appropriateness also were considered. In addition, a final consideration was how the results compare to previous item-level analyses (Chmielewski & Watson, 2008; Rawlings et al., 2001).

Coefficient alphas, scale means, and standard deviations for each of the candidate self-report measures, and interrater reliability (assessed using the intraclass correlation coefficient), scale means, and standard deviations for the candidate interviews are presented in Tables A2 and A3, respectively. Convergent and discriminant (CV/DV) analyses were conducted on all the candidate variables listed in Table A21. Although some of these analyses have been reported previously, the associations have not been examined in all cases. Ultimately, both data and theory determined the symptoms that were included in the next stage of analyses. Finally, because some symptoms have more potential markers than others (see Table A21) including all of the variables for each symptom potentially could influence the results of the EFA and result in different solutions than if the variables were approximately equally distributed. As such, every effort was made to ensure that the number of variables representing each symptom was approximately equal.

Exploratory Structural Analyses

Exploratory factor analyses of the symptoms were conducted in the self-report data using SAS 9.2. The following criteria were used to determine the optimal factor solution: (a) factor interpretability, (b) strength of factor loadings, (c) number of high cross-loadings (cross-loadings are defined as secondary loadings of |.30| and greater), (d) examination of the scree plot, and (e) examination of parallel analyses. The same analyses then were conducted in the interview data (using Mplus 6.2 due to the categorical nature of the interview variables; unfortunately, Mplus does not allow for the creation of factor scores in EFA) to determine whether the same basic pattern obtained in

the self-report data would emerge in the interview data. The same criteria were used to determine the optimal factor solution as in the previous step.

Associations With Normal Traits and Sleep Experiences

Finally, as with the syndromal analyses, I analyzed the correlations between factor scores from the self-report analyses (factor scores were not available for the interview data) and normal personality, trait affect, and sleep experiences. This permitted a more fine-grained evaluation of the association between these constructs and the structure of psychopathology.

<div align="center">

Self-Report Results

</div>

Preliminary Analyses

EFA of the SPQ. The eigenvalues for the first twelve factors are presented in Table A22. An examination of the scree plot suggested that three, five, or eight factors underlie the structure of the SPQ. Parallel analyses, conducted in SAS because it is not possible to run parallel analyses in Mplus, suggested that no more than 7 factors should be extracted. Because factor analyses in SAS do not account for the dichotomous variables of the SPQ, the observed eigenvalues from an EFA using SAS were compared to the results from the parallel analyses (see Table A22); however, given the dichotomous nature of the SPQ items, these results should be interpreted with caution.

The three-factor solution contained a factor consisting of items from the No Close Friends, Social Anxiety, Constricted Affect, Suspiciousness, and Odd Speech subscales. Although the factor is quite heterogeneous, with the exception of the Odd Speech variables, it appears similar to Raine's Interpersonal or Negative Schizotypy factor. A second factor contained items from Ideas of Reference, Odd beliefs or Magical thinking,

and Unusual Perceptual Experiences. This factor is similar to Raine's Cognitive Perceptual or Positive Schizotypy factor, except that it lacks the suspiciousness items. Finally a Disorganized (i.e., Oddity) factor emerged that contained the Odd behavior items and items from Odd speech. The four-factor solution was similar to the three-factor solution with a fourth factor emerging that contained the majority of the Suspiciousness items as well as several of the Ideas of Reference items and a Magical Thinking item.

The five-factor solution contained a social anhedonia factor consisting primarily of items from the No Close Friends and Constricted Affect subscales. The second factor was an Unusual Beliefs or Experiences factor and contained items from the Odd beliefs and Magical Thinking subscales as well as the Unusual Perceptual Experiences subscale, plus a few items from Ideas of Reference that included receiving special messages from the television or advertisements. The third factor was an Oddity (i.e., Disorganized) factor that contained all the items from the Odd Speech and Odd Behavior subscales. The fourth factor was a Mistrust factor that contained items from the Suspiciousness and Ideas of Reference factors (i.e., items related to being talked about by others). Finally, a Social Anxiety factor emerged that contained all of the items from the Social Anxiety subscale. This solution resulted in factors that were very easily interpretable, psychologically meaningful, and more homogeneous than the three-factor solution. Moreover, it was extremely similar to results of previous item-level EFAs in student samples (Chmielewski & Watson, 2008).

In the six-factor solution, four of the Odd Speech items, primarily tapping rambling or pressured speech, split off from the Oddity factor to form their own factor. This solution was very similar to what occurred in the Chmielewski and Watson (2008)

study when six factors were extracted. When seven factors were extracted, four of the items from the Magical Thinking scale, primarily tapping beliefs in astrology, telepathy, and clairvoyance, formed their own factor. The remaining factors were very similar to the six-factor solution. The eight-factor solution included a Social Anhedonia factor, a factor containing 5 of the Magical Thinking items, an Odd Behaviors factor (with a single Odd speech item), a Mistrust factor, a Social Anxiety factor, an Odd Speech factor containing 4 items tapping "rambling speech" or quickly jumping between topics, a second Odd Speech factor containing items tapping conversation that is difficult to follow, and an Unusual Perceptions and Experiences factor. This solution appears to be an over extraction of factors as it contains multiple Odd speech factors (which were unexpectedly uncorrelated) and several factors containing a limited number of marker items; it therefore was eliminated from further consideration. The six and seven solutions each contain factors with a relatively small number of marker items. Moreover, it is unclear whether they represent substantive factors or are better understood as bloated specifics (Cattell, 1978); consequently, they also were eliminated from further consideration.

Given that (1) the three-factor solution contained heterogeneous factors that only loosely resembled Raine's three-factor model, (2) the five-factor solution resulted in more homogeneous factors that were easily interpretable and strongly resembled past item-level analyses of the SPQ, (3) the five-factor solution had fewer cross loading variables than the three-factor solution, and (4) the four-factor solution has not been widely reported in the literature and still contains somewhat heterogeneous factors, the five-factor solution was chosen as the model that best captured the dimensions underlying the SPQ and the symptoms that are included within STPD. Complete factor loadings for the

five-factor solution are presented in Table A23. Subscales were created to assess each of the five factors. Items were chosen that (1) had strong loadings on their primary factor, (2) had low cross loadings, (3) appeared to assess the same content as the factor, and (4) behaved similarly in previous item-level EFAs of the SPQ (Chmielewski & Watson, 2008). The specific items representing each scale are bolded in Table A23. The resulting scales demonstrated good reliability (see Table A2) with both Cronbach's alpha and AIC being within the guidelines put forth by Clark and Watson (1995).

EFA of the STA. An examination of the scree plot suggested that between two and five factors underlie the structure of the STA; eigenvalues for the first 8 STA dimensions are presented in Table A24. As with the SPQ analyses, parallel analyses for the STA were conducted in SAS, and the results should be interpreted with caution. Parallel analyses suggested a maximum of seven factors (see Table A24). Given that both three-factor (original STA subscales) and four-factor solutions had previously been suggested in the literature, each of these solutions was considered.

The three-factor solution contained an Unusual Perceptions factor, a Paranoid Ideation or Suspiciousness factor, and a Magical Ideation factor. In general, specific items fell under the factors that were suggested by the standard STA subscales. The four-factor solution contained two factors tapping unusual perceptual experiences, a magical ideation factor, and a factor that was a combination of social anxiety and suspiciousness. However, this solution is not in line with the four-factor solution previously published in the literature (Rawlings et al., 2001). As such, the decision was made to retain the original STA subscales in subsequent analyses.

Indicator reliability and validity. As previously noted, the reliability of almost all self-report measures were above the .80 cut off recommended by Clark and Watson (1995) and none was below the more lenient .70 cut off recommended by Nunnally (1978) (see Table A2). In addition, the vast majority of AIC's fell between within the .15 and .50 range recommended by Clark and Watson (1995) (see Table A2). As such, all of the symptom level scales were considered for inclusion in the EFA.

An examination of Table A21 indicates that the majority of the symptoms are each assessed by a single self-report measure. As such, convergent and discriminant validity was assessed only for those symptoms that had multiple measures (e.g., no discriminant/convergent analyses were conducted for suicidality as there is only a single self-report marker of suicidality). In addition, the association between the DPS scales and the CES scales was examined to determine whether they should be combined into symptom composites.

The correlation matrix for the DPS and CES subscales is presented in Table A25. As can be seen in the table, the relations between the two measures are not straightforward. DPS Obliviousness and CES Absorption have their strongest correlations with each other. Additionally DPS Detachment and CES Depersonalization have their strongest correlation with each other. However, the pattern does not hold for DPS Imagination and CES Amnesia. Moreover, one might have expected DPS Obliviousness to converge with CES Amnesia and that was not the case. Therefore, given that the DPS is a well-established measure created utilizing factor analytic techniques and the CES does not have those advantages, the decision was made to assess the symptoms of dissociation with the DPS.

Table A26 provides the convergent correlations between the SCOPI and the OCI-R, and shows that the two OCD measures have a strong pattern of discriminant and convergent validity. As such, composites were created for checking, cleaning/washing, ordering, and hoarding by standardizing and summing the respective scales from each measure. OCI-R Neutralizing, OCI-R Obsessing, and SCOPI Pathological Impulses, however, did not converge. Therefore, OCI-R Obsessing was retained based on its correlation with OI Intrusive Thoughts (see appendix D) and the other two scales were eliminated as they did not converge with any interview measures.

Given that the structure underlying the symptoms included under the Psychotic/Schizotypy/Cluster A heading in Table A21 is less clear than it is for OCD or dissociation, the decision was made to conduct convergent and discriminant analyses on groupings of symptoms. Given the large literature on the association between positive symptoms of schizophrenia/schizotypy and dissociation, the indicators of these symptoms (with the DPS representing dissociation) were analyzed together. Similarly, given the overlap between social anhedonia and social anxiety and previous discriminant validity concerns regarding these constructs (the original Chapman Social Anhedonia scale contained items tapping social anxiety but they were removed in the revised version), the overlap between social anxiety and mistrust, and the overlap between mistrust and ideas of reference, the CV/DV analyses for all of these constructs were conducted together.

Table A27 presents the convergent and discriminant correlations for measures tapping unusual beliefs and experiences (e.g., eccentric perceptions), delusions and magical ideation, hallucinations and perceptual experiences, and the DPS. Of note is the strong correlation between DPS detachment and SNAP Eccentric Perceptions ($r = .74$).

Although this association likely reflects the finding in the literature that these two constructs are very strongly associated (Chmielewski & Watson, 2008), it creates some problems in the current context (where assessing the largest number of differentiable symptom dimensions is preferable). Of the remaining scales, (a) Chapman Magical Ideation and STA Magical Ideation ($r = .73$), and (b) Chapman Perceptual Aberrations and STA Unusual Perceptions ($r = .74$) have the strongest convergent/discriminant validity. In contrast, SPQ Unusual Beliefs and Experiences and SNAP Eccentric Perceptions appear to contain content relevant to both of these symptom dimensions and likely represent a higher order dimension. Given the aforementioned goal of over-inclusivity the decision was made to retain the Chapman and STA scales with the scales standardized and summed into their respective composites (viz., Magical Ideation and Unusual Perceptions) to create single variables for each symptom.

The convergent and discriminant correlations between the measures of paranoia, ideas of reference, social anhedonia, and social anxiety are reported in Table A28. SNAP Mistrust demonstrates the best discriminant validity with regards to ideas of reference (as compared to SPQ Mistrust or STA Paranoia). In addition, STA Paranoia has significant discriminant validity problems vis-à-vis the social anxiety scales. Therefore, SNAP Mistrust was selected as the measure of Paranoia.

In regard to Social Anhedonia, the RSAS and SNAP Detachment scales demonstrate a stronger convergent/discriminant validity pattern than does SPQ Social Anhedonia (e.g., it has higher correlations with measures of mistrust and social anxiety). As such, the RSAS and SNAP detachment scales were standardized and summed into a Social Anhedonia composite.

Finally, in regard to Social Anxiety, the SPS has significant discriminant problems in relation to measures of mistrust and referential thinking. In fact, the SPS was equally or more strongly associated with STA mistrust (r=.74) as with SPQ Social Anxiety (r=.66), the SIAS (r=.75), or IDAS Social Anxiety (r=.64). Similarly, the SIAS has discriminant validity problems in relation to several of the social anhedonia measures. In contrast, the IDAS Social Anxiety Scale has strong correlations with the other social anxiety measures and lower correlations with the paranoia measures. In addition, the SPQ social anxiety scale has strong correlations with the other social anxiety measures and lower correlations with the mistrust measures (with the exception of STA Paranoia, which is being excluded from the analyses).

Although SPQ Social Anxiety and IDAS Social Anxiety could have been summed into a single composite score, the decision was made to include both of them separately. This decision was reached due to (1) the fact that they assess social anxiety as defined by two different constructs, (2) the clinical argument that there is a difference between the social anxiety present in STPD and social anxiety from Axis I, and (3) the fact that there are parallel interview measures of social anxiety in the interview data.

Self-Report Exploratory Factor Analyses

Table A29 lists the 30 variables entered into the self-report EFA and the symptoms they represent. An examination of the scree plot suggested between three and seven factors. Eigenvalues from the first 12 unrotated factors are presented in Table A30 as are the results of the parallel analyses, which suggested a maximum of nine factors. As such, the three- through nine- factor solutions were examined further.

The three-factor solution (see Table A31) contained three clearly interpretable factors, each containing many strong markers. The first factor, Internalizing, contained all of the IDAS scales, the social anhedonia composite, SNAP Mistrust, and SPQ Social Anxiety. The second factor was the hypothesized Oddity factor that contained the four OCD symptom composites, the unusual perceptions composite, the magical ideation composite, DPS Detachment, DPS Imagination, DPS Obliviousness, and the Referential Thinking Scale. OCI Obsessing also had its strongest loading on this factor; however, it also had strong secondary loadings on the Internalizing factor. The third factor was an Externalizing factor that contained SNAP Disinhibition, SNAP Impulsivity, the DUS, and the SMAST. Surprisingly, SPQ Oddity had its strongest loading on this factor although it also had strong secondary loadings on the Oddity factor. The three factors were moderately correlated with each other (i.e. Internalizing and Oddity $r = .55$; Internalizing and Externalizing $r = .41$; Oddity and Externalizing $r = .45$).

In the four-factor solution (Table A32), the Internalizing factor consisted of the IDAS scales, except that Appetite Gain loaded only .25 on this factor. An Oddity factor emerged that was nearly identical to the Oddity factor in the three-factor solution. As in the three-factor solution, OCI Obsessing split between Internalizing and Oddity. The Externalizing factor also was nearly identical to the Externalizing factor in the three-factor solution, with SPQ Oddity again splitting between the Oddity and Externalizing factors. Finally, the fourth factor contained only three variables: SPQ Social Anxiety, the social anhedonia composite and SNAP Mistrust. SNAP Mistrust also had cross loadings on Externalizing and Oddity. This factor appeared to tap aspects of social alienation.

Finally, IDAS Well Being had prominent loadings on all factors except Externalizing. The interfactor correlation matrix for the four-factor solution is presented in Table A33.

In the five-factor solution (Table A34), the Internalizing factor contained the majority of the scales from the IDAS. However, Social Anxiety and Well Being both split and had their highest loadings on other factors. In addition, Appetite Gain did not load on the Internalizing factor. The Oddity factor contained all three DPS scales, the unusual perceptions composite, the magical ideation composite, the Referential Thinking scale, SPQ Oddity and OCI Obsessing. In contrast to the three- and four-factor solutions, neither SPQ Oddity nor OCI Obsessing split across factors and SPQ Oddity was a strong marker of the Oddity factor. Additionally, SNAP Impulsivity had a strong loading on this factor. The third factor was similar to the Social Alienation factor in the three-factor model. In addition, both IDAS Social Anxiety and IDAS Well Being had their strongest loadings on this factor. The fourth factor was a clear OCD factor that contained three of the four OCD composites; the hoarding composite did not load strongly on any factor, which is appropriate as it is not actually a symptom of any Axis I disorder. The fifth factor was an Externalizing factor. It contained the DUS, SNAP Disinhibition, and the SMAST. Interestingly SNAP Impulsivity split across Oddity, OCD (negative loading), and Externalizing with a slightly higher loading on Oddity. Table A35 presents the interfactor correlation matrix for the five-factor solution. In this solution the Social Alienation factor demonstrated much stronger associations with the other factors than it did in the four-factor solution.

The six-factor solution was very similar to the five-factor solution with the addition of a sixth factor marked only by IDAS Appetite Gain. The seven-factor solution

was similar with Appetite Gain and Appetite Loss forming an Appetite factor. Moreover, no variable had its highest loading on the seventh factor. In the eight-factor solution, Factor 7 contained only IDAS Well Being, and Factor 8 was marked only by the hoarding composite. Finally, the nine-factor solution was nearly identical to the 8-factor solution with the Externalizing factor splitting into a Disinhibition/Impulsivity factor and an Alcohol/Drug factor. The 6- through 9-factor solutions were eliminated from further consideration due to each containing factors that either had no, one, or two marker variables.

As both the three- and five-factor solutions contained essentially the same number of variables that split, demonstrated the same strength of factor loadings, and were interpretable and psychologically meaningful, both solutions were retained for further examination. In contrast, the four-factor solution contained a factor (Social Alienation) that was defined by only two clear markers. Moreover, examination of the scree plot suggested three or five factors. Finally, a more robust Social Alienation factor emerged in the five-factor solution, so the four-factor solution was not considered further.

Association With Normal Traits and Sleep Experiences

Correlations between scores from the three-factor solution and the Big Five, trait affect, and sleep experiences scales are presented in Table A36. In general, they are similar to the results from the syndromal analyses (see Table A19). However, the associations between Neuroticism/Negative Affect and the Internalizing and Oddity dimensions are more differentiated; here, Neuroticism and Negative Affect are more strongly and specifically linked with Internalizing than they were in the syndromal data. Extraversion has a stronger association with Internalizing and is not associated with

Oddity. This is likely due to the removal of the social anxiety and social anhedonia variance from that factor. A similar pattern emerged with Positive Affect. As in the syndromal level analyses, Agreeableness, Conscientiousness, and Sleep Experiences have moderate correlations with all three factors. However, Conscientiousness does show some specificity to Externalizing, in that their correlation ($r = .48$) represents the strongest association for each dimension. Similarly, Sleep Experiences and Oddity demonstrate a comparable pattern. In contrast to the syndrome level analyses, Openness—still unrelated to Oddity—is negatively related to Internalizing.

As in the syndromal analyses, regression analyses were conducted with the three factors entered as the predictor variables for each of the external correlates (see Table A37). This provides information regarding the unique association between each factor and the external correlates. Once the shared variance is controlled, Internalizing is by far the most strongly associated with Neuroticism, Negative Affect, Positive Affect, and Extraversion; in contrast, these variables now are unrelated—or only weakly related—to Externalizing and Oddity. As in the syndromal level analyses, many of the associations between Internalizing and the external correlates actually are higher in the regression analyses than they were in the bivariate analyses, again indicating the presence of suppressor effects. Additionally, Oddity now has somewhat unique associations with Sleep Experiences, and Openness demonstrates a weak association with Oddity, although it has a stronger (negative) association with Internalizing.

Correlations between scores from the five-factor solution and the Big Five, trait affect, and sleep experience scales are presented in Table A38. One striking aspect of the data is that Neuroticism, while still strongly ($p = .024$) associated with Internalizing

(*r*=.59), is actually more strongly associated with Social Alienation (*r*=.67). As would be expected, Extraversion (*r* = -.56) and Positive Affect (*r* = -.55) both are uniquely associated with Social Alienation. Another noteworthy aspect of the data is that Openness, although unrelated to all other dimensions, shows a moderate negative correlation with Social Alienation. In fact Social Alienation was either more strongly or equally correlated with all of the external correlates except sleep experiences. Agreeableness, Conscientiousness, and Negative Affect have moderate to strong correlations with all of the dimensions, except that OCD was weakly related to both Agreeableness and Conscientiousness. Finally, Sleep Experiences and Oddity both had their strongest correlation with each other (*r*=.59).

Regression analyses were conducted to determine the unique associations between each of the five factors and the external variables (see Table A39). Social Alienation has the strongest association with neuroticism; in fact this association was increased compared to the bivariate relation (-.56 vs. -.77). Moreover, it is uniquely associated with Extraversion (negatively) and demonstrates moderate to strong correlations with all of the external correlates. Although Oddity does demonstrate an association with Openness, which was not present when examining the bivariate associations, Openness is more strongly associated with Social Alienation (standardized beta weights =.44 and = -.61 respectively). Finally, Sleep Experiences and Oddity again have their strongest associations with each other.

Interview Results

Preliminary Analyses

Reliability & Convergent/Discriminant Validity. All interviews achieved at least good to excellent interrater reliabilities (see Table A3), with the exception of OI Ideas of Reference and SCID Delusions; agreement on these ratings was only fair (Cicchetti, 1994). As such, none of the symptom interview variables was eliminated from consideration. Only two symptoms were assessed by multiple interviews: Axis I social anxiety (viz., IDAS-CR Social Anxiety and SCID Social Phobia screener) and traumatic intrusions (viz., IDAS-CR Traumatic Intrusions and SCID PTSD screener). These interview variables demonstrated strong convergent and discriminant validity (see Table B2) and were summed into composites to represent social anxiety and traumatic intrusions, respectively.

Interview Exploratory Factor Analyses

There were no obvious breaks in the scree plot, although there was some suggestion that between four and seven factors might best represent the structure underlying the interview data. Eigenvalues for the first 8 unrotated factors are provided in Table A40 as well as the results of parallel analyses conducted in SAS. The parallel analyses, which should be interpreted with caution, indicated that no more than seven factors could be extracted. As such, the four through seven factor solutions were examined. In addition, given the results of the self-report analyses, the three-factor solution was examined.

The three-factor solution[4] contained three clear factors that could be interpreted as Oddity, Internalizing, and Externalizing. However, the composition of these factors is

somewhat different from in the self-report data. The factor resembling Oddity contained the majority of the OI variables (Checking, Ideas of Reference, Paranoia, Depersonalization, Absorption, Obliviousness, Ordering, Oddity, Intrusions, Hoarding, and Cleaning), as well as SCID hallucinations and SCID delusions. This is extremely similar to the self-report oddity factor. However, OI Social Anxiety and the "internalizing" social anxiety composite also loaded on this factor and, unlike in the self-report data, OI Oddity did not load significantly on any other factor. The Internalizing factor contained the majority of the IDAS-CR scales (Dysphoria, Suicidality, Lassitude, IDAS Insomnia, Appetite Loss, Ill Temper, and Well being) and the traumatic intrusions composite. The Externalizing factor contained the SCID screeners for Alcohol Abuse/Dependence and for Drug Abuse/Dependence, and OI Disinhibition. IDAS-CR appetite gain, OI anhedonia, and OI Impulsivity were not strong markers of any factor.

In the four-factor solution, the factors were very similar with an additional factor consisting of only the two IDAS-CR appetite variables. In the five-factor solution the factor resembling Oddity split into two factors: a factor resembling the Social Alienation factor from the self-report data (defined by Social Anxiety, Social Anhedonia, Intrusions, and Paranoia from the OI and the social anxiety composite) and one containing the more core Oddity items (Oddity, Depersonalization, Absorption, Ideas of Reference, and Obliviousness from OI, and Hallucinations and Delusions from the SCID). The six-factor and seven-factor solutions both had a factor marked by a single variable (OI Cleaning), so they were eliminated from further consideration. Similarly, the four- and five-factor solutions contained an "appetite" factor that was marked by only two variables.

As such, only the three-factor solution contained factors that were substantive and interpretable. The factor loadings from the three-factor solution are reported in Table A41. Correlations among the three factors were weaker than in the syndromal level analyses (i.e. Oddity and Internalizing $r = .49$, Oddity and Externalizing $r = .23$, Internalizing and Externalizing $r = .21$). Mirroring the results from both the syndromal and the self-report symptom level data, Oddity and Internalizing are more strongly associated with each other than they are with Externalizing.

CHAPTER V

DISCUSSION

Syndromal Structure

Syndrome level analyses allowed for an expanded understanding of the structure

of common and severe psychopathology as conceptualized in *DSM-IV*. To my

knowledge this is the first study to examine quantitative models with this breadth of

psychopathology in a patient sample. Additionally, the use of a dimensional approach

likely resulted in psychopathology indicators that are more valid and reliable than those

used in past studies (Markon et al., 2011). The multi-method assessment approach also

serves to enhance validity. Finally, this study tested considerably more comparison

models than any previously published study. As such, this study is an important step

forward in the understanding of the structure of psychopathology that provides additional

support for Internalizing and Externalizing dimensions, but also clarifies the placement of

PTSD and OCD. Moreover, the study incorporates the Psychotic Disorders, Dissociative

Disorders, and STPD into quantitative models that have been excluded from past models.

In doing so, it provides additional evidence at the syndromal level for a dimension of

Thought Disorder (Wolf et al., 1998) that had been previously reported in the literature at

the symptom level (Chmielewski, 2007; Markon 2010).

As expected, the *DSM-IV* model (in which the diagnostic classes were restricted

to be uncorrelated) fit the data very poorly (CFI = .215, SRMR = .31, RMSEA = .104)

and provided, by far, the worst fit to the data (BIC = 15788.132, see model DSM 2.1 in

Table A17). Moreover, even when the dimensions were allowed to correlate with each

other (model DSM 2.2 in Table A17) the *DSM-IV* model still provided a poor fit to the

data (CFI = .866, SRMR = .098, RMSEA = .129) resulting in, with a single exception, a worse fit (BIC = 14933.439) than any of the Internalizing/Externalizing or Internalizing/ Externalizing/Oddity models (see Table A17). From a structural perspective, this indicates significant problems with the way psychological disorders are organized in the *DSM-IV* and adds to a growing body of literature suggesting that the current *DSM*-IV taxonomy should be revised in *DSM-5* (Krueger, 1999; Slade & Watson, 2006; Watson, 2005).

Of the Internalizing/Externalizing models, the model in which Depression, PTSD, Social Phobia, Panic Disorder, Psychotic Disorder, Dissociative Disorder, STPD, and OCD were markers of Internalizing (with no subfactors) and ASPD, Alcohol Abuse/Dependence, and Drug Abuse/Dependence were markers of Externalizing (Int/Ext 3.2 in Table A17) provided the best fit to the data. Although this model demonstrated improved fit (BIC = 14871.521) compared to the *DSM*-based models, its fit still was not good (CFI = .863, SRMR = .006, RMSEA = .109) and, in fact, was worse than the vast majority (14 of the 16) of the Internalizing/Externalizing/Oddity models. Given the abundance of support for the Internalizing/Externalizing model across past studies, the poor fit in this study likely is due to the addition of OCD, Dissociative Disorders, STPD, and Psychotic Disorder, suggesting that additional factors are necessary to incorporate these disorders.

As hypothesized, the best fitting models all contained Internalizing, Externalizing, and Oddity dimensions (see Table A17), providing further evidence that an Oddity dimension is necessary to incorporate certain diagnoses that, to date, have been excluded from most structural models of psychopathology. Of all the models tested, two

models (Int/Ext/Odd 4A.2M and Int/Ext/Odd 4B.2M in Table A17) resulted in AIC and

BIC fit indices that represented a substantial increase in fit compared to all other models.

Moreover, these two models were the ones to achieve a good fit to the data, and model

Int/Ext/Odd 4A.2M (CFI = .957, SRMR = .045, RMSEA = .064) was specifically

hypothesized. It included an Internalizing dimension that contained Depression, PTSD,

Social Phobia, and Panic Disorder, with no subfactors. The Externalizing dimension

contained ASPD, Alcohol Abuse/Dependence, and Substance Abuse/Dependence.

Finally, Psychotic Disorder, Dissociative Disorder, STPD, and OCD were markers of the

Oddity dimension. In addition, the model included a correlated error term that accounted

for the association between Social Anxiety and STPD. The other model that achieved

good fit was Int/Ext/Odd 4B.2M (CFI = .961, SRMR = .043, RMSEA = .061). This

model was hypothesized as a specific alternative to the aforementioned one (it was

identical with the exception that OCD was allowed to split between the Internalizing and

Oddity factors). This second model actually resulted in fit indices that were slightly

better (BIC = 14752.121, see Table A17) than the previous model (BIC = 14753.046); it

therefore was chosen as the best fitting model. However, the differences between these

two models are small, from a practical viewpoint, and the added complexity may not

justify the improved fit.

These results provide strong support for a three-factor Internalizing-Externalizing-

Oddity model of psychopathology. They strongly suggest that an Oddity dimension is

necessary to incorporate the diagnoses that, to date, have been excluded from quantitative

models of psychopathology: Psychotic Disorder, Dissociative Disorder, OCD, and STPD.

Distinct Fear and Distress subfactors of Internalizing disorder did not emerge, but their

emergence has not been consistent across other studies of *DSM* diagnoses (Krueger, Chentsova-Dutton, Markon, Goldberg, & Ormel, 2003; Kreuger et al., 1998), and may be due, in part, to the specific disorders included in each study.

In addition to documenting the existence of an Oddity dimension, this study also provides information regarding the placement of two disorders, PTSD and OCD, which previously has been unclear. Specifically, PTSD was a strong indicator of the Internalizing dimension, which helps solidify its placement within the Internalizing/Externalizing framework (see however, Wolf et al., 2010). OCD is noteworthy because it split between the Internalizing and Oddity dimensions in the best fitting model. On one hand, this finding is logical as OCD subsumes content from both domains. On the other hand, the factor loading of OCD on the Internalizing dimension was quite low (.22), especially compared to its stronger loading on the Oddity dimension (.54). Combined with the fact that the model in which OCD was constrained to load only on the Oddity dimension fit nearly as well as the more complex model in which OCD was allowed to split between Internalizing and Externalizing, the low loading on Internalizing suggests that OCD is primarily an indicator of the Oddity domain. These results have important implications for the placement of OCD in future *DSMs*.

Despite the advancement represented by these syndromal analyses, these results also highlight potential problems with using *DSM-IV* defined syndromes in structural models. The most obvious example of this was the necessity of a correlated error term between Social Phobia and STPD for any model to achieve good fit. Given the marked heterogeneity of STPD (see Chmielewski & Watson, 2008) this was not surprising, especially given that excessive social anxiety is one of the *DSM-IV* criteria for STPD and

that social anxiety has emerged as a separate dimension in structural analyses of STPD (Chmielewski & Watson, 2008). Additional evidence of potential heterogeneity comes from the placement of OCD, which split between the Internalizing and Externalizing domains in the best fitting model. In summation, although the syndromal analyses represent an important step forward they also suggest the importance of the symptom level analyses.

Symptom Structure

The symptom level analyses eliminate the aforementioned problems with diagnostic heterogeneity, bypass the confines of the *DSM*, and allow for a more refined model of psychopathology. Despite the large number of potential structures, a three-factor model containing Internalizing, Externalizing, and Oddity dimensions with similar compositions emerged across both the self-report and interview data. The Internalizing dimension consisted of dysphoria, suicidality, lassitude, insomnia, appetite loss, ill temper, traumatic intrusions, and well-being. The Externalizing factor contained alcohol abuse/dependence, drug/marijuana abuse/dependence, and disinhibition. The Oddity factor contained unusual perceptions/hallucinations, magical ideation/delusions, depersonalization, imagination, obliviousness, referential thinking, checking, cleaning, ordering, hoarding, and intrusive thoughts/obsessions. Appetite gain failed to emerge as a strong indicator of any symptom dimension, which is congruent with past concerns regarding its utility for assessing psychopathology (e.g., Watson et al., 2008). Interfactor correlations ranged from .41 to .55 (mean $r = .47$) in the self-report data and .21 to .49 (mean $r = .31$) in the interview data, suggesting that the interviewers differentiated between the three dimensions of psychopathology to a greater extent than the participants

did. Nevertheless, the association between Internalizing and Oddity was strong (mean *r*

= .52) and represented the highest interfactor correlation across both methods. Overall,

the results provide strong evidence that a three-factor Internalizing-Externalizing-Oddity

model represents the structure of the psychopathology at the symptom level for the

constructs included in this study.

Although the same general structure emerged across the two assessment methods

some important differences emerged as well. One of the most striking discrepancies

involves the placement of the symptom dimension of oddity. In the interview data,

clinician rated oddity was a strong marker of the Oddity factor. However, in the self-

report data, oddity had its highest loading on the Externalizing factor with secondary

loadings on the Oddity factor. Although it is surprising that self-reported oddity was not

a marker of the Oddity factor, this is in line with a recent study in college students

(Ashton & Lee, 2012) that found self-reported oddity to be related only moderately to

schizotypy and dissociation and instead was more strongly associated with normal

personality traits. However, other studies have found self-reported oddity to be a strong

marker of the Oddity factor in student samples (Watson et al., 2008).

Although the exact reason for the discrepancies across studies—and across

methods within this study—is unclear, several possibilities exist: (1) This study's

interviewers were instructed to use clinical judgment and rate individuals high in oddity

if, for example, their behaviors, mannerisms, or appearance were particularly odd or

eccentric, even if the individuals did not see themselves as odd or eccentric. Similarly, if

individuals considered themselves to be odd or unusual for reasons that were largely

superficial or commonplace (e.g., they like different music from their friends),

interviewers were instructed to use their judgment in making the ratings. It is possible that participants had an understanding of what makes someone "odd or unusual" that differed from the study's target constructs, but unlikely, because the study used the SPQ, one of the most widely used self-report measure of oddity.

Similarly, it is possible that participants high on the Oddity factor lacked insight into what others thought of them or what was considered "normal" behavior. It also is possible that a certain amount of impression management may have occurred in that some disinhibited individuals (i.e. high in Externalizing) may have been more likely to respond affirmatively to questions such as "I am an odd individual," whereas those experiencing symptoms of psychosis and dissociation may be actively trying to avoid labeling themselves as odd or unusual. Finally, a link between impulsivity and schizotypy has been suggested previously in the literature; specifically a dimension of "impulsive nonconformity" has been included in some conceptualizations of schizotypy (Chapman et al., 1984). Regardless of the reasons for the discrepancy between the self-report and interview data, these results suggest that Oddity may not be the ideal label for the Oddity dimension and that Psychoticism or Thought Disorder may better describe the content subsumed within this domain.

There were also several other discrepancies between the self-report and interview data. (1) Paranoia/mistrust was primarily an Internalizing indicator in the self-report data but loaded on Oddity/Psychoticism in the interview data. This is likely due to the fact that the self-report measures tended to focus more broadly on mistrust in general, whereas the interviewers were instructed to focus on content specific to the person (e.g., the government was specifically out to get the individual, not a mistrust of the

government in general). The differences and similarities between these two related but potentially distinct symptoms need to be examined in future studies.

(2) Both Axis I and Axis II social anxiety loaded on the internalizing factor in the self-report data, whereas in the interview data, Axis II social anxiety loaded more strongly on Oddity/Psychoticism, potentially due to the emphasis in the criteria for STPD on social anxiety that does not dissipate over time. (3) Although self-reported social anhedonia was a strong marker of the Internalizing factor as hypothesized, interview-based social anhedonia was not a strong marker of any dimension. (4) Self-reported impulsivity was a strong marker of Externalizing, whereas interview impulsivity was not a strong marker of any dimension, although it had its highest loading on the Oddity/Psychoticism factor. Whether this represents specific problems with the interview assessment of impulsivity or provides additional evidence for a specific link between Impulsivity and Oddity/Thought Disorder is unclear. Despite these discrepancies regarding the placement of specific symptoms, the overall results strongly support the Internalizing, Externalizing, and Oddity/Psychoticism structure across modalities.

There also was evidence of a more refined symptom structure in the self-report data. Specifically, when four factors were extracted, a Social Alienation factor emerged that was defined by Axis II social anxiety, social anhedonia, and mistrust. In the five-factor solution, Internalizing, Externalizing, Oddity/Psychoticism, and a more robust Social Alienation dimension emerged (i.e., it now was defined by Axis I and II social anxiety, social anhedonia, mistrust, and well being), as well as an OCD dimension (see Table A34). As might be predicted, this Social Alienation dimension was differentiable from—but strongly related to—both Internalizing and Oddity/Psychoticism (rs=.54

and .45 respectively), and bears some resemblance to the Markon (2010) Pathological

Introversion dimension. However, in Markon (2010), social anhedonia and paranoia fell

under Thought Disorder although this might reflect the contrast between paranoia versus

general mistrust that was discussed earlier. Additionally, the Social Alienation dimension

in this study has some resemblance to the Anhedonic Introversion factor documented by

Roysamb et al. (2011).

      With respect to the OCD factor, although ordering, checking, cleaning—and, to a

lesser extent, impulsivity (negatively)—were markers of this factor, hoarding and

obsessing were not. This is consistent with the fact that hoarding is not a symptom of

OCD and with evidence indicating that it is not a core symptom of OCD (Wu & Watson,

2005), as well as evidence that ordering, checking, and cleaning are at the core of OCD.

The emergence of this OCD factor could indicate that OCD represents a separate

dimension of psychopathology, and some past research has suggested the need for a

distinct Obsessive Compulsive spectrum in *DSM*-5 (see Bartz & Hollander, 2006). In

fact, a new chapter of "Obsessive-Compulsive and Related Disorders" has been proposed

for *DSM*-5 (APA, 2012). However, it also is possible that OCD represents a dimension

that belongs lower in the hierarchical model of psychopathology and only emerged here

due to the abundance of OCD variables and their relative independence from other

variables. Moreover, this dimension did not emerge in the interview data and has not

been documented in past quantitative models of psychopathology. Conversely, the fact

that it split between the Internalizing and Oddity/Psychoticism dimensions may suggest

that it would be better classified as its own dimension. Finally, SNAP Impulsivity split

three ways in this solution, with positive loadings on both Oddity/Psychoticism and

Externalizing and a negative loading on OCD. The Externalizing and OCD loadings make theoretical sense, in that impulsivity has consistently been linked to the Externalizing dimension and one would expect individuals with OCD symptoms to act in a non-impulsive manner. The loading on Oddity/Psychoticism provides additional support of a relationship between impulsivity and Oddity/Psychoticism.

Although not a focus of the study, the results of the SPQ and STA EFAs deserve comment. In particular, neither Raine's (1994) widely used three-factor model, nor the nine existing *DSM* symptom-based subscales emerged in the SPQ analyses. Instead, the results were consistent with Chmielewski and Watson's (2008) five-factor structure of STPD. To my knowledge, this is the first time the structure has been replicated in a patient sample. In contrast, the alternative four-factor model of the STA was not supported.

Associations with External Correlates

Another unique aspect of the current study is that it included measures of "normal-range" traits and experiences such as the Big Five, trait affect, and sleep experiences. Despite the interest in the association between quantitative models of psychopathology and "normal" personality traits no study, to date, has documented these associations empirically. As such, the current study fills an important gap in the literature. Although many associations could be easily hypothesized a priori based on past analyses of the relationship between the syndromes comprising the dimensions and normal traits (e.g., neuroticism and Internalizing would be strongly associated) others are not as obvious (e.g., the association between Oddity/Psychoticism and openness).

As would be expected, in both the syndromal- and symptom-level analyses neuroticism and trait negative affectivity were associated strongly with Internalizing (mean rs = .63 and .69). They also had moderate to strong associations with Oddity/Psychoticism (mean rs = .40 and .57) and Externalizing (mean rs = .22 and .41). Extraversion and positive affectivity demonstrated some specificity as they were moderately associated with Internalizing (mean rs = -.32 and -.38) and only weakly related to Oddity/Psychoticism (mean rs = -.14 and -.15), and Externalizing (mean rs = .03 and -.15). However, openness was generally unrelated to all three dimensions of psychopathology, although there was a weak association with Internalizing in the self-report data (r = -.21), suggesting that openness is less relevant (at least in terms of vulnerability factors) for psychopathology than the other FFM dimensions.

Agreeableness had moderate negative correlations with all three of the dimensions (mean rs = -.37, -.30, and -.30 respectively). The fact that agreeableness was not related more strongly to Externalizing is somewhat surprising, given that disinhibition (a) is conceptualized to underlie Externalizing (Krueger, 1999) and (b) represents the combination of agreeableness and conscientiousness as one moves from the five-factor to the three-factor personality space (Markon et al., 2005; Watson et al., 1994; Zuckerman et al., 1993). However, conscientiousness does demonstrate some specificity to Externalizing (mean r = -.40) as compared to Internalizing (mean r = -.31) and Oddity/Psychoticism (mean r = -.22). Similarly, although the hypothesized association between sleep experiences and Oddity/Psychoticism was strong (mean r = .52), sleep experiences also had moderate to strong associations with Internalizing (mean r = .41)

and Externalizing (mean $r = .36$). Nevertheless, this suggests that unusual sleep experiences may be a manifestation of Oddity in the normal range.

The analyses document the strong association between neuroticism and Internalizing and suggest that openness is unrelated to Oddity/Psychoticism. However, it is unclear why other hypothesized associations did not emerge. To determine whether the presence of a large "general psychopathology factor" was overshadowing the unique associations of the Internalizing, Externalizing, and Oddity/Psychoticism dimensions with the external correlates, regression analyses were conducted, controlling for this overarching psychopathology variance to examine the unique associations of each dimension of psychopathology with the Big Five, trait affect, and sleep experiences (see Tables A20 and A37).

When this is done, both neuroticism and negative affect (mean rs = .74 and .57) and extraversion and positive affect (mean rs = -.44 and -.59) are associated uniquely with Internalizing. Openness did not have strong associations with any of the psychopathology dimensions, although there were some associations with Internalizing and Oddity/Psychoticism in the symptom level data (rs = -.36 and .17 respectively). Agreeableness did not demonstrate the expected specificity with Externalizing (mean r = -.16), as it was more strongly associated with Internalizing (mean $r = -.27$). Conscientiousness did demonstrate some specificity to Externalizing (mean $r = -.36$), but also was associated with Internalizing (mean $r = -.23$). Finally, sleep experiences did demonstrate specificity to Oddity/Psychoticism (mean $r = .42$).

One surprising result of the regression analyses was that many of the associations between the dimensions of psychopathology and personality traits increased when the

other dimensions of psychopathology were controlled. For example, the association

between Internalizing and neuroticism jumped from .58 to .77 in the syndromal level

analyses and the association between Internalizing and extraversion increased from -.40

to -.55 in the self-report symptom analyses. In addition, the association between

Oddity/Psychoticism and neuroticism changed from .43 to -.19 in the syndromal data.

The two most likely explanations for the puzzling finding are suppressor effects and

collinearity. With respect to the latter, although the correlation between Internalizing and

Oddity/Psychoticism (r = .86) does suggest collinearity, the tolerance statistic and

variance inflation statistic did not cross established cut points used to indicate

multicollinearity (i.e., < .20 and > 10 respectively; Menard, 1995; O'Brien, 2007).

Moreover, in the self-report data, neither the association between Internalizing and

Oddity/Psychoticism nor the multicollinearity diagnostics approached levels that would

cause concern. Therefore, suppressor effects between Internalizing and

Oddity/Psychoticism are the more likely cause, and it is plausible that when the general

pathology piece is removed from Oddity/Psychoticism the residual relates negatively to

neuroticism. For example, tendencies to disconnect from reality and be prone to fantasy

seem counter to tendencies to ruminate and dwell on difficulties and failures. Conversely,

if the tendency to dissociate serves as a protective factor against dwelling on life's

difficulties and focusing on current problems, when the dissociative variance is removed

from the Internalizing dimension, the association with neuroticism would increase; in

support of this argument, the theory that dissociation can serve as a defense against

negative thoughts and emotions is longstanding (Spiegel, 1991).

The fact that Externalizing did not demonstrate the expected associations with agreeableness and conscientiousness could be due to several factors. Although the BFI is a widely used and well-validated measure, it is relatively brief and does not have lower order facets, so different results may have emerged if a faceted measure, such as the NEO PI-R, had been used, especially given that past studies have documented that facet level analyses provide a stronger, clearer link with psychopathology (Bagby, Costa, Widiger, Ryder, & Marshall, 2005). The assessment of the Externalizing domain also was somewhat limited in this study due to needing to measure the Internalizing and Oddity/Psychoticism domains precisely, given past associations between psychotic and Internalizing disorders. Thus, stronger associations with agreeableness and conscientiousness might have emerged with a more comprehensive assessment of Externalizing.

It also is possible that agreeableness and conscientiousness are not as tightly tied to disinhibition as a simple hierarchical model of personality suggests. As such, the expected association between Externalizing and personality may emerge only when one moves up the hierarchy to the three-factor level. One potential explanation for this is that many measures of disinhibition focus their assessment on a more pathological level than Big Five measures, which suggests that Big Five measures may not be optimal for modeling associations with psychopathology. However, a recent meta-analysis (Kotov, Gamez, Schmidt, & Watson, 2010) demonstrated that the substance use disorders were more strongly related to conscientiousness than they were disinhibition, although conscientiousness tended to be associated with psychopathology in general whereas disinhibition had more specific links to the substance use disorders.

The associations between Oddity/Psychoticism and the Big Five, trait affectivity, and sleep experiences are quite interesting, as no consensus has been reached in the literature regarding the association of those constructs with the disorders/symptoms that comprise Oddity/Psychoticism. Relatedly, relations between Cluster A disorders and dimensions of the five-factor model are contentious, in that most, but not all, studies have found no association between openness and Cluster A pathology (see Chmielewski & Watson, 2008; O'Connor 2005; Saulsman & Page, 2004; Samuel & Widiger, 2008; Watson, Clark, & Chmielewski, 2008). In this study, openness is clearly not strongly related to Oddity/Psychoticism: The only significant association between the two constructs emerged after the influence of general psychopathology was accounted for in the symptom-level data, when openness became more strongly associated (negatively) with Internalizing than it was with Oddity/Psychoticism. As such, these data do not indicate a substantial association between Oddity/Psychoticism and openness. However, an association cannot be completely ruled out, as the assessment of openness with a different instrument, such as the NEO PI-R, might demonstrate some associations. The association between openness and Oddity/Psychoticism also might be more complicated and be moderated by other constructs such as intelligence, although to my knowledge no data exist directly testing this possibility.

The inclusion of measures of normal personality in the study permitted comparison of these traits with symptom-level structures. Five factors of psychopathology, paralleling the Big Five of personality, certainly could have emerged across both the interview and self-report data. However, examining associations of possible dimensions of psychopathology beyond the Internalizing, Externalizing,

Oddity/Psychoticism structure is precarious, given that the five-factor structure was not tested in the syndrome-level data and did not emerge in the symptom-level interview data. Therefore, the following should be considered extremely exploratory.

The content of the five-factor structure that emerged in the symptom-level self-report data suggests some interesting possibilities for links to the five-factor model of personality. For example Internalizing can be equated with neuroticism (Griffith et al., 2010; Hettema et al., 2006; Watson & Clark, 1991; Watson, Clark, & Carey, 1998; Watson, Clark, & Harkness, 1994), Social Alienation with (inverse) extraversion (Markon, 2010; Markon et al., 2005), and Externalizing with low agreeableness and low conscientiousness (Krueger et al., 1996; Markon, 2010; Markon et al., 2005; Miller et al., 2001). Although the Obsessive-Compulsive dimension might be conceptualized as pathologically high conscientiousness, empirical data have not documented extreme levels of conscientiousness in individuals diagnosed with OCD (Samuels et al., 2000; Wu, Clark, & Watson, 2006). Finally, Widiger (2011) has argued that specific components of the Oddity/Peculiarity dimension (e.g., STPD) can be conceptualized as pathologically high openness.

An examination of Table A38 indicates that some of these hypotheses may have merit, but the associations are far from clear. Although Internalizing has its strongest correlation with neuroticism ($r = .59$), neuroticism correlated more strongly with Social Alienation ($r = .67$) than Internalizing. Similarly, although extraversion's strongest association was with Social Alienation ($r = -.56$), that correlation was lower than that between Social Alienation and neuroticism. Conscientiousness did have a positive, but very small ($r = .12$) association with the OCD dimension; moreover, OCD correlated

more strongly with neuroticism ($r = .23$) and equally with extraversion ($r = -.15$). In line with the hypothesized associations, Externalizing did have its strongest relationships with agreeableness ($r = -.29$) and conscientiousness ($r = -.32$). However agreeableness correlated just as, or more, strongly with Internalizing, Oddity, and Social Alienation (rs = -.31, -.29, and -.44 respectively) and conscientiousness correlated more strongly with Oddity and Social Alienation (rs = -.40 and -.42 respectively). Finally, Oddity was unrelated to Openness, which had its strongest correlation with Social Alienation ($r = -.38$). Thus, from a personality perspective, Social Alienation appears to be the most pathological dimension.

It was possible that more support for associations between the Big Five and the five psychopathology dimensions would emerge when the unique variance from each pathological dimension was examined. As can be seen in Table A39, however, although controlling for general psychopathology does result in some dimensions of psychopathology lining up with personality more clearly, other discrepancies either remain or emerge. For example, the association between OCD and conscientiousness is stronger, $r = .35$, and remains the only positive association for conscientiousness. Moreover, Oddity/Psychoticism now has a moderately strong association with openness ($r = .44$), although its strongest association remains with sleep experiences ($r = .56$), and openness has stronger associations with Social Alienation ($r = -.61$). Nevertheless, these results do provide some—though far from strong or unequivocal—support for the argument that Oddity/Psychoticism is related to openness and, in any case, the relation is far from simple and likely only involves a small component of openness. On the negative side of the ledger, conscientiousness is still as strongly associated (negatively) with

Oddity/Psychoticism and Social Alienation as it is with OCD, and Externalizing no longer has unique associations with agreeableness or conscientiousness. Thus, even when controlling for general psychopathology, relations between personality and five dimensions of psychopathology remain rather complex and unclear.

Limitations and Future Directions

Although this study represents an important step forward for quantitative models of psychopathology, it does have some important limitations. One limitation is that disorders in the syndromal-level analyses could not be modeled as latent variables, because the categorical nature of the syndromal indicators required a level of processing power that was not available to the author. When attempts were made to create latent syndromes, Mplus allowed only a few models to begin to run and, after three days, indicated that resources were insufficient to run to completion. Until the necessary computational power becomes widely available, researchers should use fully dimensional interviews for each syndrome they want to model latently. For example, using dimensional interviews such as the IMAS (Kotov, Gamez, & Watson, 2005) or the SCID without skip-outs would permit the creation of latent syndromes from self-report and interview ratings.

Although the Internalizing and Oddity/Psychoticism domains were well represented in this study, the Externalizing dimension was not. As noted, although this was intentional to permit more precise measurement of Internalizing and Oddity/ Psychoticism, it still would have been preferable to include more measures of externalizing psychopathology. This approach was not chosen because it would have cost significantly more and might have increased attrition. However, future studies can use

the convergent/discriminant validity analyses from this study as a guide to identify the optimal syndrome/symptom measures of Oddity/Psychoticism, allowing elimination of poorly performing measures, thus providing more room for additional measures of Externalizing psychopathology.

Future researchers also should consider including syndromes and symptoms (e.g., bipolar disorders) not included in these analyses. GAD also was not included in this study because of the difficulty of differentiating between general anxious mood and dysphoria in self-report data (Watson et al., 2007). Nevertheless, incorporating GAD would be optimal as its absence may have contributed to the failure of fear and distress subfactors of Internalizing to emerge (although other studies that have included GAD also have failed to find fear and distress subfactors (Markon, 2010; Krueger, Chentsova-Dutton, Markon, Goldberg, & Ormel, 2003; Krueger et al., 1998).

Finally, future researchers should incorporate an expanded assessment of normal personality traits and other external correlates because facet-level analyses may provide a more thorough examination of personality–psychopathology associations (Bagby, Costa, Widiger, Ryder, & Marshall, 2005). Additionally, interview measures of personality traits might permit creation of latent personality variables that would mirror the latent psychopathology variables. However, this would involve a significant time commitment on the part of participants; moreover, it would be important to collect all measures within a short time frame (e.g. one to two weeks).

General Discussion

The emergence of the Internalizing, Externalizing, Oddity/Psychoticism model (1) in a large patient sample, (2) using a multi-method dimensional approach, across both (3) *DSM* syndrome-level and (4) symptom-level data provides strong support for the model. This study provides further support for the well-validated Internalizing/ Externalizing model by documenting it in a patient sample using dimensional assessments. More fundamentally, the study (1) expands the Internalizing/Externalizing model by incorporating many of the "severe" disorders that, to date, have been excluded from most past quantitative models; (2) replicates and expands upon the Oddity/ Psychoticism dimension identified by Chmielewski et al. (2007) and Markon (2010) by including symptoms not included in Markon (2010) and examining both syndrome-level and symptom-level analyses. As such, it provides strong evidence that a third higher order factor of Oddity/Psychoticism is necessary to incorporate certain excluded disorders and represents an important advancement in quantitative models of psychopathology. Nevertheless, the results of both Markon (2010) and the current symptom-level self-report data suggest that further refinement of the model is possible.

This third higher order dimension appears to contain psychosis, dissociation, OCD, and STPD as well as potentially other disorders not included in this study (e.g., Schizoid PD, Paranoid PD, Bipolar disorders). However, that the Internalizing and Oddity/Psychoticism dimensions were moderately to strongly correlated across the different analytic procedures (rs = .77, .55, and .49) is congruent with prior suggestions that the Psychotic disorders form part of the Internalizing dimension (e.g., Harkness et al., 1999; Verona et al., 2004). Thus, it is possible that the structure of psychopathology may

be viewed in much the same manner as the consensual hierarchical model of personality dimensions that has emerged in recent years (e.g., Markon et al., 2005). That is, out of a single dimension of psychopathology (vs. lack of pathology) emerge two broad dimensions, Internalizing and Externalizing. At the three-factor level, Oddity/Psychoticism breaks out of Internalizing to form its own factor and perhaps at the four-factor level, Internalizing breaks into Distress and Fear dimensions. Currently, further lower levels of this hierarchy are not firmly established, but as more disorders and more symptom dimensions are incorporated into the model in the future, lower levels may be clarified beyond our current understanding.

Having established a three-factor Internalizing, Externalizing, Oddity/Psychoticism model, an important question is now what underlies each of these dimensions. Clearly, neuroticism or negatively emotionality is the underlying vulnerability for Internalizing (Krueger, 1999; Watson, 2005) and this connection is supported in this study. Externalizing has hypothesized and empirical links with disinhibition (Krueger, 1999), although the evidence for this association was weaker than expected in this study. This then raises the question: What underlies Oddity/ Psychoticism? This study provides considerable evidence that openness, at least as currently conceptualized, does not represent the basic vulnerability factor for this dimension. Although it is possible that measurement/design issues prevented the association between openness and Oddity/Psychoticism from emerging clearly in these analyses, it seems more likely that another dimension is necessary.

Oddity/Psychoticism represents individual differences in the tendency to remain grounded in reality, at a cognitive, experiential, and sensory level. For example, this

domain contains phenomena that range from hallucinations and delusions at higher levels of the dimension to more common dissociative experiences, such as being prone to mindlessness or forgetting the reason one entered a room, at lower levels. Additionally, the link of Oddity/Psychoticism with unusual sleep experiences in this study—as well as past studies that documented an association between dissociation, schizotypy, and unusual sleep experiences (e.g., vivid dreams, nightmares, complex nighttime behaviors, and potentially symptoms of narcolepsy; see Koffel & Watson, 2009)—suggest that this tendency to break from reality may occur across both wakefulness and sleep. Therefore, traits such as absorption, obliviousness, and fantasy proneness all are potential markers of Oddity/Psychoticism in the normal range.

The study also provides information regarding the placement of two disorders, PTSD and OCD, which were unclear in past structural models of psychopathology; in particular, it solidifies the placement of PTSD as a marker of the Internalizing dimension. The placement of OCD remains less clear, however; although it does have some ties to Internalizing, it appears that OCD is primarily a marker of the Oddity/Psychoticism dimension. It is also possible that OCD represents its own dimension, as is suggested by the newly proposed *DSM-5* category of "Obsessive-Compulsive and Related Disorders" (APA, 2012) although the evidence for that possibility is not unequivocal.

Conclusion

In sum, this study is part of a movement towards more quantitative models of psychopathology. The results have important implications for future revisions of the *DSM* and help fill gaps in the understanding of the structure of mental disorders. Moreover, the study has implications and raises questions for future research attempts to

create a grand unified model that ties together personality and the various manifestations of psychopathology. Finally, the results could help move the field towards a more empirically valid model of psychopathology that could lead to a greater understanding of mental illness, improved treatment options, and better scientific research.

NOTES

1. The diagnosis was technically Multiple Personality Disorder as *DSM-III* diagnoses were used. For simplicity's sake, the *DSM-IV* naming convention was used.

2. Parallel analyses are conducted on random data sets that have an identical number of variables and observations as the observed data set. The mean Eigenvalues from these analyses are then compared to the observed eigenvalues. In the current study, permutations of the raw dataset were used (in which the distributions of the original raw variables are exactly preserved in the permuted dataset). This approach is highly accurate and much more robust to nonnormality than using random data that are normally distributed.

3. Attempts were made using SEM to model the associations between the best fitting model and the external correlates. However, the measurement model for the Big Five demonstrated poor fit, which led to an overall model that did not fit well. Modification indices suggested a significant number of associations between the specific BFI items and the Internalizing, Externalizing, and Oddity factors as well as the variables they subsume. As such, the decision was made to use factor scores to examine external correlates.

4. A Geomin rotation, which is the default in Mplus, was used for these analyses instead of Promax. This is because Mplus reported results for the Promax rotated factors in which all the factors were uncorrelated with each other, which is clearly an error.

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APPENDIX A   TABLES

Table A1

Prevalence of SCID-IV Current Diagnoses

Diagnosis	Cases	%
Major Depressive Disorder	164	42.9
GAD	88	23.1
Psychotic Disorder	74	19.4
Social Phobia	53	13.9
Specific Phobia	50	13.1
Agoraphobia	49	12.9
PTSD	47	12.3
Panic Disorder	46	12.1
Dysthymic Disorder	45	11.8
OCD	40	10.5
Alcohol Abuse	30	7.9
Alcohol Dependence	23	6.0
Drug Abuse	12	3.2
Drug Dependence	8	2.1
Bipolar Disorder (any)	5	2.1

$N = 381$, SCID-IV = Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders.

Table A2

Descriptive Statistics for the Self-Report Measures

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Scale	N	α	AIC	Mean	SD
Psychotic/Schizotypy/Cluster A					
Perceptual Aberration Scale (35)	327	.91	.22	4.87	5.74
Magical Ideation Scale (30)	328	.87	.18	6.75	5.48
RSAS (40)	378	.92	.23	14.34	9.31
SNAP Eccentric Perceptions (15)	441	.86	.29	4.60	3.84
SNAP Mistrust (19)	444	.91	.34	8.72	5.67
SNAP Detachment (18)	442	.87	.27	8.58	4.78
SPQ Total Score (74)	429	.95	.20	29.77	15.80
SPQ Unusual Beliefs/Exp. (12)	429	.83	.29	2.81	2.92
SPQ Mistrust (8)	429	.88	.47	3.06	2.81
SPQ Social Anhedonia (11)	429	.84	.33	4.39	3.23
SPQ Oddity (11)	429	.87	.38	5.06	3.52
SPQ Social Anxiety (7)	429	.86	.47	4.40	2.44
STA Total (34)	423	.91	.24	13.32	8.30
STA Unusual Perceptions (8)	423	.74	.27	1.95	1.97
STA Magical Ideation (8)	423	.73	.25	2.53	2.04
STA Paranoid Ideation (8)	423	.82	.36	3.57	2.60
Referential Thinking Scale (34)	407	.92	.26	6.13	6.72
Dissociation					
DPS Total (33)	445	.94	.33	93.47	25.30
DPS Obliviousness (14)	445	.90	.39	43.46	11.94
DPS Imagination (7)	445	.88	.51	20.53	6.79
DPS Detachment (6)	445	.88	.55	12.92	5.93

_____

Table A2 (continued)

Scale	N	α	AIC	Mean	SD
CES Total Score (31)	343	.94	.36	53.36	19.07
CES Amnesia (5)	343	.83	.49	7.34	3.53
CES Absorption (8)	343	.82	.36	17.24	6.31
CES Depersonalization (14)	343	.88	.48	11.20	5.17
QED (26)	438	.85	.17	10.68	5.20
Obsessive Compulsive Disorder (OCD)					
SCOPI OCD (39)	445	.94	.29	107.81	27.35
SCOPI Obs. Checking (14)	445	.91	.43	40.85	12.46
SCOPI Obs. Cleanliness (12)	445	.87	.36	31.66	8.99
SCOPI Compulsive Rituals (8)	445	.90	.53	20.27	8.00
SCOPI Hoarding (5)	445	.87	.58	15.03	5.47
SCOPI Pathological Imp. (8)	326	.84	.40	15.22	6.56
OCI-R Total (18)	439	.91	.37	23.93	13.81
OCI-R Checking (3)	439	.85	.66	3.73	3.16
OCI-R Washing (3)	439	.80	.57	2.75	2.87
OCI-R Ordering (3)	439	.87	.69	4.74	3.32
OCI-R Hoarding (3)	439	.87	.69	5.05	3.44
OCI-R Neutralizing (3)	439	.73	.47	2.49	2.71
OCI-R Obsessing (3)	439	.87	.69	5.18	3.40
Internalizing					
IDAS General Depression (20)	413	.92	.38	56.55	16.90
IDAS Suicidality (6)	413	.85	.48	10.59	5.28
IDAS Insomnia (6)	412	.89	.57	15.80	6.92
IDAS Appetite Loss (3)	414	.85	.65	6.71	3.43
IDAS Appetite Gain (3)	414	.82	.60	6.77	3.44

Table A2 (continued)

Scale	N	α	AIC	Mean	SD
IDAS Ill Temper (5)	413	.87	.57	10.37	5.19
IDAS Well-Being (8)	413	.89	.50	18.85	7.14
IDAS Panic (8)	413	.86	.43	15.67	6.96
IDAS Social Anxiety (5)	413	.86	.56	12.45	5.75
IDAS Traumatic Intrusions (4)	413	.86	.61	9.64	4.81
BDI-II (21)	399	.94	.43	21.11	13.75
BAI (21)	396	.94	.42	17.35	13.26
SPS (20)	425	.95	.47	24.64	18.10
SIAS (19)	417	.94	.46	31.72	17.26
Externalizing					
SNAP Disinhibition* (16)	441	.77	.17	5.11	3.43
SNAP Impulsivity (19)	441	.84	.21	6.70	4.45
SNAP ASPD** (11)	441	.75	.22	4.07	2.79
SMAST (13)	408	.90	.42	2.96	3.64
DUS (10)	408	.83	.32	22.66	12.05
Other Measures					
ISES General Sleep Exp. (15)	343	.90	.37	42.01	17.00
ISES Lucid Dreaming (3)	343	.74	.48	8.60	4.50
BFI Neuroticism (8)	407	.83	.39	29.22	6.82
BFI Extraversion (8)	407	.83	.39	22.66	7.38
BFI Openness (9)	406	.81	.32	32.83	7.22
BFI Agreeableness (9)	406	.78	.29	33.78	6.53
BFI Conscientiousness (9)	407	.82	.33	30.18	7.27
PANAS NA (10)	348	.91	.49	24.62	9.15
PANAS PA (10)	348	.87	.40	27.90	7.54

Note: AIC = Average Inter-Item correlation, RSAS = Revised Social Anhedonia Scale, SNAP = Schedule for Nonadaptive and Adaptive Personality-Second Edition, ASPD =

Table A2 (continued)

Antisocial Personality Disorder, SPQ = Schizotypal Personality Questionnaire, Exp. = Experiences, STA = Schizotypy Traits Scale, DPS = Dissociative Processes Scale, CES = Curious Experiences Survey, QED = The Questionnaire of Experiences of Dissociation, SCOPI = Schedule of Compulsions, Obsessions, and Pathological Impulses, Obs. = Obsessive, Imp = Impulses, OCI-R = Obsessive-Compulsive Inventory-Revised, IDAS = Inventory of Depression and Anxiety Symptoms, BDI-II = Beck Depression Inventory-II, BAI = Beck Anxiety Inventory, SPS = Social Phobia Scale, SIAS = Social Interaction Anxiety Scale, * = "non-overlapping" version, **=ASPD items that were included in the SNAP Disinhibition and Impulsivity scales, SMAST = Short form of the Michigan Alcoholism Screening Test, DUS = Drug Use Survey, ISES = Iowa Sleep Experiences Scale, BFI = Big Five Inventory, PANAS = Positive and Negative Affect Schedule, PA = Positive Affect, NA = Negative Affect.   Sample sizes differ as some scales were added later in the project. The above represents post item-level imputation, pre item-level imputation values were virtually identical.

Table A3

Descriptive Statistics for the Interview Measures

Scale (range)	ICC	Mean	SD
OI (1-3)			
Social Anxiety	.92	1.91	.80
Hoarding	.92	1.61	.79
Cleaning	.91	1.41	.67
Intrusions	.90	1.55	.79
Checking	.89	1.62	.78
Paranoia	.88	1.50	.68
Obliviousness	.87	1.68	.77
Ordering	.86	1.58	.79
Disinhibition	.85	1.46	.70
Depersonalization	.85	1.32	.65
Impulsivity	.79	1.75	.80
Supernatural Beliefs/Experiences	.78	1.52	.74
Social Anhedonia	.72	1.46	.67
Oddity	.71	1.37	.62
Absorption	.65	1.87	.80
Ideas of Reference	.40	1.26	.54
Sleep Experiences	.77	2.13	.83
OCD (4-15)	.97	7.76	2.60
Dissociation (3-9)	.85	4.88	1.71
STPD (5-15)	.89	7.78	2.11

Table A3 (continued)

Scale (range)	ICC	Mean	SD
IDAS-CR (1-3)			
Appetite Gain	1.00	1.53	.82
Appetite Loss	.97	1.66	.89
Social Anxiety	.94	2.12	.87
Insomnia	.92	1.99	.92
Lassitude	.92	2.46	.77
Suicidality	.83	1.46	.73
Panic	.82	1.66	.85
Dysphoria	.79	2.42	.72
Traumatic Intrusions	.77	1.93	.83
Well-Being	.68	1.67	.56
Ill Temper	.65	1.80	.71
General Depression (6-18)	.91	12.32	2.86
SCID Screeners			
Marijuana Use (1-3)	1.00	1.30	.72
Heavy Drinking (1-3)	.99	1.35	.76
IDAS Panic Attacks (1-3)	.96	1.66	.94
Social Fears (1-3)	.75	1.58	.91
Nightmares, Flashbacks (1-3)	.86	1.63	.93
Depression (2-6)	.95	4.31	1.65
OCD (2-6)	.73	2.62	1.06

Table A3 (continued)

Scale (range)	ICC	Mean	SD
SCID Psychosis Module			
Psychosis Total (9-25)	.79	10.38	2.85
Hallucinations (4-12)	.93	4.64	1.34
Delusions (5-13)	.53	5.73	1.30

Note: ICC = Intraclass correlation coefficient, OI = Oddity Interview, IDAS-CR Inventory of Depression and Anxiety Symptoms - Clinician Rating, SCID = Structured Clinical Interview for DSM-IV Axis I Disorders. OCD = Obsessive Compulsive Disorder. STPD = Schizotypal Personality Disorder. $N = 31$ for OI audiotape reliability ICC, $N = 47$ to 49 for IDAS-CR and SCID audiotape reliability ICC. Total $N = 351$-352 for OI interview, 380-382 for IDAS-CR and SCID. OI, IDAS-CR, and scored 1-3. Hallucinations scored 4-12 and delusions scored 5-13.

Table A4

Candidate Syndromes and Markers for Syndromal Level Analyses

	Measure	
Syndrome	Self-Report	Interview
OCD	SCOPI OCD	OI OCD
	OCI total score	SCID OCD screener
STPD	SPQ Total Score	OI STPD
	STA Total Score	
Dissociative Disorder	QED	OI Dissociation
	DPS Total Score	
	CES Total Score	
Psychotic Disorder	Chapman PERMAG	SCID Psychotic Disorder
Depression	IDAS General Depression	IDAS-CR General Depression
	BDI	SCID MDD Screener
PTSD	IDAS traumatic intrusions	IDAS-CR Traum. Int.
		SCID PTSD Screener

Table A4 (continued)

	Measure	
Syndrome	Self-Report	Interview
Panic Disorder	IDAS Panic	IDAS-CR Panic
	BAI	SCID Panic disorder screener
ASPD	SNAP ASPD items	OI Disinhibition
Alcohol Abuse/Dep	SMAST	SCID Alc. AB/DEP Screener
Drug Abuse/Dep	Drug Use Survey	SCID Drug AB/DEP Screener

Note: AB/DEP = abuse or dependence; Alc = Alcohol; Chapman PERMAG = Perceptual Aberration Scale plus Magical Ideation scale; AB/DEP = Abuse/Dependence; OCD = Obsessive Compulsive Disorder, STPD = Schizotypal Personality Disorder, PTSD = Post Traumatic Stress Disorder, ASPD = Antisocial Personality Disorder. SNAP = Schedule for Nonadaptive and Adaptive Personality-Second Edition, SPQ = Schizotypal Personality Questionnaire, STA = Schizotypy Traits Scale, DPS = Dissociative Processes Scale, CES = Curious Experiences Survey, QED = The Questionnaire of Experiences of Dissociation, SCOPI = Schedule of Compulsions, Obsessions, and Pathological Impulses, IDAS = Inventory of Depression and Anxiety Symptoms, BDI-II = Beck Depression Inventory-II, BAI = Beck Anxiety Inventory, SMAST = Short Form of the Michigan Alcohol Screening Test, SPSSSIAS = Social Phobia Scale + Social Interaction Anxiety Scale, traum. int. = Truamtic Intrusions, OI = Oddity Interview, IDAS-CR Inventory of Depression and Anxiety Symptoms - Clinician Rating, SCID = Structured Clinical Interview for DSM-IV Axis I Disorders.

Table A5

Syndromal Models

Model	Description, factors included and syndromes in each factor
EFA Models	
Model 1	Model(s) based on the EFA
DSM models	
Model 2.1	Mood (Depression); Anxiety (Social Phobia, Panic Disorder, PTSD, OCD); Dissociative Disorders (Dissociative Disorder); Substance Related (Alcohol Abuse/Dependence, Drug Abuse/Dependence); Psychotic Disorders (Psychotic Disorder); Cluster A (STPD); and Cluster B (ASPD). Factors not permitted to correlate.
Model 2.2	Same as above but factors permitted to correlate.

Table A5 (continued)

Model	Description, factors included and syndromes in each factor[1]
Psychosis as Internalizing models[1]	
Model 3.1a	Internalizing with Distress (Depression, PTSD) Fear (Social Phobia, Panic Disorder) and Psychosis (Psychotic Disorder, Dissociative Disorder, STPD, OCD) subfactors; Externalizing
Model 3.1b	Internalizing with Distress (Depression, PTSD), Fear (Social Phobia, Panic Disorder, OCD), and Psychosis (Psychotic Disorder, Dissociative Disorder, STPD) subfactors; Externalizing
Model 3.1c	Internalizing with Distress (Depression, PTSD, OCD); Fear (Social Phobia, Panic Disorder), and Psychosis (Psychotic Disorder, Dissociative Disorder, STPD) subfactors; Externalizing
Model 3.1d	Internalizing with Distress (Depression, OCD), Fear (Social Phobia, Panic Disorder, PTSD), and Psychosis (Psychotic Disorder, Dissociative Disorder, STPD) subfactors; Externalizing
Model 3.1e	Internalizing with Distress (Depression), Fear (Social Phobia, Panic Disorder, OCD, PTSD), and Psychosis (Psychotic Disorder, Dissociative Disorder, STPD) subfactors; Externalizing
Model 3.1f	Internalizing with Distress (Depression), Fear (Social Phobia, Panic Disorder, OCD) and Psychosis (Psychotic Disorder, Dissociative Disorder, STPD, PTSD) subfactors; Externalizing

Table A5 (continued)

Model	Description, factors included and syndromes in each factor
Model 3.2	Internalizing (Depression, PTSD, Social Phobia, Panic Disorder, Psychotic Disorder, Dissociative Disorder, STPD, OCD); Externalizing

Internalizing/Externalizing/Oddity models[1]

OCD in Oddity and PTSD in Internalizing

Model 4A.1a	Internalizing with Distress (Depression, PTSD) and Dear (Social Phobia, IDAS Panic Disorder) subfactors; Externalizing; Oddity (Psychotic Disorder, Dissociative Disorder, STPD, OCD).
Model 4A.1b	Internalizing with Distress (Depression) and Dear (Social Phobia, Panic Disorder, PTSD) subfactors; Externalizing; Oddity (Psychotic Disorder, Dissociative Disorder, STPD, OCD).
Model 4A.2	Internalizing (Depression, PTSD, Social Phobia, Panic Disorder); Externalizing; Oddity (Psychotic Disorder, Dissociative Disorder, STPD, OCD).

OCD splits and PTSD in Internalizing

| Model 4B.1a | Internalizing with Distress (Depression, PTSD) and Fear (Social Phobia, Panic Disorder, OCD) subfactors; Externalizing; Oddity (Psychotic Disorder, Dissociative Disorder, STPD, OCD). |

Table A5 (continued)

Model	Description, factors included and syndromes in each factor
Model 4B.1b	Internalizing with Distress (Depression, PTSD, OCD) and Fear (Social Phobia, Panic Disorder) subfactors; Externalizing; Oddity (Psychotic Disorder, Dissociative Disorder, STPD, OCD).
Model 4B.1c	Internalizing with Distress (Depression) and Dear (Social Phobia, Panic Disorder, PTSD, OCD) subfactors; Externalizing; Oddity (Psychotic Disorder, Dissociative Disorder, STPD, OCD).
Model 4B.1d	Internalizing with Distress (Depression, OCD) and Dear (Social Phobia, Panic Disorder, PTSD) subfactors; Externalizing; Oddity (Psychotic Disorder, Dissociative Disorder, STPD, OCD).
Model 4B.2	Internalizing (Depression, PTSD, Social Phobia, Panic Disorder, OCD); Externalizing; Oddity (Psychotic, Dissociative, STPD, OCD).
OCD and PTSD in Internalizing	
Model 4C.1a	Internalizing with Distress (Depression, PTSD) and fear (Social Phobia, Panic Disorder, OCD) subfactors; Externalizing; Oddity (Psychotic Disorder, Dissociative Disorder, STPD).
Model 4C.1b	Internalizing with Distress (Depression, OCD, PTSD) and Dear (Social Phobia, Panic Disorder) subfactors; Externalizing; Oddity (Psychotic Disorder, Dissociative Disorder, STPD).

Table A5 (continued)

Model	Description, factors included and syndromes in each factor
Model 4C.1c	Internalizing with Distress (depression) and Fear (Social Phobia, Panic Disorder, PTSD, OCD) subfactors; Externalizing; Oddity (Psychotic Disorder, Dissociative Disorder, STPD).
Model 4C.1d	Internalizing with Distress (Depression, OCD) and Fear (Social Phobia, Panic Disorder, PTSD) subfactors; Externalizing; Oddity (Psychotic Disorder, Dissociative Disorder, STPD).
Model 4C.2	Internalizing (Depression, OCD, PTSD, Social Phobia, Panic Disorder); Externalizing; Oddity (Psychotic disorder, Dissociative Disorder, STPD).

OCD in Internalizing and PTSD in Oddity

Model 4D.1a	Internalizing with Distress (depression) and Fear (Social Phobia, Panic Disorder, OCD) subfactors; Externalizing; Oddity (Psychotic Disorder, Dissociative disorder, STPD, PTSD).
Model 4D.1b	Internalizing with Distress (Depression, OCD) and Fear (Social Phobia, Panic Disorder) subfactors; Externalizing; Oddity (Psychotic Disorder, Dissociative disorder, STPD, PTSD).
Model 4D.2	Internalizing (Depression, Social Phobia, Panic Disorder, OCD); Externalizing; Oddity (Psychotic disorder, Dissociative Disorder, STPD, PTSD).

Table A5 (continued)

Model	Description, factors included and syndromes in each factor

OCD and PTSD in Oddity

Model 4E.1 — Internalizing with Distress (Depression) and Fear (Social Phobia, Panic Disorder) subfactors; Externalizing; Oddity (Psychotic disorder, Dissociative disorder, STPD, OCD, PTSD).

Model 4E.2 — Internalizing (Depression, Social Phobia, Panic Disorder); Externalizing; Oddity (Psychotic Disorder, Dissociative Disorder, STPD, PTSD, OCD).

Note: 1=In all models the Externalizing factor consists of (ASPD, Alcohol Abuse/Dependence, and Substance Abuse/Dependence). EFA = Exploratory Factor Analyses, OCD = Obsessive Compulsive Disorder, STPD = Schizotypal Personality Disorder, PTSD = Post Traumatic Stress Disorder, ASPD = Antisocial Personality Disorder

Table A6

Association Between Self-Report and Interview OCD Syndromal Measures

Measure	1	2	3
1. SCOPI			
2. OCI-R	.85		
3. OI OCD	.73	.76	
4. SCID OCD Screener	.46	.50	.47

Note. N = 321-445, SCOPI = Schedule of Compulsions, Obsessions, and Pathological Impulses, OCI-R = Obsessive Compulsive Inventory - Revised, OI = Oddity Interview, SCID = Structured Clinical Interview for DSM-IV Axis I Disorders, OCD = Obsessive Compulsive Disorder.

Table A7

Association Between Self-report and Interview STPD Syndromal Measures

Measure	1	2
1. SPQ		
2. STA	.88	
3. OI STPD	.72	.63

Note. N = 327-429, SPQ = Schizotypal Personality Questionaire, STA = Schizotypy Traits Scale, OI STPD = Oddity Interview Schizotypal Personality, STPD = Schizotypal Personality Disorder.

Table A8

Association Between Self-report and Interview Dissociation Syndromal Measures

Measure	1	2	3
1. QED			
2. DPS	.79		
3. CES	.77	.77	
4. OI Dissociation	.73	.75	.68

Note. N = 306-445, QED = Questionnaire of Experiences of Dissociation, DPS = Dissociative Processes Scale, CES = Curious Experiences Survey, OI = Oddity Interview.

Table A9

Association Between Self-report and Interview Depression Syndromal Measures

Measure	1	2	3
1. IDAS GD			
2. BDI-2	.82		
3. IDAS-CR GD	.80	.69	
4. SCID Depression Screener	.75	.71	.68

Note. N = 366-413, IDAS GD = Inventory of Depression and Anxiety Symptoms General Depression Scale. BDI-2 = Beck Depression Inventory-II. IDAS-CR GD = Inventory of Depression and Anxiety Symptoms-Clinical Rating General Depression Scale. SCID = Semistructured Clinical Interview for DSM-IV.

Table A10

Association Between Self-Report and Interview PTSD Syndromal Measures

Measure	1	2
1. IDAS Traumatic Intrusions		
2. IDAS-CR Traumatic Intrusions	.64	
3. SCID PTSD Screener	.61	.53

Note. N = 378-413. IDAS = Inventory of Depression and Anxiety Symptoms; IDAS-CR

Intr. = Inventory of Depression and Anxiety Symptoms-Clinical Rating; SCID PTSD =

Semistructured Clinical Interview for DSM-IV Post Traumatic Stress Disorder.

Table A11

Association Between Self-report and Interview Social Anxiety Syndromal Measures

Measure	1	2	3	4	5
1. SPSSIAS					
2. SPS	.94				
3. SIAS	.93	.75			
4. IDAS Social Anxiety	.71	.69	.64		
5. IDAS-CR Social Anxiety	.56	.51	.54	.62	
6. SCID Social Phobia Screener	.48	.44	.45	.55	.41

Note. N = 354-417. SPSSIAS = Social Phobia Scale/Social Interaction Anxiety Scale; IDAS = Inventory of Depression and Anxiety Symptoms; IDAS-CR = Inventory of Depression and Anxiety Symptoms – Clinician Rating; SCID = Semistructured Clinical Interview for DSM-IV

Table A12

Association Between Self-report and Interview Panic Syndromal Measures

Measure	1	2	3
1. IDAS Panic			
2. BAI	.79		
3. IDAS-CR Panic	.63	.63	
4. SCID Panic Screener	.47	.53	.61

Note. N = 363-413, IDAS = Inventory of Depression and Anxiety Symptoms, BAI = Beck Anxiety Inventory, IDAS-CR = Inventory of Depression and Anxiety Symptoms – Clinician Rating.

Table A13

Association Between Self-report and Interview Externalizing Syndromal Measures

Measure	1	2	3	4	5
1. SNAP ASPD					
2. OI Disinhibition	.49				
3. SMAST	.29	.20			
4. SCID Alcohol Screener	.24	.24	.21		
5. DUS	.46	.43	.50	.20	
6. SCID Drug Screener	.27	.24	.06	.32	.30

Note. N = 347-441, SNAP ASPD = Schedule for Nonadaptive and Adaptive Personality-Second Edition Antisocial Personality Disorder, OI = Oddity Interview, SMAST = Short Michigan Alcohol Screening Test, SCID = Structured Clinical Interview for DSM-IV, DUS = Drug Use Survey

Table A14

Syndromal EFA Eigenvalues and Parallel Analyses

Factor	Observed EV	Simulated EV
1	4.243	.445
2	.969	.329
3	.424	.246
4	.285	.173
5	.080	.112
6	-.029	.059
7	-.100	.004

Note: EV = Eigen Value

Table A15

Promax-Rotated Factor Loadings for the Syndrome Level Three-Factor Solution

Composite	Oddity	Internalizing	Externalizing
STPD	**.76**	.11	.03
Dissociation	**.74**	.04	-.01
Psychosis	**.71**	-.03	.05
OCD	**.57**	.20	-.04
Depression	.03	**.75**	.01
Panic	.10	**.65**	.06
PTSD	.05	**.58**	.05
Social Phobia	**.36**	**.47**	-.12
Drug Abuse/Dependence	.02	-.01	**.65**
ASPD	.13	.03	**.63**
Alcohol Abuse/Dependence	-.11	.02	**.58**

Note N = 308, loadings ≥ .35 bolded; STPD = Schizotypal Personality Disorder; OCD = Obsessive Compulsive Disorder; PTSD = Post Traumatic Stress Disorder; ASPD = Antisocial Personality Disorder.

Table A16

Promax-Rotated Factor Loadings for the Syndrome Level Four-Factor Solution

Composite	Oddity	Internalizing	Externalizing	Soc Withdrawal
Psychosis	**.73**	.06	.02	-.07
Dissociation	**.73**	.09	-.04	.00
OCD	**.51**	.17	-.06	.14
PTSD	.17	**.62**	.00	-.10
Panic	.12	**.60**	.04	.09
Depression	-.05	**.58**	.02	.31
Drug Ab/Dep	.02	.00	**.66**	-.03
ASPD	.08	.00	**.64**	.07
Alcohol Ab/Dep	-.09	.03	**.58**	-.06
Social Phobia	.04	.15	-.06	**.69**
STPD	**.49**	-.09	.07	**.51**

Note N = 308, loadings ≥ .35 bolded; STPD = Schizotypal Personality Disorder; OCD = Obsessive Compulsive Disorder; PTSD = Post Traumatic Stress Disorder; Ab/Dep = Abuse/Dependence; ASPD = Antisocial Personality Disorder, Soc = Social.

Table A17

Confirmatory Factor Analyses Fit Indices

Model	Chi Square	CFI	TLI	SRMR	RMSEA	AIC	BIC	Sample BIC
Int/Ext/Odd EFA1	153.751	0.912	0.876	0.049	0.092	14672.41	14819.119	14698.569
Int/Ext/Odd EFA2	154.818	0.911	0.871	0.049	0.094	14674.17	14824.741	14701.018
Int/Ext/Odd EFA3	161.962	0.906	0.868	0.051	0.095	14679.871	14826.581	14706.031
Int/Ext/Odd EFA4	187.753	0.886	0.84	0.054	0.104	14706.856	14853.566	14733.016
Int/Ext/Odd EFA5	161.027	0.908	0.873	0.051	0.093	14677.872	14820.721	14703.343
DSM 2.1	1078.033	0.215	0.154	0.31	0.24	15687.752	15788.132	15705.651
DSM 2.2	205.238	0.866	0.755	0.098	0.129	14751.982	14933.439	14784.337
Int/Ext 3.1a	*NA*							
Int/Ext 3.1b	*NA*							

Table A17 (continued)

Model	Chi Square	CFI	TLI	SRMR	RMSEA	AIC	BIC	Sample BIC
Int/Ext 3.1c	*NA*							
Int/Ext 3.1d	*NA*							
Int/Ext3.1e	285.251	0.814	0.757	0.098	0.128	14805.54	14940.667	14829.634
Int/Ext 3.1f	*NA*							
Int/Ext 3.2	222.749	0.863	0.824	0.06	0.109	14740.254	14871.521	14763.66
Int/Ext/Odd 4A.1a	*NA*							
Int/Ext/Odd 4B.1b	*NA*							
Int/Ext/Odd 4B.1c	173.42	0.898	0.86	0.054	0.097	14693.018	14835.867	14718.489
Int/Ext/Odd 4B.1d	*NA*							
Int/Ext/Odd 4B.2	162.713	0.906	0.871	0.05	0.093	14680.95	14823.799	14706.422

Table A17 (continued)

Model	Chi Square	CFI	TLI	SRMR	RMSEA	AIC	BIC	Sample BIC
Int/Ext/Odd 4C.1a	NA							
Int/Ext/Odd 4C.1b	NA							
Int/Ext/Odd 4C.1c	208.556	0.872	0.828	0.057	0.108	14728.952	14867.94	14753.735
Int/Ext/Odd 4C.1d	NA							
Int/Ext/Odd 4C.2	191.573	0.885	0.846	0.054	0.102	14709.963	14848.951	14734.746
Int/Ext/Odd 4D.1a	224.481	0.86	0.812	0.06	0.113	14745.757	14884.745	14770.54
Int/Ext/Odd 4D.1b	NA							
Int/Ext/Odd 4D.2	209.496	0.871	0.827	0.058	0.108	14729.092	14868.08	14753.875
Int/Ext/Odd 4E.1	205.63	0.874	0.831	0.059	0.107	14725.839	14864.827	14750.622
Int/Ext/Odd 4E.2	193.922	0.883	0.843	0.057	0.103	14712.726	14851.714	14737.509

Table A17 (continued)

Model	Chi Square	CFI	TLI	SRMR	RMSEA	AIC	BIC	Sample BIC
Int/Ext/Odd 4B.2M	**90.326**	**0.961**	**0.945**	**0.043**	**0.061**	**14605.411**	**14752.121**	**14631.571**
Int/Ext/Odd 4A.2M	96.842	0.957	0.940	0.045	0.064	14610.197	14753.046	14635.668
Int/Ext/Odd 4C2.M	125.168	0.935	0.911	0.050	0.078	14641.141	14783.990	14666.612

Note: NA = Not Available because the model would not converge or a matrix was not positive definite, Bold = best fit, M = modified, CFI = Comparative Fit Index, TLI = Tucker-Lewis Index, SRMR = Standardized Root Mean Squared Residual, RMSEA = Root Mean Square Error of Approximation, AIC = Akaike Information Criteria, BIC = Bayesian Information Criteria.

Table A18

Convergent Correlations Between the Self-Report and Interview Sleep Measures

	OI sleep experiences
ISES Total	.55
ISES General Sleep Experiences	.58
ISES Lucid Dreams	.30

Note: N= 307, ISES = Iowa Sleep Experiences Survey, OI = Oddity Interview.

Table A19

Correlations Between Best Fitting Model and External Correlates

	Internalizing	Oddity	Externalizing
Neuroticism	**.58***	<u>.43</u>*	.19*
Extraversion	-.23*	-.16*	.01
Openness	-.06	-.02	-.01
Agreeableness	<u>-.35</u>*	-.34*	-.28*
Conscientiousness	-.27*	-.26*	-.32*
Positive Affect	-.31*	-.22*	-.15*
Negative Affect	**.67***	<u>.61</u>*	<u>.37</u>*
Sleep Experiences	<u>.45</u>*	**.50***	.28*

Note: ** indicates *p* < .001. *Ns* = 307-374. The strongest correlation in each row is bolded if > .35; correlations ≥ .35 are underlined if not bolded.

Table A20

Standardized Regression Beta Weights for the Best Fitting Model and External Correlates

	Internalizing	Oddity	Externalizing
Neuroticism	**.77****	-.19*	-.06
Extraversion	-.33**	.05	.14*
Openness	-.17	.13	.00
Agreeableness	-.23*	-.08	-.13*
Conscientiousness	-.20*	.05	-.26**
Positive Affect	**-.46****	.21	-.06
Negative Affect	**.58****	.07	.07
Sleep Experiences	.07	**.43****	.01

Note: ** $= p \leq .01$, * $= p \leq .05$. $N = 307\text{-}374$. The strongest coefficient in each row is bolded if $> .35$; correlations $\geq .35$ are underlined if not bolded.

Table A21

Potential Measures for Symptom Level Analyses

Symptom	Self-report	Interview
Psychotic/Schizotypy/Cluster A		
Unsl. Belief/Exp.	SPQ, SNAP	OI
Halluc/Percp Exp.	STA, PAS	SCID
Delusions/Mag Idea	STA, MIS	SCID
Paranoia	SPQ, SNAP, STA	OI
Ideas of Reference	REF	OI
Eccentricity/Oddity	SPQ	OI
Social Anhedonia	SPQ, RSAS, SNAP	OI
Social Anxiety	STA, SPQ	OI
Dissociation		
Obliviousness	DPS	OI
Depersonalization	DPS	OI
Absorption	DPS	OI
OCD		
Checking/Doubting	SCOPI, OCI-R	OI
Cleaning/Washing	SCOPI, OCI-R	OI
Int. Thoughts/Obses	OCI-R	OI
Ordering	SCOPI, OCI-R	OI
Hoarding	SCOPI, OCI-R	OI

Table A21 (continued)

Symptom	Self-report	Interview
Internalizing		
Suicidality	IDAS	IDAS-CR
Lassitude	IDAS	IDAS-CR
Insomnia	IDAS	IDAS-CR
Appetite Loss	IDAS	IDAS-CR
Appetite Gain	IDAS	IDAS-CR
Ill Temper	IDAS	IDAS-CR
Well Being	IDAS	IDAS-CR
Panic	IDAS	IDAS-CR
Social Anxiety	IDAS, SPS, SIAS	IDAS-CR, SCID
Traumatic Intrusions	IDAS	IDAS-CR, SCID
Dysphoria	IDAS	IDAS-CR
Externalizing		
Impulsivity	SNAP	OI
Disinhibition	SNAP	OI
Alcohol AB/DEP	SMAST	SCID screener
Drug AB/DEP	DUS	SCID screener

Table A21 (continued)

Symptom	Self-report	Interview
Unclear/Unknown		
	CES depersonalization	
	CES Absorption	
	CES Amnesia	
	SCOPI pathological Impulses	
	OCI-R Neutralizing	

Note: Unsl. = Unusual, Exp = Experiences, Halluc = Hallucinations, Percp = Perceptions, Mag Idea = Magical Ideation, OCD = Obsessive Compulsive Disorder, Int. Thoughts/Obses = Intrusive thoughts/Obsessions; AB/DEP = abuse or dependence; PAS = Perceptual Aberration Scale, MIS = Magical Ideation scale, SNAP = Schedule for Nonadaptive and Adaptive Personality-Second Edition, SPQ = Schizotypal Personality Questionnaire, STA = Schizotypy Traits Scale, DPS = Dissociative Processes Scale, CES = Curious Experiences Survey, SCOPI = Schedule of Compulsions, Obsessions, and Pathological Impulses, IDAS = Inventory of Depression and Anxiety Symptoms, OCI-R = Obsessive Compulsive Inventory-Revised, SMAST = Short Form of the Michigan Alcohol Screening Test, SPS = Social Phobia Scale, SIAS = Social Interaction Anxiety Scale, OI = Oddity Interview, IDAS-CR Inventory of Depression and Anxiety Symptoms - Clinician Rating, SCID = Structured Interview for *DSM*-IV.

Table A22

SPQ EFA Eigenvalues and Parallel Analyses

_____

Factor	Mplus Observed EV	SAS	
		Observed EV	Simulated EV
1	26.144	7.424	.681
2	8.943	1.735	.587
3	3.976	.750	.528
4	2.930	.577	.471
5	2.684	.471	.427
6	2.343	.391	.381
7	2.152	.359	.344
8	1.896	.246	.304
9	1.455	.236	.270
10	1.342	.176	.236
11	1.306	.164	.203
12	1.274	.097	.170

_____

Note: EV = Eigen Value

Table A23

Promax-Rotated Factor Loadings of SPQ Items

Item/Scale	Paraphrased Item	1	2	3	4	5
47MT	**experiences with astrology, UFOs, ESP, etc.**	.97	-.14	.11	-.34	.14
30MT	**Do you believe in clairvoyance**	.90	-.13	.09	-.27	.03
12MT	**Do you believe in telepathy (mind-reading)**	.87	-.18	.07	-.15	.12
55MT	**communicating with another person telepathically**	.77	-.11	.03	.11	-.05
40UP	**have you ever seen things invisible to other people**	.75	.05	-.05	-.01	.18
03MT	**experiences with the supernatural**	.73	-.03	.25	-.26	-.04
13UP	**sense person or force even though cannot see anyone**	.72	.06	.18	-.05	.00
28IR	common event or object seemed to be a special sign	.64	.07	.02	.21	-.07
37IR	special meanings in advertisements, shop windows, etc.	.64	.19	-.24	.33	-.10
31UP	**hear a voice speaking my thoughts aloud**	.55	-.07	-.06	.31	.24
01IR	things on TV or newspaper have special meaning	.54	.12	-.19	.27	-.15
22UP	**face change right before your eyes**	.54	-.04	-.08	.14	.10
64UP	**thoughts so strong that you can almost hear them**	.44	.15	.17	.25	-.05
56UP	**sense of smell sometimes becomes unusually strong**	.41	.05	.06	.22	-.05
04UP	**mistake objects/shadows for people/noises for voices**	.41	.07	.16	.29	-.02
61UP	distracted by distant sounds not normally aware of	.36	.02	.18	.26	.00
38SX	**nervous in a group of unfamiliar people**	-.03	.82	.11	.03	.12
29SX	**anxious when meeting people for the first time**	-.15	.81	.07	-.06	.19

Table A23 (continued)

Item/Scale	Paraphrased Item	1	2	3	4	5
46SX	**very uncomfortable with unfamiliar people**	-.02	.81	.02	-.06	.23
71SX	**very uneasy talking to people I do not know well**	-.07	.77	-.02	-.05	.30
54SX	**very anxious if I had to give a speech**	-.03	.70	-.23	.10	.13
02SX	**avoid places with many people because of anxiety**	.11	.60	.09	-.02	.18
11SX	**very nervous when I have to make polite conversation**	-.03	.57	.03	.10	.29
20SX	get nervous when someone is walking behind	.02	.43	.07	.20	-.03
23OE	**other people think that I am a little strange**	.06	.10	.96	-.16	-.02
05OE	**people see me as slightly eccentric**	.10	-.07	.92	-.16	-.01
70OE	**I have some eccentric (odd) habits**	.18	.00	.86	-.22	-.15
67OE	**I am an odd, unusual person**	.13	.07	.81	-.09	.03
32OE	**people think that I am a very bizarre person**	.13	-.08	.78	.06	.04
14OE	**People comment on my unusual mannerisms/habits**	.13	-.09	.71	.08	-.05
16OS	**jump quickly from one topic to another while speaking**	-.12	-.11	.68	.26	-.05
58OS	**wander off the topic during conversation**	-.21	-.04	.64	.39	.02
07OS	**people find it hard to understand what I am saying**	-.04	.12	.58	.09	.12
50OS	**use words in unusual ways**	.23	.00	.57	-.05	-.07
72OS	**people comment that my conversation is confusing**	-.01	.17	.55	.14	.13
34OS	ramble on too much when speaking	-.08	-.06	.54	.31	-.03
25OS	I sometimes forget what I am trying to say	-.02	.20	.35	.21	-.03

Table A23 (continued)

Item/Scale	Paraphrased Item	1	2	3	4	5
42OS	vague and elusive during a conversation	.01	.15	.35	.07	.32
69OS	hard to communicate clearly to people	-.10	.28	.31	.13	.31
59SP	**feel that others have it in for me**	-.02	-.22	-.11	.99	.26
18SP	**other people have got it in for you**	-.08	-.31	.06	.93	.30
63IR	**do you feel that people are talking about you**	-.11	.24	.03	.91	-.16
09SP	**sure I am being talked about behind my back**	-.10	.11	.03	.88	-.01
53IR	**see people talking wonder if they are talking about you**	.02	.27	-.12	.73	-.06
44SP	**pick up hidden threats or put-downs**	.06	.04	.04	.64	.17
60IR	**feel that other people are watching you**	.14	.25	.02	.60	.01
19IR	**people drop hints about you**	.13	-.14	.11	.58	.14
45IR	when shopping other people are taking notice of you	.09	.30	.07	.56	-.10
65SP	have to stop people from taking advantage of you	.17	-.07	-.04	.53	.36
27SP	friends or co-workers are not really loyal or trustworthy	-.02	.09	.02	.51	.31
21MT	other people can tell what you are thinking	.37	.16	-.19	.47	-.13
48UP	things seem unusually large or small	.16	-.14	.03	.45	.16
10IR	people notice me when out for a meal or a film	.16	.21	.11	.34	-.16
39MT	other people feel your feelings when they are not there	.36	-.10	.13	.36	-.08
74OE	people stare at me because of my odd appearance	.10	.08	.26	.30	.01

Table A23 (continued)

Item/Scale	Paraphrased Item	1	2	3	4	5
15NF	**I prefer to keep to myself**	.04	.15	-.04	-.18	.86
52SP	best not to let other people know too much about you	.16	-.01	-.06	.05	.82
33NF	**hard to be emotionally close to other people**	.03	.05	.05	-.04	.80
06NF	**little interest in getting to know other people**	-.11	-.08	-.05	.04	.79
73CA	**I tend to keep my feelings to myself.**	.24	.18	-.11	-.26	.78
62NF	**little importance to having close friends**	.03	-.14	-.21	.24	.77
66NF	**unable to get close to people**	.07	.01	-.03	.15	.74
57NF	keep in the background on social occasions	.07	.43	-.04	-.15	.61
24NF	mostly quiet when with other people	.01	.50	-.12	-.22	.60
26CA	**I rarely laugh and smile**	.00	.19	-.08	.13	.60
17CA	**poor at expressing my feelings by the way I talk/look**	.07	.14	.17	.00	.58
41NF	**no one close outside of immediate family**	-.08	-.12	.10	.29	.57
36SP	have to be on my guard even with friends	.09	.07	-.02	.36	.54
08CA	people sometimes find me aloof and distant	.07	.18	.35	-.14	.53
35CA	non-verbal communication is poor	-.17	.03	.18	.22	.51
49NF	**writing letters to friends more trouble than it's worth**	-.07	-.12	.04	.28	.50
43CA	poor at returning social courtesies and gestures	-.09	.11	.19	.11	.46
68CA	**I do not have an expressive and lively way of speaking**	-.02	.27	-.17	.07	.43
51CA	avoid eye contact when conversing with others	-.25	.21	.24	.13	.32

Note: Items selected for the final scale represented each factor are in bold. MT = Magical Thinking, UP = Unusual Perceptions, IR= Ideas of Reference, SX = Social Anxiety, OE = Odd or Eccentric Behavior, OS = Odd Speech, SP = Suspiciousness, NF = No Close Friends, CA = Constricted Affect.

Table A24

STA EFA Eigenvalues and Parallel Analyses

Factor	Mplus Observed EV	SAS Observed EV	Simulated EV
1	14.961	7.432	.681
2	3.678	1.735	.587
3	1.642	.750	.529
4	1.514	.577	.471
5	1.453	.471	.427
6	1.218	.391	.381
7	1.125	.359	.344
8	1.007	.246	.304

Note: EV = Eigen Value

Table A25

Correlations Between the Self-Report Symptom Measures of Dissociation

Scale	1	2	3	4	5
1. DPS Obliviousness					
2. DPS Imagination	.43				
3. DPS Detachment	.64	.52			
4. CES Depersonalization	.50	.42	.69**		
5. CES Absorption	.68**	.57*	.63	.66	
6. CES Amnesia	.55*	.29	.49	.60	.58

Note: $N = 342$, DPS = Dissociative Processes Scale, CES = Curious Experiences Survey. *Indicates a scale's highest correlation in the other instrument. **Indicates two scales across instruments that have their highest correlations with each other.

Table A26

Correlations Between the Self-Report Symptom Measures of OCD

Scale	1	2	3	4	5	6	7	8	9	10
1. SCOPI Checking										
2. SCOPI Cleaning	.50									
3. SCOPI Compulsive Rituals	.60	.50								
4. SCOPI Hoarding	.46	.27	.30							
5. SCOPI Pathological Impulses	.37	.09	.18	.18						
6. OCI-R Checking	.81**	.50	.57	.40	.22					
7. OCI-R Washing	.55	.76**	.49	.29	.19	.60				
8. OCI-R Ordering	.57	.44	.69**	.29	.21	.60	.50			
9. OCI-R Hoarding	.38	.21	.23	.85**	.15	.37	.27	.27		
10. OCI-R Obsessing	.60*	.24	.33	.25	.43*	.46	.42	.43	.27	
11. OCI-R Neutralizing	.59*	.41	.54	.26	.22	.69	.57	.56	.27	.43

Table A26 (continued)

Note. *N= 321-445.* SCOPI= Schedule of Compulsions, Obsessions, and Pathological Impulses, OCI-R = Obsessive-Compulsive Inventory—Revised, *Indicates a scale's highest correlation in the other instrument. **Indicates two scales across instruments that have their highest correlations with each other.

Table A27

Correlations Between the Self-Report Symptom Measures of Positive Schizotypy and the DPS

Scale	1	2	3	4	5	6	7	8
1. DPS Obliviousness								
2. DPS Imagination	.43							
3. DPS Detachment	.64	.52						
4. SNAP Eccentric Perceptions	.57	.51	.74					
5. CHAPMAN MIS	.42	.43	.55	.73				
6. CHAPMAN PAS	.48	.41	.61	.73	.68			
7. SPQ UB/UE	.42	.34	.50	.70	.75**	.59		
8. STA MI	.45	.36	.53	.69	.73	.57	.81**	
9. STA UP	.58	.39	.63	.74	.62	.74	.63	.65

Note: N = 309-445. DPS = Dissociative Processes Scale, SNAP = Schedule for Nonadaptive and Adaptive Personality-Second Edition, SPQ UB/UE = SPQ Unusual Beliefs or Unusual Experiences scale, STA = Schizotypy Traits Scale, MIS = Magical Ideation Scale, PAS = Perceptual Aberration Scale, MI = Magical Ideation, UP = Unusual Perceptions. **Indicates two scales across instruments that have their highest correlations with each other.

Table A28

Correlations Between the Self-Report Symptom Measures of Paranoia, Social Anhedonia, Social Anxiety, and Ideas of Reference

Scale	1	2	3	4	5	6	7	8	9	10
1. SNAP Mistrust										
2. SPQ Mistrust	.73									
3. STA Paranoia	.77	.80**								
4. REF	.64	.76	.68							
5. SNAP Detachment	.48	.34	.53	.29						
6. RSAS	.58	.43	.55	.39	.76					
7. SPQ Social Anhedonia	.64	.50	.69	.46	.75	.77**				
8. SPQ Social Anxiety	.47	.46	.67	.42	.53	.43	.55			
9. SPS	.59	.65	.74	.65	.43	.48	.53	.66		
10. SIAS	.52	.53	.74	.47	.60	.51	.62	.76**	.75	
11. IDAS Social Anxiety	.50	.55	.63	.50	.45	.39	.48	.59	.69	.64

Note: $N = 309\text{-}445$. REF = The Referential Thinking Scale, RSAS = Revised Social Anhedonia Scale, SPQ = Schizotypal Personality Questionnaire, STA = Schizotypy Traits Scale, SNAP = Schedule for Adaptive and Nonadaptive Personality – 2nd edition, SPS = Social Phobia Scale, SIAS = Social Interaction Anxiety Scale, IDAS = Inventory of Depression and Anxiety Symptoms. **Indicates two scales across instruments that have their highest correlations with each other.

Table A29

Final Measures to be Included in EFAs

Symptom	Self-report	Interview
ODDITY		
Dissociation		
Obliviousness	DPS Obliviousness	OI
Depersonalization	DPS Depersonalization	OI
Absorption	DPS Absorption	OI
OCD		
Checking	Comp. Check(SCOPI, OCI-R)	OI
Cleaning	Comp. Clean (SCOPI, OCI-R)	OI
Ordering	Comp. Order (SCOPI, OCI-R)	OI
Hoarding	Comp. Hoard (SCOPI, OCI-R)	OI
Obsessing/Intrusive Thoughts	OCI-R Obsessing	OI
Positive Schizotypy		
Magical Ideation	Comp. (STA, Chapman)	SCID
Unusual Perceptions	Comp. (STA, Chapman)	SCID
Paranoia/Mistrust	SNAP Mistrust	OI
Ideas of References	REF	OI
Social Anhedonia	Comp. (SNAP Detach, RSAS)	OI
Social Anxiety	SPQ Social Anxiety	OI
Oddity	SPQ Oddity	OI
INTERNALIZING		
Social Anxiety	IDAS	IDAS-CR
Suicidality	IDAS	IDAS-CR
Lassitude	IDAS	IDAS-CR
IDAS Insomnia	IDAS	IDAS-CR
Appetite Loss	IDAS	IDAS-CR
Appetite Gain	IDAS	IDAS-CR
Ill Temper	IDAS	IDAS-CR
Well Being	IDAS	IDAS-CR
IDAS Panic	IDAS	IDAS-CR
Traumatic Intrusions	IDAS	IDAS-CR

Table A29 (continued)

Symptom	Self-report	Interview
IDAS Dysphoria	IDAS	IDAS-CR
<u>EXTERNALIZING</u>		
Disinhibition*	SNAP	OI
Impulsivity	SNAP	OI
Alcohol Abuse/Dependence	SMAST	SCID
Drug Abuse/Dependence	DUS	SCID

Note: Comp. = Composite; Ab/Dep = Abuse/Dependence; OI = Oddity Interview; IDAS = Inventory of Depression and Anxiety Symptoms, IDAS = Inventory of Depression and Anxiety Symptoms – Clinician Rating, SPQ = Schizotypal Personality Questionnaire, SNAP = Schedule for Nonadaptive and Adaptive Personality-Second Edition, DPS = Dissociative Processes Scale, REF = The Referential Thinking Scale, * = "non-overlapping" version, SCOPI = Schedule of Compulsions Obsessions, and Pathological Impulses, SCID = Structured Interview for *DSM*-IV, OCI-R = Obsessive-Compulsive Inventory-Revised, SMAST = Short form of the Michigan Alcoholism Screening Test, DUS = Drug Use Scale

Table A30

Self-Report Symptom Level EFA Eigenvalues and Parallel Analyses

Factor	Observed EV	Simulated EV
1	9.673	.703
2	2.019	.606
3	1.551	.541
4	1.045	.482
5	.872	.434
6	.765	.392
7	.587	.349
8	.351	.310
9	.341	.276
10	.227	.241
11	.209	.209
12	.182	.177

Note: EV = Eigen Value

Table A31

Promax-Rotated Factor Loadings for the Symptom Level Self-Report Three-Factor Solution

Measure	Internalizing	Oddity	Externalizing
IDAS Dysphoria	**.96**	-.09	.01
IDAS Social Anxiety	**.73**	.12	-.05
IDAS Lassitude	**.68**	-.04	-.01
IDAS Suicidality	**.67**	.01	.04
IDAS Panic	**.61**	.16	-.01
IDAS Traumatic Intrusions	**.56**	.12	.05
IDAS Insomnia	**.55**	.06	.00
COMP. Social Anhedonia	**.50**	.07	.00
IDAS Ill Temper	**.48**	.08	.08
SPQ Social Anxiety	**.47**	.18	-.08
SNAP Mistrust	**.44**	.24	.19
IDAS Appetite Loss	**.42**	.04	.07
IDAS Appetite Gain	.27	.02	.00
IDAS Well Being	**-.73**	.28	.07
COMP. Ordering	.02	**.79**	-.29
COMP. Checking	.15	**.79**	-.20
COMP. Cleaning	.02	**.72**	-.24
COMP. UP	-.01	**.63**	.31
COMP. MI	-.06	**.61**	.31
DPS Detachment	-.01	**.58**	.24
DPS Obliviousness	.25	**.51**	.14
DPS Imagination	-.19	**.48**	.28
COMP. Hoarding	-.04	**.47**	-.04

Table A31 (continued)

Measure	Internalizing	Oddity	Externalizing
REF	.17	**.44**	.24
OCI-R Obsessing	.32	**.44**	.13
SNAP Disinhibition*	.07	-.10	**.78**
SNAP Impulsivity	.04	-.17	**.76**
DUS	.00	-.05	**.57**
SPQ Oddity	.05	.36	**.42**
SMAST	-.05	.00	**.36**

Note N = 406. Loadings $\geq$ .35 bolded; IDAS = Inventory of Depression and Anxiety Symptoms, COMP. = Composite, SPQ = Schizotypal Personality Questionnaire, SNAP = Schedule for Nonadaptive and Adaptive Personality-Second Edition, DPS = Dissociative Processes Scale, REF = The Referential Thinking Scale, * = "non-overlapping" version, OCI-R = Obsessive-Compulsive Inventory-Revised, SMAST = Short form of the Michigan Alcoholism Screening Test, DUS = Drug Use Scale, UP = Unusual Perceptions, MI = Magical Ideation.

Table A32

Promax-Rotated Factor Loadings for the Symptom Level Self-Report Four-Factor Solution

Measure	Internalizing	Oddity	Externalizing	Soc. Alien.
IDAS Dysphoria	**.93**	-.11	-.03	.17
IDAS Lassitude	**.72**	-.06	-.07	.05
IDAS Traumatic Intrusions	**.71**	.10	-.08	-.11
IDAS Suicidality	**.71**	-.01	-.03	.04
IDAS Panic	**.70**	.14	-.10	-.02
IDAS Social Anxiety	**.58**	.12	-.02	.30
IDAS Ill Temper	**.57**	.07	.00	-.04
IDAS Insomnia	**.56**	.05	-.04	.08
IDAS Appetite Loss	**.47**	.03	.01	-.01
IDAS Appetite Gain	.25	.01	.00	.06
IDAS Well Being	**-.50**	.28	-.02	-.39
COMP. Order	-.10	**.80**	-.25	.21
COMP. Checking	.01	**.79**	-.14	.26
COMP. Cleaning	-.03	**.72**	-.24	.11
COMP. UP	.14	**.63**	.20	-.16
COMP. MI	.10	**.61**	.20	-.18
DPS Detachment	.20	**.58**	.10	-.23
DPS Obliviousness	.23	**.51**	.11	.08
DPS Imagination	.01	**.48**	.16	-.26
COMP. Hoarding	-.13	**.48**	.00	.14
REF	.08	**.46**	.27	.17
OCI-R Obsessing	.27	**.44**	.12	.13
SNAP Disinhibition*	-.03	-.07	**.82**	.13

Table A32 (continued)

Measure	Internalizing	Oddity	Externalizing	Soc. Alien.
SNAP Impulsivity	.07	-.15	**.74**	-.04
DUS	-.09	-.02	**.62**	.12
SMAST	-.21	.03	**.45**	.20
SPQ Oddity	.05	**.37**	**.40**	.03
SPQ Social Anxiety	.09	.20	.10	**.56**
COMP. Social Anhedonia	.14	.09	.18	**.55**
SNAP Mistrust	.18	.26	.30	**.42**

Note N = 406, loadings ≥ .35 bolded; Soc. Alien = Social Alienation, IDAS = Inventory of Depression and Anxiety Symptoms, COMP. = Composite, SPQ = Schizotypal Personality Questionnaire, SNAP = Schedule for Nonadaptive and Adaptive Personality-Second Edition, DPS = Dissociative Processes Scale,, REF = The Referential Thinking Scale, * = "non-overlapping" version, OCI-R = Obsessive-Compulsive Inventory-Revised, SMAST = Short form of the Michigan Alcoholism Screening Test, DUS = Drug Use Scale, UP = Unusual Perceptions, MI = Magical Ideation.

Table A33

Interfactor Correlations of the Symptom Level Self-Report Four Factor Solution

Measure	1	2	3
1. Internalizing			
2. Oddity	.56		
3. Externalizing	.47	.45	
4. Social Alienation	.27	.14	-.04

Note: N = 406.

Table A34

Promax-Rotated Factor Loadings for the Symptom Level Self-Report Five-Factor

 Solution

Measure	Internalizing	Oddity	Social Alienation	OCD	Externalizing
IDAS Dysphoria	**.78**	-.03	.30	-.10	-.04
IDAS Traumatic Int.	**.69**	.15	-.10	.01	-.02
IDAS Panic	**.68**	.08	-.01	.08	-.01
IDAS Appetite Loss	**.61**	-.15	-.16	.13	.24
IDAS Suicide	**.60**	.11	.15	-.08	-.07
IDAS Insomnia	**.58**	-.08	.03	.10	.09
IDAS Ill Temper	**.57**	.08	-.04	.02	.06
IDAS Lassitude	**.54**	.12	.22	-.14	-.16
COMP. UP	.10	**.73**	-.09	.16	.02
DPS Imagination	-.05	**.71**	-.17	.04	-.06
DPS Detachment	.16	**.69**	-.17	.14	-.04
SPQ Oddity	-.10	**.66**	.20	-.04	.07
COMP. MI	.12	**.64**	-.18	.21	.10
DPS Obliviousness	.10	**.53**	.22	.16	-.07
REF	.00	**.43**	.25	.18	.11
SNAP Impulsivity	.01	**.43**	.05	**-.38**	**.41**
OCI-R Obsessing	.19	**.38**	.20	.19	.03
SPQ Social Anxiety	-.08	-.04	**.70**	.20	.00
COMP. Soc. Anh.	.04	-.15	**.61**	.17	.14
SNAP Mistrust	.11	.09	**.46**	.19	.24
IDAS Social Anxiety	.42	.05	**.45**	.07	-.08
IDAS Appetite Gain	.01	.28	.31	-.17	-.27

Table A34 (continued)

Measure	Internalizing	Oddity	Social Alienation	OCD	Externalizing
IDAS Well Being	-.35	.29	**-.51**	.11	.00
COMP. Ordering	.02	.07	.06	**.72**	.01
COMP. Checking	.02	.23	.23	**.61**	-.05
COMP. Cleaning	.08	.13	-.01	**.61**	-.03
COMP. Hoarding	-.18	.28	.19	.28	-.06
DUS	.06	.03	-.04	-.01	**.63**
SNAP Disinhibition*	-.02	.30	.14	-.22	**.58**
SMAST	-.01	-.15	-.02	.15	**.58**

Note: $N = 406$. Loadings $\geq .35$ bolded; REF= Referential Thinking Scale, UP = unusual perceptions, MI = magical ideation, Soc. Anh. = Social Anhedonia, Int. = Intrusions, SMAST = Short form of the Michigan Alcoholism Screening Test, DUS = Drug Use Scale, SNAP = Schedule for Nonadaptive and Adaptive Personality, * = "non-overlapping" version. IDAS = Inventory of Depression and Anxiety Symptoms, COMP. = Composite, SPQ = Schizotypal Personality Questionnaire, DPS = Dissociative Processes Scale, REF = The Referential Thinking Scale, * = "non-overlapping" version, OCI-R = Obsessive-Compulsive Inventory-Revised, SMAST = Short form of the Michigan Alcoholism Screening Test, DUS = Drug Use Scale, UP = Unusual Perceptions, MI = Magical Ideation.

Table A35

Interfactor Correlations of the Symptom Level Self-Report Five Factor Solution

Measure	1	2	3	4
1. Internalizing				
2. Oddity	.51			
3. Social Alienation	.54	.45		
4. OCD	.33	.35	.22	
5. Externalizing	.25	.40	.26	.11

Note: $N = 406$. OCD = Obsessive Compulsive Disorder.

Table A36

Correlations Between the Three-Factor Self-Report Symptom Model and External

Correlates

Measure	Internalizing	Oddity	External
Neuroticism	**.68****	<u>.38**</u>	.26**
Extraversion	**-.40****	-.13*	.05
Openness	-.21**	.01	.03
Agreeableness	**-.39****	-.25**	-.32**
Conscientiousness	<u>-.35**</u>	-.19**	**-.48****
Positive Affect	**-.44****	-.09	-.15**
Negative Affect	**.70****	<u>.53**</u>	<u>.44**</u>
Sleep Experiences	<u>.37**</u>	**.53****	<u>.44**</u>

Note: $N = 341\text{-}374$. **$p \leq .01$, *$p \leq .05$. The strongest correlation in each row is bolded if $> .35$; correlations $\geq .35$ are underlined if not bolded.

Table A37

Regression Analyses with the Three-Factor Self-Report Symptom Model and External

Correlates

Measure	Internalizing	Oddity	External
Neuroticism	**.71****	-.01	-.05
Extraversion	**-.55****	.07	.26**
Openness	**-.36****	.17**	.11
Agreeableness	-.31**	.02	-.19**
Conscientiousness	-.26**	.18**	**-.45****
Positive Affect	**-.59****	.25**	.07
Negative Affect	**.56****	.15**	.12**
Sleep Experiences	.02	**.41****	.23**

Note: $N = 341\text{-}374$. *Note:* **$p \leq .01$. The strongest coefficient in each row is bolded if $\geq .35$; correlations $\geq .35$ are underlined if not bolded.

Table A38

Correlations Between the Five-Factor Model and External Correlates

Measure	Internalizing	Oddity	Social Alienation	OCD	Externalizing
Neuroticism	.59**	.35**	**.67****	.23**	.17**
Extraversion	-.24**	-.02	**-.56****	-.15**	.02
Openness	-.08	.10*	**-.38****	-.07	-.10*
Agreeableness	-.31**	-.29**	**-.44****	-.11*	-.29**
Conscientiousness	-.27**	-.40**	**-.42****	.12*	-.32**
Positive Affect	-.31**	-.11*	**-.55****	.00	-.14*
Negative Affect	.63**	.54**	**.66****	.32**	.33**
Sleep Experiences	.43**	**.59****	.21**	.30**	.24**

Note: N = 341-374. **p ≤ .01, *p ≤ .05. The strongest correlation in each row is bolded if ≥ .35; correlations ≥ .35 are underlined if not bolded.

Table A39

Regression Analyses With the Five-Factor Self-Report Symptom Model and External

Correlates

Measure	Internalizing	Oddity	Social Alienation	OCD	Extern.
Neuroticism	.30**	-.06	**.52****	.01	-.04
Extraversion	.09	.30	**-.77****	-.10*	.09*
Openness	.15*	.44**	**-.61****	-.11*	-.15**
Agreeableness	-.01	-.04	**-.37****	.03	-.16**
Conscientiousness	.04	-.35**	-.35**	.35**	-.10*
Positive Affect	-.05	.21**	**-.63****	.10	-.03
Negative Affect	.27**	.15**	**.39****	.05	.05
Sleep Experiences	.26**	**.56****	-.24**	-.02	-.03

Note: N = 341-374, **p ≤ .01, *p ≤ .05. OCD = Obsessive Compulsive Disorder,
Extern. = Externalizing. The strongest coefficient each row is bolded if > .35;
correlations ≥ .35 are underlined if not bolded.

Table A40

Interview Symptom Level EFA Eigenvalues and Parallel Analyses

Factor	Mplus Observed EV	SAS Observed EV	Simulated EV
1	8.108	5.129	.818
2	2.301	4.691	.697
3	2.034	1.010	.616
4	1.811	.954	.553
5	1.546	.764	.499
6	1.409	.660	.444
7	1.280	.406	.404
8	1.121	.265	.357

Note: EV = Eigen Value

Table A41

Geomin-Rotated Factor Loadings for the Symptom Level Interview Three-Factor Solution

Variable	Oddity	Internalizing	Externalizing
OI Checking	**.72**	.03	-.03
OI Referential Thinking	**.70**	**-.37**	.12
OI Paranoia	**.70**	-.02	-.11
OI Depersonalization	**.66**	-.03	-.08
OI Absorption	**.62**	.00	-.25
OI Obliviousness	**.61**	.16	-.08
SCID Delusions	**.60**	-.02	-.01
OI Ordering	**.59**	.05	.10
OI Oddity	**.57**	-.09	.04
OI Intrusive Thoughts	**.55**	.25	.01
OI Social Anxiety	**.55**	.21	-.20
OI Hoarding	**.52**	-.07	-.20
SCID Hallucinations	**.45**	.09	.03
OI Clean	**.41**	.06	.31
COMP. Social Anxiety	**.40**	**.35**	-.17
OI Impulsivity	.30	.07	.03
OI Social Anhedonia	.22	.20	-.02
IDAS-CR Dysphoria	-.04	**.85**	.10
IDAS-CR Suicidality	-.02	**.71**	-.01

Table A41 (continued)

Variable	Oddity	Internalizing	Externalizing
IDAS-CR Lassitude	.10	**.63**	-.15
IDAS-CR Panic	.28	**.48**	.04
IDAS-CR Insomnia	.02	**.45**	.09
IDAS-CR Appetite Loss	.11	**.40**	.15
COMPOSITE Traumatic Intrusions	.24	**.37**	.07
IDAS-CR Ill Temper	.12	**.37**	.06
IDAS-CR Well Being	-.02	**-.49**	-.07
SCID Alcohol Screener	.01	-.11	**.75**
SCID Marijuana Screener	.13	-.01	**.69**
OI Disinhibition	.28	.06	**.40**
IDAS-CR Appetite Gain	.08	.10	-.19

Note: N=352. loadings ≥ .35 bolded; IDAS-CR = Inventory of Depression and Anxiety Symptoms – Clinician Rating; SCID = Structured Clinical Interview for DSM-IV, OI= Oddity Interview.

APPENDIX B   COMPLETE CORRELATION MATRICES

Table B1

Complete Syndromal Level Candidate Variable Correlation Matrix

Scale	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. SCOPI																	
2. OCI-R	85																
3. OI OCD	73	76															
4. SCID OCD	46	50	47														
5. SPQ	52	58	58	36													
6. STA	53	60	58	36	88												
7. OI STPD	39	45	54	33	72	63											
8. QED	42	50	45	28	66	75	47										
9. DPS	59	57	52	33	60	69	48	79									
10. CES	50	59	55	39	62	74	48	77	77								
11. OI Dissociation	41	43	48	32	59	66	50	73	75	68							
12. PERMAG	46	56	50	32	62	75	46	71	61	71	57						
13. SCID Psychosis	24	30	35	33	40	45	43	33	30	36	33	39					

Table B1 (continued)

Scale	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
14. IDAS GD	38	44	47	33	56	55	42	45	48	49	40	36	27				
15. BDI-2	31	37	39	30	55	50	37	41	41	41	36	28	21	82			
16. IDAS-CR GD	27	28	35	28	43	43	32	33	37	37	32	23	24	80	69		
17. SCID Depression	27	29	35	29	43	40	35	30	33	30	31	20	25	75	71	68	
18. IDAS Traumatic Intrusions	32	39	40	24	40	48	32	40	39	51	32	40	29	61	47	47	42
19. IDAS-CR Traumatic Intrusions	20	20	30	19	24	34	23	28	27	37	30	24	28	41	32	36	30
20. SCID PTSD	20	23	33	20	23	31	23	23	28	31	22	24	22	38	29	32	26
21. SPSSIAS	48	52	56	37	77	65	65	48	46	52	43	40	34	51	51	36	38
22. SPS	53	57	58	38	74	68	61	50	49	57	46	48	37	50	47	38	36
23. SIAS	38	40	46	31	69	54	60	39	37	40	36	26	24	45	48	30	36
24. IDAS Social Anxiety	40	44	42	35	65	55	55	42	44	44	33	35	34	67	59	49	53
25. IDAS-CR Social Anxiety	31	30	37	22	49	42	45	25	28	31	26	21	25	42	38	37	37
26. SCID Social Phobia	26	20	28	23	40	34	36	26	23	27	22	23	30	31	27	26	30
27. IDAS Panic	37	43	38	34	48	50	36	42	42	48	34	39	32	63	49	48	43

Table B1 (continued)

Scale	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
28. BAI	46	51	46	37	57	60	41	46	48	54	35	43	38	65	60	53	47
29. IDAS-CR Panic	35	36	38	32	41	43	36	32	34	42	30	37	26	48	41	44	40
30. SCID Panic	24	29	31	22	30	35	19	27	28	30	25	30	16	43	37	39	33
31. SNAP ASPD	10	22	20	13	39	38	28	40	38	36	29	37	12	30	34	18	20
32. OI Disinhibition	08	16	19	08	29	26	23	25	25	25	19	19	16	23	22	21	14
33. SMAST	12	17	12	06	17	14	09	16	09	13	02	12	08	09	09	05	08
34. SCID Alcohol Ab/Dep	00	-01	07	04	05	03	-02	02	07	00	-05	06	02	08	06	06	06
35. DUS	12	17	21	11	27	27	19	27	22	24	13	23	14	21	18	14	15
36. SCID Drug Ab/Dep	02	09	18	03	14	18	14	14	19	11	06	17	04	12	09	11	10

Table B1 (continued)

Scale	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
1. SCOPI	32	20	20	48	53	38	40	31	26	37	46	35	24	10	08	12	00	12	02
2. OCI-R	39	20	23	52	57	40	44	30	20	43	51	36	29	22	16	17	-01	17	09
3. OI OCD	40	30	33	56	58	46	42	37	28	38	46	38	31	20	19	12	07	21	18
4. SCID OCD	24	19	20	37	38	31	35	22	23	34	37	32	22	13	08	06	04	11	03
5. SPQ	40	24	23	77	74	69	65	49	40	48	57	41	30	39	29	17	05	27	14
6. STA	48	34	31	65	68	54	55	42	34	50	60	43	35	38	26	14	03	27	18
7. OI STPD	32	23	23	65	61	60	55	45	36	36	41	36	19	28	23	09	-02	19	14
8. QED	40	28	23	48	50	39	42	25	26	42	46	32	27	40	25	16	02	27	14
9. DPS	39	27	28	46	49	37	44	28	23	42	48	34	28	38	25	09	07	22	19
10. CES	51	37	31	52	57	40	44	31	27	48	54	42	30	36	25	13	00	24	11
11. OI Dissociation	32	30	22	43	46	36	33	26	22	34	35	30	25	29	19	02	-05	13	06
12. PERMAG	40	24	24	40	48	26	35	21	23	39	43	37	30	37	19	12	06	23	17
13. SCID Psychosis	29	28	22	34	37	24	34	25	30	32	38	26	16	12	16	08	02	14	04
14. IDAS GD	61	41	38	51	50	45	67	42	31	63	65	48	43	30	23	09	08	21	12
15. BDI-II	47	32	29	51	47	48	59	38	27	49	60	41	37	34	22	09	06	18	09

Table B1 (continued)

Scale	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
16. IDAS-CR GD	47	36	32	36	38	30	49	37	26	48	53	44	39	18	21	05	06	14	11
17. SCID Depression	42	30	26	38	36	36	53	37	30	43	47	40	33	20	14	08	06	15	10
18. IDAS Traumatic Intr.																			
19. IDAS-CR Traumatic Intr.	64																		
20. SCID PTSD	61	53																	
21. SPSSIAS	39	21	20																
22. SPS	43	24	19	94															
23. SIAS	29	16	19	93	75														
24. IDAS Social Anxiety	48	28	28	71	69	64													
25. IDAS-CR Social Anxiety	32	20	17	56	51	54	62												
26. SCID Social Phobia	17	14	14	48	44	45	55	41											
27. IDAS Panic	54	39	32	41	49	28	55	29	26										
28. BAI	57	42	39	51	56	40	58	41	34	79									
29. IDAS-CR Panic	36	30	27	38	44	28	42	36	26	63	63								
30. SCID Panic	35	27	29	23	28	15	32	25	21	47	53	61							

Table B1 (continued)

Scale	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
31. SNAP ASPD	18	05	07	26	27	21	21	11	-02	24	25	15	12						
32. OI Disinhibition	17	13	14	14	16	13	22	16	11	22	29	16	22	49					
33. SMAST	10	05	04	07	09	04	07	08	-01	10	11	16	08	29	20				
34. SCID Alcohol Ab/Dep	07	04	02	-01	03	-05	04	02	01	04	06	06	07	24	24	21			
35. DUS	19	11	18	11	14	07	14	10	04	18	23	16	12	46	43	50	20		
36. SCID Drug Ab/Dep	13	04	09	01	04	00	09	06	-01	10	11	08	11	27	24	06	32	30	

Note: All available post item-level imputation data was utilized in determining the best variables to enter in each composite. As such *N*= 352-445. SCOPI = Schedule of Compulsions, Obsessions, and Pathological Impulses, OCI-R = Obsessive-Compulsive Inventory-Revised, OI = Oddity Interview, OCD = Obsessive Compulsive Disorder, SCID = Structured Clinical Interview for DSM-IV, SPQ = Schizotypal Personality Questionnaire, Exp. = Experiences, STA = Schizotypy Traits Scale, STPD = Schizotypal Personality Disorder, QED = Questionnaire of Experiences of Dissociation, DPS = Dissociative Processes Scale, CES = Curious Experiences Survey, PERMAG = Perceptual Aberration Scale plus Magical Ideation scale, IDAS = Inventory of Depression and Anxiety Symptoms, GD = General Depression, BDI-II = Beck Depression Inventory-II, IDAS-CR Inventory of Depression and Anxiety Symptoms - Clinician Rating, Intr. = Intrusions, PTSD = Post Traumatic Stress Disorder, SPSSIAS = Social Phobia Scale/Social Interaction Anxiety Scale, SPS = Social Phobia Scale, SIAS = Social Interaction Anxiety Scale, BAI = Beck Anxiety Inventory, SNAP = Schedule for Nonadaptive and Adaptive Personality-Second Edition, ASPD = Antisocial Personality Disorder, SMAST = Short form of the Michigan Alcoholism Screening Test, Ab/Dep = Abuse/Dependence, DUS = Drug Use Survey.

Table B2

Complete Symptom Level Candidate Variable Correlation Matrix

Scale	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. DPS Obliviousness																
2. DPS Imagination	.43															
3. DPS Detachment	.64	.52														
4. QED	.71	.54	.70													
5. CES Depersonalization	.50	.42	.69	.66												
6. CES Absorption	.68	.57	.63	.72	.66											
7. CES Amnesia	.55	.29	.49	.56	.60	.58										
8. SCOPI Checking	.70	.36	.49	.50	.41	.53	.51									
9. SCOPI Cleaning	.29	.18	.25	.20	.25	.24	.22	.50								
10. SCOPI Compulsive Rituals	.34	.24	.36	.27	.29	.32	.33	.60	.27							
11. SCOPI Hoarding	.34	.25	.19	.22	.09	.23	.24	.46	.09	.30						
12. SCOPI Pathological Impulses	.48	.35	.50	.42	.38	.43	.44	.37	.76	.18	.18					
13. OCI-R Washing	.35	.24	.35	.33	.40	.34	.33	.55	.21	.49	.29	.19				
14. OCI-R Hoarding	.30	.18	.14	.22	.08	.21	.24	.38	.21	.23	.85	.15	.27			

Table B2 (continued)

Scale	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
15. OCI-R Ordering	.36	.22	.32	.34	.35	.39	.40	.57	.44	.69	.29	.21	.50	.27		
16. OCI-R Checking	.48	.23	.33	.36	.34	.40	.44	.81	.50	.57	.40	.22	.60	.37	.60	
17. OCI-R Neutralizing	.40	.23	.39	.39	.38	.41	.42	.59	.41	.54	.26	.22	.57	.27	.56	.69
18. SNAP Mistrust	.49	.18	.34	.47	.33	.42	.43	.51	.28	.31	.21	.33	.33	.21	.37	.35
19. SNAP Eccentric Perceptions	.57	.51	.74	.74	.71	.65	.48	.46	.28	.33	.21	.38	.37	.15	.37	.36
20. SNAP Detachment	.35	.06	.21	.24	.20	.23	.28	.35	.15	.19	.10	.21	.17	.12	.23	.21
21. CHAPMAN Magical Ideation	.42	.43	.55	.63	.58	.50	.42	.45	.33	.38	.20	.33	.44	.16	.44	.41
22. CHAPMAN Perceptual Aberration	.48	.41	.61	.67	.73	.58	.57	.40	.30	.27	.15	.32	.42	.13	.36	.36
23. RSAS	.33	.10	.21	.31	.24	.28	.33	.33	.11	.19	.08	.19	.20	.12	.30	.25
24. SPQ Unusual Beliefs/Experiences	.42	.34	.50	.60	.54	.52	.40	.38	.24	.27	.21	.23	.33	.15	.34	.31
25. SPQ Social Anxiety	.39	.08	.22	.33	.17	.26	.27	.45	.21	.25	.19	.20	.20	.16	.26	.30
26. SPQ Oddity	.51	.48	.44	.61	.38	.56	.41	.43	.10	.15	.32	.34	.22	.30	.23	.30
27. SPQ Mistrust	.46	.20	.36	.52	.36	.43	.42	.45	.24	.26	.21	.27	.29	.21	.30	.34
28. SPQ Social Anhedonia	.40	.04	.23	.32	.24	.26	.35	.39	.18	.21	.15	.19	.21	.15	.27	.29
29. STA Magical Ideation	.45	.36	.53	.61	.52	.52	.36	.40	.26	.25	.22	.27	.34	.17	.32	.34

Table B2 (continued)

Scale	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
32. REF Total	.41	.28	.42	.54	.50	.48	.52	.44	.26	.27	.22	.31	.34	.20	.34	.38
30. STA Paranoia	.50	.16	.35	.49	.35	.45	.42	.52	.25	.29	.24	.30	.27	.24	.34	.35
31. STA Unusual Perceptions	.58	.39	.63	.73	.72	.64	.55	.46	.30	.29	.21	.37	.40	.19	.35	.34
33. SNAP Disinhibition*	.37	.26	.29	.39	.23	.28	.32	.24	.04	.02	.14	.52	.16	.12	.14	.16
34. SNAP Impulsivity	.29	.23	.24	.38	.25	.25	.27	.16	-.07	-.14	.08	.39	.05	.07	.00	.10
35. SMAST	.06	.07	.13	.16	.11	.07	.13	.08	.09	.15	.06	.17	.14	.05	.14	.12
36. DUS	.19	.19	.18	.27	.14	.19	.24	.16	.02	.05	.12	.31	.07	.07	.10	.15
37. SPS	.51	.23	.40	.50	.47	.49	.50	.57	.33	.36	.29	.29	.37	.28	.42	.45
38. SIAS	.44	.12	.25	.39	.30	.36	.35	.47	.18	.21	.20	.26	.21	.20	.28	.33
39. IDAS Dysphoria	.52	.19	.36	.45	.37	.46	.37	.49	.17	.19	.19	.29	.26	.18	.28	.33
40. IDAS Lassitude	.42	.16	.26	.33	.25	.38	.31	.32	.17	.10	.14	.15	.20	.17	.15	.21
41. IDAS Insomnia	.36	.14	.23	.31	.28	.35	.29	.36	.17	.19	.16	.16	.24	.15	.26	.28
42. IDAS Suicidality	.37	.18	.34	.37	.37	.43	.38	.35	.17	.17	.10	.34	.22	.06	.21	.24
43. IDAS Appetite Loss	.29	.10	.29	.27	.25	.23	.24	.23	.15	.17	.09	.12	.13	.07	.19	.18
44. IDAS Appetite Gain	.18	.13	.10	.14	.05	.19	.11	.18	.02	.04	.16	.15	.09	.16	.04	.09

Table B2 (continued)

Scale	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
45. IDAS Well Being	-.26	.07	-.09	-.13	-.07	-.09	-.16	-.18	-.02	-.05	-.02	-.21	-.04	-.05	-.07	-.10
46. IDAS Ill Tempter	.35	.17	.31	.33	.34	.37	.35	.31	.18	.21	.08	.38	.24	.06	.29	.22
47. IDAS Traumatic Intrusions	.35	.25	.35	.40	.41	.50	.38	.38	.23	.16	.09	.27	.30	.06	.27	.27
48. IDAS Social Anxiety	.47	.19	.34	.42	.34	.42	.36	.49	.23	.23	.15	.24	.29	.15	.29	.34
49. IDAS Panic	.43	.17	.40	.42	.39	.45	.36	.42	.26	.24	.11	.22	.32	.08	.29	.36
50. BDI-II	.50	.09	.30	.41	.26	.37	.38	.40	.15	.15	.16	.27	.21	.17	.22	.23
51. BAI	.49	.19	.41	.46	.43	.51	.41	.53	.31	.29	.15	.26	.38	.12	.34	.40

Table B2 (continued)

Scale	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
1. DPS Obliviousness	.40	.49	.57	.35	.42	.48	.33	.42	.39	.51	.46	.40	.45	.50	.58	.41
2. DPS Imagination	.23	.18	.51	.06	.43	.41	.10	.34	.08	.48	.20	.04	.36	.16	.39	.28
3. DPS Detachment	.39	.34	.74	.21	.55	.61	.21	.50	.22	.44	.36	.23	.53	.35	.63	.42
4. QED	.39	.47	.74	.24	.63	.67	.31	.60	.33	.61	.52	.32	.61	.49	.73	.54
5. CES Depersonalization	.38	.33	.71	.20	.58	.73	.24	.54	.17	.38	.36	.24	.52	.35	.72	.50
6. CES Absorption	.41	.42	.65	.23	.50	.58	.28	.52	.26	.56	.43	.26	.52	.45	.64	.48
7. CES Amnesia	.42	.43	.48	.28	.42	.57	.33	.40	.27	.41	.42	.35	.36	.42	.55	.52
8. SCOPI Checking	.59	.51	.46	.35	.45	.40	.33	.38	.45	.43	.45	.39	.40	.52	.46	.44
9. SCOPI Cleaning	.41	.28	.28	.15	.33	.30	.11	.24	.21	.10	.24	.18	.26	.25	.30	.26
10. SCOPI Compulsive Rituals	.54	.31	.33	.19	.38	.27	.19	.27	.25	.15	.26	.21	.25	.29	.29	.27
11. SCOPI Hoarding	.26	.21	.21	.10	.20	.15	.08	.21	.19	.32	.21	.15	.22	.24	.21	.22
12. SCOPI Pathological Impulses	.22	.33	.38	.21	.33	.32	.19	.23	.20	.34	.27	.19	.27	.30	.37	.31
13. OCI-R Washing	.57	.33	.37	.17	.44	.42	.20	.33	.20	.22	.29	.21	.34	.27	.40	.34
14. OCI-R Hoarding	.27	.21	.15	.12	.16	.13	.12	.15	.16	.30	.21	.15	.17	.24	.19	.20
15. OCI-R Ordering	.56	.37	.37	.23	.44	.36	.30	.34	.26	.23	.30	.27	.32	.34	.35	.34

Table B2 (continued)

Scale	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
16. OCI-R Checking	.69	.35	.36	.21	.41	.36	.25	.31	.30	.30	.34	.29	.34	.35	.34	.38
17. OCI-R Neutralizing	1.00	.37	.42	.16	.52	.41	.22	.38	.24	.25	.33	.23	.37	.33	.37	.41
18. SNAP Mistrust	.37	1.00	.44	.48	.44	.43	.58	.36	.47	.43	.73	.64	.42	.77	.45	.64
19. SNAP Eccentric Perceptions	.42	.44	1.00	.22	.73	.73	.28	.70	.24	.54	.49	.26	.69	.44	.74	.59
20. SNAP Detachment	.16	.48	.22	1.00	.16	.19	.76	.10	.53	.29	.34	.75	.12	.53	.25	.29
21. CHAPMAN Magical Ideation	.52	.44	.73	.16	1.00	.68	.25	.75	.24	.44	.47	.21	.73	.36	.62	.60
22. CHAPMAN Perceptual Aberration	.41	.43	.73	.19	.68	1.00	.29	.59	.26	.48	.45	.29	.57	.44	.74	.65
23. RSAS	.22	.58	.28	.76	.25	.29	1.00	.19	.43	.32	.43	.77	.19	.55	.29	.39
24. SPQ Unusual Beliefs/Experiences	.38	.36	.70	.10	.75	.59	.19	1.00	.20	.47	.43	.18	.81	.33	.63	.53
25. SPQ Social Anxiety	.24	.47	.24	.53	.24	.26	.43	.20	1.00	.33	.46	.55	.23	.67	.32	.42
26. SPQ Oddity	.25	.43	.54	.29	.44	.48	.32	.47	.33	1.00	.50	.36	.50	.50	.53	.49
27. SPQ Mistrust	.33	.73	.49	.34	.47	.45	.43	.43	.46	.50	1.00	.50	.51	.80	.53	.76
28. SPQ Social Anhedonia	.23	.64	.26	.75	.21	.29	.77	.18	.55	.36	.50	1.00	.21	.69	.35	.46
29. STA Magical Ideation	.37	.42	.69	.12	.73	.57	.19	.81	.23	.50	.51	.21	1.00	.42	.65	.55
30. STA Paranoia	.33	.77	.44	.53	.36	.44	.55	.33	.67	.50	.80	.69	.42	1.00	.50	.68

Table B2 (continued)

Scale	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
31. STA Unusual Perceptions	.37	.45	.74	.25	.62	.74	.29	.63	.32	.53	.53	.35	.65	.50	1.00	.62
32. REF Total	.41	.64	.59	.29	.60	.65	.39	.53	.42	.49	.76	.46	.55	.68	.62	1.00
33. SNAP Disinhibition*	.20	.41	.32	.17	.32	.31	.26	.21	.19	.39	.33	.29	.26	.30	.32	.37
34. SNAP Impulsivity	.11	.23	.30	.03	.25	.28	.15	.21	.06	.36	.24	.16	.26	.21	.28	.26
35. SMAST	.17	.19	.15	.11	.14	.08	.16	.11	.09	.10	.12	.16	.13	.11	.15	.13
36. DUS	.14	.26	.22	.11	.25	.17	.16	.22	.10	.30	.19	.15	.29	.17	.18	.22
37. SPS	.45	.59	.47	.43	.42	.45	.48	.38	.66	.43	.65	.53	.41	.74	.51	.65
38. SIAS	.24	.52	.28	.60	.20	.28	.51	.19	.76	.37	.53	.62	.23	.74	.35	.47
39. IDAS Dysphoria	.30	.52	.38	.40	.30	.33	.40	.29	.42	.38	.46	.45	.36	.54	.38	.37
40. IDAS Lassitude	.22	.34	.27	.23	.22	.30	.29	.22	.25	.31	.32	.29	.23	.36	.28	.26
41. IDAS Insomnia	.29	.36	.25	.23	.24	.29	.32	.23	.24	.25	.30	.31	.26	.33	.27	.24
42. IDAS Suicidality	.27	.40	.32	.26	.29	.37	.31	.27	.29	.30	.35	.33	.31	.42	.36	.38
43. IDAS Appetite Loss	.25	.31	.32	.20	.23	.29	.22	.19	.17	.19	.26	.26	.24	.30	.25	.25
44. IDAS Appetite Gain	.09	.15	.03	.07	.06	.11	.12	.04	.14	.13	.15	.11	.06	.19	.09	.16

Table B2 (continued)

Scale	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
45. IDAS Well Being	-.07	-.24	-.05	-.38	.03	-.05	-.30	-.01	-.33	-.09	-.19	-.33	-.03	-.33	-.08	-.10
46. IDAS Ill Temper	.28	.40	.34	.19	.31	.25	.29	.29	.19	.28	.31	.24	.38	.34	.30	.31
47. IDAS Traumatic Intrusions	.30	.39	.42	.17	.34	.39	.23	.32	.24	.31	.32	.22	.36	.37	.41	.38
48. IDAS Social Anxiety	.34	.50	.34	.45	.31	.33	.39	.26	.59	.41	.55	.48	.33	.63	.38	.50
49. IDAS Panic	.42	.42	.40	.27	.37	.34	.34	.38	.27	.30	.40	.35	.38	.39	.40	.40
50. BDI-II	.23	.54	.31	.43	.20	.31	.45	.20	.45	.31	.46	.52	.29	.56	.36	.38
51. BAI	.43	.50	.43	.28	.42	.38	.35	.43	.41	.33	.46	.41	.47	.50	.44	.48

Table B2 (continued)

Scale	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
1. DPS Obliviousness	.37	.29	.06	.19	.51	.44	.52	.42	.36	.37	.29	.18	-.26	.35	.35	.47
2. DPS Imagination	.26	.23	.07	.19	.23	.12	.19	.16	.14	.18	.10	.13	.07	.17	.25	.19
3. DPS Detachment	.29	.24	.13	.18	.40	.25	.36	.26	.23	.34	.29	.10	-.09	.31	.35	.34
4. QED	.39	.38	.16	.27	.50	.39	.45	.33	.31	.37	.27	.14	-.13	.33	.40	.42
5. CES Depersonalization	.23	.25	.11	.14	.47	.30	.37	.25	.28	.37	.25	.05	-.07	.34	.41	.34
6. CES Absorption	.28	.25	.07	.19	.49	.36	.46	.38	.35	.43	.23	.19	-.09	.37	.50	.42
7. CES Amnesia	.32	.27	.13	.24	.50	.35	.37	.31	.29	.38	.24	.11	-.16	.35	.38	.36
8. SCOPI Checking	.24	.16	.08	.16	.57	.47	.49	.32	.36	.35	.23	.18	-.18	.31	.38	.49
9. SCOPI Cleaning	.04	-.07	.09	.02	.33	.18	.17	.17	.17	.17	.15	.02	-.02	.18	.23	.23
10. SCOPI Compulsive Rituals	.02	-.14	.15	.05	.36	.21	.19	.10	.19	.17	.17	.04	-.05	.21	.16	.23
11. SCOPI Hoarding	.14	.08	.06	.12	.29	.20	.19	.14	.16	.10	.09	.16	-.02	.08	.09	.15
12. SCOPI Pathological Impulses	.52	.39	.17	.31	.29	.26	.29	.15	.16	.34	.12	.15	-.21	.38	.27	.24
13. OCI-R Washing	.16	.05	.14	.07	.37	.21	.26	.20	.24	.22	.13	.09	-.04	.24	.30	.29
14. OCI-R Hoarding	.12	.07	.05	.07	.28	.20	.18	.17	.15	.06	.07	.16	-.05	.06	.06	.15
15. OCI-R Ordering	.14	.00	.14	.10	.42	.28	.28	.15	.26	.21	.19	.04	-.07	.29	.27	.29

Table B2 (continued)

Scale	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
16. OCI-R Checking	.16	.10	.12	.15	.45	.33	.33	.21	.28	.24	.18	.09	-.10	.22	.27	.34
17. OCI-R Neutralizing	.20	.11	.17	.14	.45	.24	.30	.22	.29	.27	.25	.09	-.07	.28	.30	.34
18. SNAP Mistrust	.41	.23	.19	.26	.59	.52	.52	.34	.36	.40	.31	.15	-.24	.40	.39	.50
19. SNAP Eccentric Perceptions	.32	.30	.15	.22	.47	.28	.38	.27	.25	.32	.32	.03	-.05	.34	.42	.34
20. SNAP Detachment	.17	.03	.11	.11	.43	.60	.40	.23	.23	.26	.20	.07	-.38	.19	.17	.45
21. CHAPMAN Magical Ideation	.32	.25	.14	.25	.42	.20	.30	.22	.24	.29	.23	.06	.03	.31	.34	.31
22. CHAPMAN Perceptual Aberration	.31	.28	.08	.17	.45	.28	.33	.30	.29	.37	.29	.11	-.05	.25	.39	.33
23. RSAS	.26	.15	.16	.16	.48	.51	.40	.29	.32	.31	.22	.12	-.30	.29	.23	.39
24. SPQ Unusual Beliefs/Experiences	.21	.21	.11	.22	.38	.19	.29	.22	.23	.27	.19	.04	-.01	.29	.32	.26
25. SPQ Social Anxiety	.19	.06	.09	.10	.66	.76	.42	.25	.24	.29	.17	.14	-.33	.19	.24	.59
26. SPQ Oddity	.39	.36	.10	.30	.43	.37	.38	.31	.25	.30	.19	.13	-.09	.28	.31	.41
27. SPQ Mistrust	.33	.24	.12	.19	.65	.53	.46	.32	.30	.35	.26	.15	-.19	.31	.32	.55
28. SPQ Social Anhedonia	.29	.16	.16	.15	.53	.62	.45	.29	.31	.33	.26	.11	-.33	.24	.22	.48
29. STA Magical Ideation	.26	.26	.13	.29	.41	.23	.36	.23	.26	.31	.24	.06	-.03	.38	.36	.33
30. STA Paranoia	.30	.21	.11	.17	.74	.74	.54	.36	.33	.42	.30	.19	-.33	.34	.37	.63

Table B2 (continued)

Scale	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
31. STA Unusual Perceptions	.32	.28	.15	.18	.51	.35	.38	.28	.27	.36	.25	.09	-.08	.30	.41	.38
32. REF Total	.37	.26	.13	.22	.65	.47	.37	.26	.24	.38	.25	.16	-.10	.31	.38	.50
33. SNAP Disinhibition*	.67															
34. SNAP Impulsivity	.31	.16														
35. SMAST	.46	.32	.50													
36. DUS	.29	.18	.09	.14												
37. SPS	.22	.16	.04	.07	.75											
38. SIAS	.28	.24	.10	.21	.51	.48										
39. IDAS Dysphoria	.21	.19	-.01	.08	.35	.31	.65									
40. IDAS Lassitude	.15	.10	.09	.20	.36	.19	.54	.38								
41. IDAS Insomnia	.26	.20	.05	.12	.41	.35	.66	.41	.29							
42. IDAS Suicidality	.18	.11	.09	.18	.28	.20	.46	.31	.42	.30						
43. IDAS Appetite Loss	.12	.12	-.02	.02	.18	.15	.26	.31	.14	.18	-.23					
44. IDAS Appetite Gain	-.12	-.14	-.03	-.05	-.24	-.32	-.55	-.36	-.26	-.40	-.20	-.05				
45. IDAS Well Being																

Table B2 (continued)

Scale	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
46. IDAS Ill Tempter	.25	.19	.07	.19	.35	.26	.53	.36	.35	.46	.28	.18	-.16			
47. IDAS Traumatic Intrusions	.20	.17	.10	.19	.43	.29	.61	.43	.43	.53	.35	.16	-.19	.48		
48. IDAS Social Anxiety	.25	.13	.07	.14	.69	.64	.70	.47	.38	.52	.35	.22	-.30	.42	.48	
49. IDAS Panic	.24	.13	.10	.18	.49	.28	.62	.52	.46	.51	.38	.17	-.22	.46	.54	.55
50. BDI-II	.30	.29	.09	.18	.47	.48	.82	.58	.46	.60	.41	.25	-.63	.44	.47	.59
51. BAI	.26	.14	.11	.23	.56	.40	.66	.45	.50	.47	.35	.18	-.28	.42	.57	.58

Table B2 (continued)

Scale	49	50	51
1. DPS Obliviousness	.43	.50	.49
2. DPS Imagination	.17	.09	.19
3. DPS Detachment	.40	.30	.41
4. QED	.42	.41	.46
5. CES Depersonalization	.39	.26	.43
6. CES Absorption	.45	.37	.51
7. CES Amnesia	.36	.38	.41
8. SCOPI Checking	.42	.40	.53
9. SCOPI Cleaning	.26	.15	.31
10. SCOPI Compulsive Rituals	.24	.15	.29
11. SCOPI Hoarding	.11	.16	.15
12. SCOPI Pathological Impulses	.22	.27	.26
13. OCI-R Washing	.32	.21	.38
14. OCI-R Hoarding	.08	.17	.12
15. OCI-R Ordering	.29	.22	.34

Table B2 (continued)

Scale	49	50	51
16. OCI-R Checking	.36	.23	.40
17. OCI-R Neutralizing	.42	.23	.43
18. SNAP Mistrust	.42	.54	.50
19. SNAP Eccentric Perceptions	.40	.31	.43
20. SNAP Detachment	.27	.43	.28
21. CHAPMAN Magical Ideation	.37	.20	.42
22. CHAPMAN Perceptual Aberration	.34	.31	.38
23. RSAS	.34	.45	.35
24. SPQ Unusual Beliefs/Experiences	.38	.20	.43
25. SPQ SOCI-Ral Anxiety	.27	.45	.41
26. SPQ Oddity	.30	.31	.33
27. SPQ Mistrust	.40	.46	.46
28. SPQ SOCI-Ral Anhedonia	.35	.52	.41
29. STA Magical Ideation	.38	.29	.47
30. STA Paranoia	.39	.56	.50

Table B2 (continued)

Scale	49	50	51
31. STA Unusual Perceptions	.40	.36	.44
32. REF Total	.40	.38	.48
33. SNAP Disinhibition*	.24	.30	.26
34. SNAP Impulsivity	.13	.29	.14
35. SMAST	.10	.09	.11
36. DUS	.18	.18	.23
37. SPS	.49	.47	.56
38. SIAS	.28	.48	.40
39. IDAS Dysphoria	.62	.82	.66
40. IDAS Lassitude	.52	.58	.45
41. IDAS Insomnia	.46	.46	.50
42. IDAS Suicidality	.51	.60	.47
43. IDAS Appetite Loss	.38	.41	.35
44. IDAS Appetite Gain	.17	.25	.18

Table B2 (continued)

Scale	49	50	51
45. IDAS Well Being	-.22	-.63	-.28
46. IDAS Ill Tempter	.46	.44	.42
47. IDAS Traumatic Intrusions	.54	.47	.57
48. IDAS SOCI-Ral Anxiety	.55	.59	.58
49. IDAS Panic	1.00	.49	.79
50. BDI-II	.49	1.00	.60
51 BAI	.79	.60	1.00

Note: All available post item-level imputation data was utilized in determining the best variables to enter in each composite. As such *N*= 352-445. DPS = Dissociative Processes Scale, QED = Questionnaire of Experiences of Dissociation, CES = Curious Experiences Survey, SCOPI = Schedule of Compulsions, Obsessions, and Pathological Impulses, OCI-R = Obsessive-Compulsive Inventory-Revised, SNAP = Schedule for Nonadaptive and Adaptive Personality-Second Edition, RSAS = Revised Social Anhedonia Scale, SPQ = Schizotypal Personality Questionnaire, STA = Schizotypy Traits Scale, REF = Referential Thinking Scale, SMAST = Short form of the Michigan Alcoholism Screening Test, DUS = Drug Use Survey, SPS = Social Phobia Scale, SIAS = Social Interaction Anxiety Scale, IDAS = Inventory of Depression and Anxiety Symptoms, BDI-II = Beck Depression Inventory-II, BAI = Beck Anxiety Inventory, * = "non-overlapping" version.
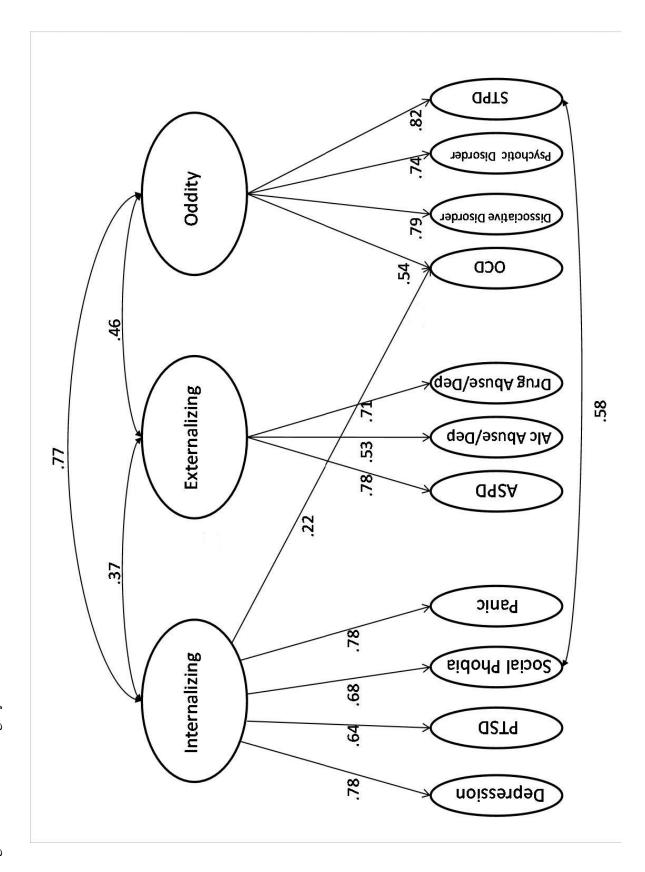
APPENDIX C   FIGURES

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Figure C1. Best Fitting Syndromal Model