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The Validity of the Obsessive-Compulsive Syndromes as Emotional Disorders

Doty Jennings

Eastern Illinois University

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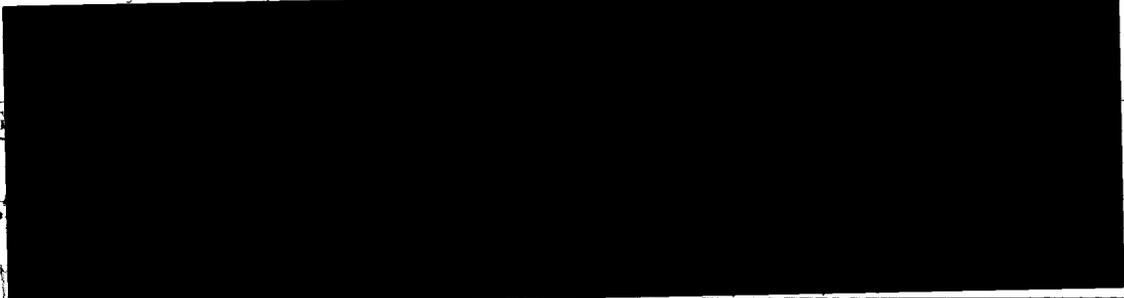
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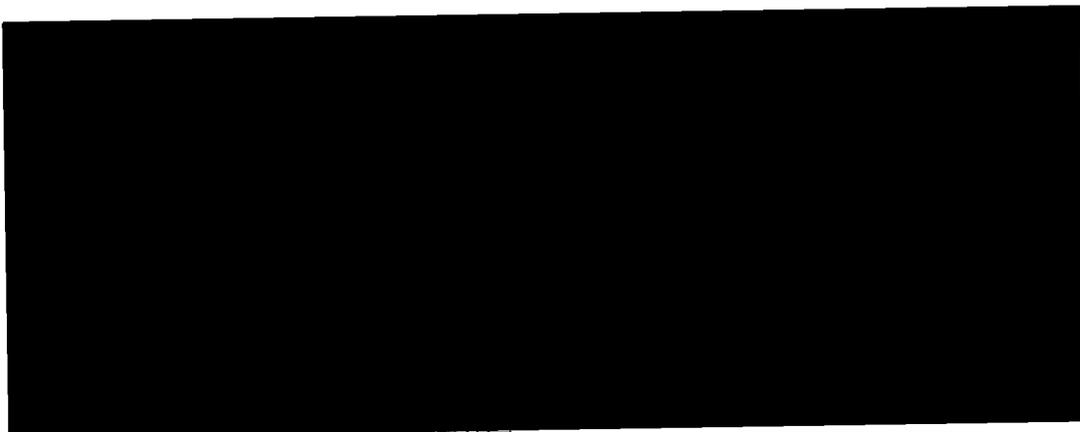
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The Validity of the Obsessive-Compulsive Syndromes as Emotional Disorders

Doty Jennings, B.A.

Eastern Illinois University

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Abstract

Recent changes to the Diagnostic and Statistical Manual of Mental Disorders have grouped together syndromes which are referred to as the obsessive-compulsive spectrum (OCS). The grouping of these syndromes is disputed because of lack of empirical verification for an organization purportedly based on research that supports similarity of observed symptoms. The taxonomy of emotional disorders was tested as an alternative model. Consistent with the model of the emotional disorders, this empirical research tested two proposed characteristics. The first was whether three OCS syndromes (hoarding syndrome, body dysmorphic syndrome, and obsessive compulsive syndromes) shared the broad factor of neuroticism or negative affect (N/NA) with the acknowledged emotional disorders of GAD and PTSD. The second was whether all of the syndromes had unique symptoms that made them distinct. Self-report measures of the five syndromes were administered to 300 undergraduates. Pearson moment correlations were followed by confirmatory factor analyses of the data. The results supported the hypotheses that each syndrome had a similar relationship with N/NA and that the individual syndromes are separable by unique symptoms.

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Overview

The obsessive-compulsive spectrum (OCS) has been promoted informally for over a decade and is now the obsessive-compulsive and related disorders diagnostic category in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) (American Psychiatric Association, 2013). The introduction of this category highlights a common complaint, however, that the DSM's organization is reified with each edition but largely without benefit of empirical research (Clark, Watson, & Reynolds, 1995; Widiger & Samuel, 2005). Consistent with this complaint, the OCS aggregates diverse disorders with little empirical justification (Clark et al., 1995; Monzani, Rijdsdijk, Harris, Anson, Mataix-Cols, 2014; Storch, Abramowitz, & Goodman, 2008). It has been suggested that a broader nosology that transcends diagnostic categories may better reflect research findings (Goldberg et al., 2009). In this thesis, a case will be made for the OCS disorders being within the taxonomy of the emotional disorders, a categorization which transcends diagnostic boundaries with one shared etiology (Lahey, 2009; Middeldorp, Cath, Van Dyck, & Boomsma, 2005).

Currently, five disturbances comprise the obsessive-compulsive and related disorders or the obsessive-compulsive spectrum (OCS), obsessive-compulsive disorder, hoarding, body dysmorphic disorder, trichotillomania and excoriation. Hoarding was formerly a facet of obsessive-compulsive syndrome and is the newest standalone disorder. Body dysmorphic disorder was formerly known as a somatoform disorder (APA, 2013). The focus of this study is on the three of the five syndromes that have some empirical support for having a dimensional latent structure: hoarding, body dysmorphia, and obsessive-compulsive syndrome (Cash & Grasso, 2005; Mataix-Cols et

al., 2010; Timpano et al., 2013). As the disturbances are dimensional, these will be referred to as syndromes, rather than as disorders. For example, obsessive-compulsive disorder will be referred to as obsessive-compulsive syndrome.

Several decades of research suggest that the three syndromes share a broader general factor, neuroticism or negative affect (N/NA), a common risk factor for mental health syndromes across DSM diagnostic categories (Hettema, Neale, Myers, Prescott, & Kendler, 2006; Kendler et al., 2011; Lahey, 2009; Munafò et al., 2003; Munafò, Clark, Roberts, & Johnstone, 2006). N/NA is general distress, the tendency to experience unpleasant emotions, to over-report somatic symptoms, and be overly reactive to stress (Barlow, 2008; Watson & Clark 1984). The shared factor of N/NA has been implicated as a source of comorbidity and risk factor for a broad array of DSM-IV anxiety, unipolar depressive, and somatoform syndromes.

This review will suggest that understanding the OCS syndromes can be advanced in a broader context that addresses the issues of comorbidity, the common risk factor shared across diagnostic categories, and specific factors unique to each syndrome. One suitable context is that of the emotional disorders model, an alternative taxonomy to the DSM (Goldberg et al., 2009). This model suggests that while each of the syndromes share the broad risk factor of N/NA, each syndrome also has its own individual set of symptoms (Brown, Chorpita, & Barlow, 1998).

The emotional disorders will provide a framework for this study of the three OCS syndromes and will examine empirical support for these being grouped together based on the broader organization of the emotional disorders (Goldberg et al., 2009). This study aims to address two questions. Should a broader, shared factor be considered to organize

OCS syndromes? More specifically, should a broader, shared factor of N/NA be considered to organize OCS syndromes along with anxiety and traumatic syndromes?

Obsessive-compulsive spectrum

The obsessive-compulsive spectrum has been formally acknowledged as a diagnostic category in the DSM-5 (APA, 2013). The syndromes that compose the OC spectrum are all proposed to share the obsessive-compulsive syndrome's characteristic obsessions and compulsions (APA, 2013; Hollander, 1993). Obsessions are recurrent and persistent thoughts, images, or impulses that are intrusive (Murphy, Timpano, Wheaton, Greenberg, & Miguel, 2010). Compulsions are repetitive actions or mental acts that the individual feels compelled to perform in response to an obsession (Murphy et al., 2010). The OC spectrum includes the obsessive-compulsive, body dysmorphic, hoarding, excoriation (i.e., skin-picking), and trichotillomania (i.e., hair-pulling) syndromes that all share obsessions and/or compulsions.

Although there is some overlap between these syndromes, there are also some differences. These disorders purportedly share syndrome-specific obsessions and compulsions. Trichotillomania, an irresistible urge to pull one's hair, and excoriation, an excessive picking or scratching of the skin, are primarily based on compulsive body-focused behaviors (Arnold, Auchenback, & McElroy, 2001; Bhatia & Jhanjee, 2013). Body dysmorphic syndrome straddles both, because it involves both obsession with a defective appearance (i.e., body focus) and compulsive checking or disguising the defect (Ross & Gowers, 2011). The focus of hoarding obsessions and compulsions are primarily about accumulating and retaining objects or animals (Frost, Steketee, & Williams, 2000).

Despite these observed similarities, there is debate about the OC spectrum syndromes being grouped together because grouping is based primarily on apparent symptoms, rather than underlying etiology (Clark et al., 1995; Monzani et al., 2014; Storch et al., 2008). It has been suggested that selecting some disorders for the OC spectrum and excluding others that have obsessions and/or compulsions has limited validity (Storch et al., 2008). For example, the compulsive verbal tics in Tourette's syndrome are unique to this syndrome, but have observed similarities with OC spectrum syndromes (Hollander, 1993). Similarly, health anxiety is defined by an obsession with the possibility of becoming ill (APA, 2013). Neither Tourette's nor health anxiety, however, are presently considered to belong to the spectrum. This suggests that the OC spectrum requires reexamination.

This review and study will be limited to validating three of the OC spectrum syndromes for which there is empirical evidence of dimensionality. The three dimensional syndromes of obsessive-compulsive, body dysmorphic and hoarding are comprised of symptoms that are on a continuum of functionality that range from causing little impairment to causing clinically significant disability (Cash & Grasso, 2005; Mataix-Cols et al., 2010; Timpano et al., 2013). Obsessive-compulsive syndrome is an exemplar for the OC spectrum and is largely accepted as having three symptom dimensions: (a) symmetry and hoarding, (b) contamination and cleaning, and (c) pure obsessions (Abramowitz & Jacoby, 2014). Hoarding is one of the newest stand-alone syndromes in the DSM-5, and its symptoms have had little examination in the context of the spectrum (Mataix-Cols et al., 2010; Saxena, 2007). Body dysmorphic syndrome was formerly a somatoform disorder and largely accepted as having a single symptom

dimension (Ross, 2011). Like hoarding, there has been little empirical examination of body dysmorphic syndrome in the context of the OC spectrum.

The shared factor by the three OC spectrum syndromes is likely a broad personality trait called Neuroticism/Negative Affectivity (N/NA). Meta-analyses and genetic studies suggest that N/NA is a shared, general risk factor for DSM-IV unipolar mood, anxiety, and somatoform disorders (Hettema et al., 2006; Kotov, Gamez, Schmidt, & Watson, 2010; Lahey, 2009; Malouff, Thorsteinsson, & Schutte, 2005; Munafò et al., 2003). At high levels, this trait is characterized by a tendency to experience unpleasant emotions, reactivity to stress, and vulnerability to feelings of tension, nervousness and worry. It is also characterized by a tendency to over-report somatic symptoms (Watson & Clark, 2006; Spielberger, Gorsuch, & Lushene, 1970). As hoarding and obsessive-compulsive syndromes were considered anxiety disorders and body dysmorphic syndrome was a somatoform disorder, it is expected that these syndromes will have similar relations with N/NA as all other anxiety and somatoform disorders.

Another important issue with the OC spectrum syndromes is their co-occurrence or overlap with unipolar depressive and anxiety disorders. The frequent co-occurrence of unipolar depression, anxiety and, to a lesser degree, the somatoform disorders is not random (Lahey, 2009; Mineka, Watson, & Clark, 1998; Watson, 2005; Watson & Clark, 2006). Research supports N/NA as a heritable risk factor for all of these former DSM-IV-TR Axis I disorders (Hettema et al., 2006; Kendler et al., 2011; Lahey, 2009; Munafò et al., 2003; Munafò et al., 2006). This suggests that N/NA is a common factor shared by these disorders and also the source of their co-occurrence (Lahey, 2009; Middeldorp et al., 2005).

OC Syndrome. Obsessive-compulsive symptoms are defined by multiple symptom dimensions that include but are not limited to obsessions and compulsions (Mataix-Cols, Rosario-Campos, & Leckman, 2005; Taylor, 2005). At clinical levels, this syndrome occurs in approximately 1% of the population in any year (APA, 2013). Four dimensions most often emerged from numerous exploratory factor analytic studies of both self-report and structured interviews: (a) Checking/Obsessions—repetitive thoughts and inspections, (b) Ordering/ Symmetry—counting and symmetry compulsions, (c) Washing/Contamination—purification and contagion avoidance, (d) Hoarding—pathological collecting (Mataix-Cols, Marks, Greist, Kobak, & Baer, 2002; Taylor, 2005). Obsessions (the thoughts that can cause considerable distress) and compulsions (the repetitive behaviors or mental acts that the person will perform) are interrelated. For example, the cognitive obsession of being contaminated by germs corresponds to the behavioral compulsion of washing multiple times throughout the day.

Hoarding syndrome. As previously noted, hoarding symptoms are now considered separable from obsessive-compulsive symptoms (APA, 2013; Mataix-Cols et al., 2010). Hoarding is defined as difficulty discarding or parting with possessions, due to the perceived need to save them (Frost, Steketee, & Williams, 2000). The accumulations of these items can compromise areas in the home that become uninhabitable and unsafe (Frost, Steketee, & Williams, 2002). Indecisiveness, organizational deficits, and memory difficulties are common symptoms in those who hoard (Frost & Hartl, 1996). Clinical levels of hoarding are estimated to occur in 2-6% of the general population (APA, 2013; Samuels et al., 2008). The aspects of hoarding that define whether or not the issue is clinical are the degree of clutter in the home,

whether or not the items are of value, and a significant level of distress as a result of the hoarding (Frost & Hartl, 1996).

Although hoarding was considered a facet of OCD, the fears and urges have proven to be less similar than once believed (Mataix-Cols et al., 2010). Research suggests that hoarding cognitions appear to differ from typical obsessions. Hoarding is not associated with overly distressing intrusive thinking; instead it is thought of as part of the normal thought process (Watson & Wu, 2005). Moreover, hoarding cognitions do not correspond to those that are typical of compulsions. Hoarding is a “passive” phenomenon. Rather than actively working to keep certain items or other ritualistic behaviors, distress is typically only triggered when someone is faced with the prospect of having to discard items (Mataix-Cols et al., 2010). This may be the reason that treatments for obsessive-compulsive syndrome are not effective for hoarding (Abramowitz, Franklin, Schwartz, & Furr, 2003; Mataix-Cols et al., 2002).

Body dysmorphic syndrome. The key symptom dimension of body dysmorphic disorder is an exaggerated appearance concern. According to the APA (2013), body dysmorphic syndrome at clinically significant levels affects approximately 2.4% of adults in the general population. Body dysmorphic syndrome is defined as being preoccupied with one or more perceived defects in the physical appearance. These flaws are not observable by others, or not as extreme as the individual believes. The individual spends time repetitively checking mirrors, excessively grooming, or seeking reassurance, or mentally acting, by comparing him- or herself to others (APA, 2013).

Those who experience BDD spend on average 3 to 8 hours consumed by preoccupations which are the root of shame, disgust, and low self-esteem (Phillips, 2009).

For instance, an individual may believe that his arms are of drastically different lengths. To others, the arms appear to be of equivalent (or nearly equivalent) lengths, but the individual believes that his arms are drastically disfigured. Those experiencing BDD often spend more than 3 hours a day performing some type of compulsive behavior, such as grooming (Phillips, 2009). Other behaviors may include tanning, changing clothes, or excessively exercising (Didie, Kelly, & Phillips, 2010). Avoidance is a key symptom of body dysmorphia, as those with BDD avoid social settings to alleviate BDD-related distress, and avoiding eye contact with others or mirrors can be common (Phillips, 2009).

Although body dysmorphic syndrome is considered a part of the OC spectrum, it was first included in the DSM III as an atypical (similar to the “Not Otherwise Specified” category) somatoform disorder called dysmorphophobia, (APA, 1980). In DSM-III-R, it was retained and expanded on in the somatoform disorder category (APA, 1987; Phillips, Menard, Pagano, Fay, Stout, 2006.) Until the DSM-5, body dysmorphia remained within the somatoform disorders.

Co-occurring OC spectrum syndromes

The relationship between the three OCS syndromes and the reason they often co-occur is supported by multiple studies. In three studies, the relationships of N/NA with OCD were found to be of a magnitude similar to those typically found with unipolar mood and anxiety syndromes (Fullana et al., 2004; Costa & McCrae, 1992; Nestadt et al., 2009). Similarly, hoarding disorder was determined to be positively and significantly correlated with N/NA (LaSalle et al., 2005; Samuels et al., 2000; Watson & Wu, 2005). In studies of patients with BDD, a consistent finding is higher than typical levels of N/NA (Cohen et al., 2000; Phillips & McElroy, 2000). The three OC spectrum disorders

all show a pattern of relationships with N/NA that is similar. This suggests that negative affect is a common factor for these disorders.

One method of looking at the relationship between the obsessive-compulsive, body dysmorphic and hoarding syndromes is to examine their patterns of co-occurrence within the same and between different syndromes. A finding across studies is that these syndromes are all linked by the common factor of N/NA, but each have distinct specific symptoms making them unique (Brown et al., 1998). A similar pattern will be examined for the dimensional syndromes of the OC spectrum in hopes of demonstrating both the common factor of N/NA and the separability of the syndromes.

OC Spectrum. A study by Samuels et al. (2008) suggests that when there is one OC spectrum disorder, another may be more likely. About a quarter to a third of obsessive-compulsive syndrome cases co-occur with hoarding (LaSalle-Ricci et al., 2005; Wheaton, Timpano, LaSalle-Ricci, Murphy, 2006). Although the studies of the overlap between body dysmorphia and OC syndrome varied widely, when averaged they suggest that about one-quarter of the cases co-occur (Conceicao-Costa et al., 2012; Gunstad & Phillips, 2003; Hollander, Cohen, & Simeon, 1993). To date, there have been no studies of the overlap between hoarding and body dysmorphic syndromes.

Unipolar depression. The overlap or co-occurrence between the OC spectrum syndromes and unipolar depression is particularly robust. Rates of unipolar depression co-occurring with body dysmorphic syndrome have varied widely in studies (Gunstad & Phillips, 2003; Phillips et al., 2007; Tukul, Tihan, Ozturk, 2013). Studies with large samples, however, produce fairly consistent findings that about one-third of those with body dysmorphic syndrome also have experienced unipolar depression in their lifetime

(range = 31% to 33%) (Gunstad & Phillips, 2003; Phillips et al., 2007). The co-occurrence of OC symptoms with unipolar depression ranged widely, but the mean across two studies suggests a similar degree of overlap as with body dysmorphia (range 9% to 65%; mean = 32%) (Pertusa et al., 2008; Phillips et al., 2007). One of the few studies with a large sample examined the overlap of hoarding with unipolar depression found the two co-occurred in about half the sample (i.e., Frost, Steketee, & Tolin, 2011).

Anxiety. Studies of the overlap between anxiety and the three OC spectrum syndromes suggest a somewhat lower co-occurrence than with unipolar depression. The overlaps between body dysmorphic syndrome and cases of social anxiety, panic, and the specific phobias were fairly low (range = 0-12%) (Frost et al., 2011; Hollander et al., 1993; Phillips et al., 2007; Tukul et al., 2013). The overlaps between either the obsessive-compulsive or hoarding syndromes with those of social anxiety, panic, and specific phobia were somewhat higher than with BDD (range = 0-16%) (Frost et al., 2011; Hollander et al., 1993; Pertusa et al., 2008; Phillips et al., 2007). In contrast, the overlaps between OC spectrum syndromes and generalized anxiety syndrome were about 2 to 3 times higher than with the previously mentioned forms of anxiety (range = 3% to 38%) (Frost et al., 2011; Hollander et al., 1993; Pertusa et al., 2008; Phillips et al., 2007).

Summary. The co-occurrence of the three OC spectrum syndromes with each other, and between each of these with unipolar depression and Generalized Anxiety Disorder suggests these all share a common factor. Although there is considerable overlap of the three OC spectrum syndromes with each other, these each show a similar magnitude of overlap with unipolar depression. In addition, a majority of types of anxiety have relatively modest co-occurrences with the OC spectrum, but the exception

was GAD. The magnitude of overlap between GAD symptoms and those of the three spectrum disorders was similar to magnitude these shared with unipolar depression.

Common Factor: Negative Affectivity/Neuroticism (N/NA)

Relevant to findings for the OCS syndromes is that the common factor of N/NA accounts for their co-occurrence with unipolar depression or anxiety (Lahey, 2009; Mineka, Watson, & Clark, 1998; Watson, 2005; Watson & Clark, 2006). There is robust empirical support for that common factor being Neuroticism or Negative Affectivity (N/NA), a broad personality trait that is a heritable risk factor for an array of anxiety, unipolar depression, and somatoform syndromes (Hettema et al., 2006; Kendler et al., 2011; Lahey, 2009; Middeldorp et al., 2005; Munafò et al., 2003; Munafò et al., 2006). Individuals experiencing high levels of N/NA were more likely to experience discomfort across all situations and to focus on negative aspects of themselves, as well as the outside world (Watson & Clark, 1984).

Integration

This review suggests that the OCS syndromes should be considered in a broader context that addresses the issues of comorbidity, common characteristics or factors shared across categories, and specific characteristics or factors unique to each syndrome (Brown et al., 1998). These issues are not addressed by the DSM-5's current grouping of OCS, but might be remedied in a more inclusive taxonomy. It has been proposed that a hierarchical organization is used, with a general risk factor of N/NA that is shared by the three OCS syndromes along with the unipolar depressive, anxiety, and somatoform syndromes (Hettema et al., 2006; Kotov et al., 2010; Lahey, 2009; Malouff et al., 2005; Munafò et al., 2003). This organization of psychological syndromes is supported by

research and may facilitate better understanding of all the related syndromes (Goldberg et al., 2009).

The Emotional Disorders: An alternative Taxonomy for the OCS

An alternative to organize the DSM-IV mood, anxiety, and somatoform disorders was proposed by a DSM Work Group and is called the emotional disorders taxonomy (Goldberg et al., 2009). The emotional disorders has the advantage of unifying seemingly diverse syndromes, within different DSM categories, based on the broad, shared risk factor of N/NA (Allen, McHugh, & Barlow, 2008; Barlow, Allen, & Choate, 2004; Goldberg et al., 2009). All of these syndromes share a set of common general distress symptoms (i.e., N/NA), but each syndrome is also defined by its unique symptoms (Goldberg et al., 2009). This integrated model is proposed to include DSM-5 generalized anxiety disorder (GAD), unipolar depression, panic disorder, obsessional states, post-traumatic stress disorder (PTSD) and somatoform disorders. Although there is strong support for unipolar depressive and the anxiety syndromes there is less support for PTSD and the evidence for all three OCS syndromes has not been explored.

The DSM Workgroup proposed to include the OCS syndromes because these all produce high scores for N/NA, and have a common set of non-specific emotional symptoms that are shared with other designated emotional disorders (Goldberg et al., 2009). These syndromes are associated with emotional dysregulation that is characterized by increased levels of fear, depression, anxiety and/or somatic symptoms (Allen et al., 2008; Barlow et al., 2004; Goldberg et al., 2009). Furthermore, the OCS syndromes of interest to this study have established links to the anxiety and somatoform disorders that are supported as among the emotional disorders. In the DSM-IV

obsessive-compulsive syndrome included hoarding and was considered an anxiety disorder (APA, 1987). Similarly, prior to the DSM-5, body dysmorphic syndrome was classified as a somatoform disorder. These suggest that the three OCS syndrome warrant investigation as emotional disorders (APA, 1987, 2013).

At the diagnostic level, this model is supported by the high rates of comorbidity across all of the syndromes due to shared N/NA (Brown, Campbell, Lehman, Grisham, & Mancliff, 2001; Roy-Byrne, Craske, & Stein, 2006). As noted previously, the co-occurrence of the OCS with each other and other types of DSM-IV anxiety disorder suggests the likelihood of a common pathology (Kendler et al., 2011; LaSalle-Ricci et al., 2005). Genetic studies also implicate a common factor that is shared by the obsessive-compulsive, hoarding and body dysmorphic syndromes is N/NA (Monzani, Rijdsdijk, Iervolino, Anson, Cherkas, Mataix-Cols., 2012; Wheaton et al., 2006). Together these studies support testing whether OCS syndromes along with anxiety (GAD) and trauma-related disorders (PTSD) share the broad common factor of N/NA. There is indirect evidence for common genes among these syndromes for the obsessional disorders, which is shown in co-occurrences of emotional disorders in first-degree relatives of those exhibiting these disorders than those of normal controls, but the degree of overlap remains to be clarified (Goldberg et al., 2009). In sum, there are compelling reasons for an empirical investigation of the OCS syndromes within the taxonomy of the emotional disorders.

Approach for this Study

The structure of the emotional disorders will provide a framework to examine the three OC spectrum syndromes. Consistent with a dimensional approach, we will use a

large undergraduate sample who are expected to show a range of symptoms consistent with the assessed problems across measures. Markers of anxiety and trauma-related disorders, generalized anxiety and post-traumatic stress disorder, will also be included as benchmarks for other emotional disorders. Based on previous research, the markers of the OCS syndromes and those of GAD and PTSD are expected to have similar moderate associations with N/NA. We also expect that the specific symptom markers of each syndrome (e.g., hoarding) will be more associated with that syndrome. This clustering will suggest the separability of the specific syndromes.

Then, all model components will be combined in a confirmatory factor analyses to further examine the relations the three OCS syndromes have with N/NA. Two potential CFA models will be evaluated, a bi-factor model and a second-order model (Brown et al., 1998; Chen, West, & Sousa, 2006; Giles, 2007; Zinbarg, Barlow, & Brown, 1997). Each model will include the shared broad factor of N/NA and the specific factor markers of obsessive-compulsive, hoarding, and body dysmorphic syndromes, GAD and PTSD. Support for the second-order model will suggest that negative emotionality accounts for all variance among the lower-order factors of obsessive-compulsive, hoarding and body dysmorphic syndromes. The bi-factor model includes the unique variance of the specific syndromes and the shared variance of N/NA.

Confirmatory Factor Analysis (CFA) will be used to determine the relationship between the studied variables. The bifactor model is consistent with the model of the emotional disorders with the common factor of N/NA that contributes variance shared by all five syndromes. In this model each of the specific syndromes also is unique and contributes variance that is not shared with the syndromes. It is expected that the bifactor

model will be the best fit to our data (Goldberg et al., 2009; Malouff et al., 2005). A hierarchical model would demonstrate that the syndromes share one general factor of N/NA, and that all the variance shared by the syndromes goes through the one factor of N/NA. This is an unlikely model, because it suggests that the syndromes are very similar. There is literature that supports each syndrome has specific set of unique symptoms (Brown et al., 1998).

Method

Participants

Participants were 300 undergraduates from both Eastern Illinois University and the College of Du Page. Their ages ranged from 18 to 47 years ($M = 21.08$, $SD = 4.24$). Most of the participants were female (66.3%), single (88.3%), and Caucasian (63.6%); 12% were African-America, 10.3% were Asian, 8.7% were Asian and 3.3% had other ethnic backgrounds. Unmarried participants comprised the majority of sample (88.3%) with the remainder being married (8.3%), divorced (.3%), widowed (.3% each) or other (2.3%). Most of the participants worked part-time (46.7%), others worked full-time (19%) or were full-time students (27%) with the remainder having other occupational statuses (7.3%). Sophomores (32.3%) and Freshmen (26.7%) comprised much of the sample with the rest being Juniors and Seniors

Procedure

These participants were enrolled in various psychology classes and participated in this study either for course credit or extra-credit. Participants completed an online battery of self-report questionnaires either through a course website or SONA research participation website. Students who did not wish to participate in research or did not meet

the age requirement of 18 years or older were given the option to participate in a non-research extra credit option.

Those who completed the online survey were redirected to a page that provided a debriefing statement. To obtain course credit or extra-credit, the participants identified their instructor, their class, and provided their names. This identifying information was separated from the participants' responses to the questionnaire. Their instructor was provided with the names of the students from their course who participated in the research.

Measures

We included markers for both the higher-order latent factor of N/NA and for the five, lower-order latent factors of body dysmorphic, obsessive compulsive, hoarding, anxiety and trauma syndromes. These were chosen based on their item content. We subsequently report correlational and confirmatory factor analyses that evaluate the validity of our model.

Negative Affectivity/Neuroticism.

Positive Affect and Negative Affect Scale (PANAS; Watson, Clark, & Tellegen, 1988). The PANAS trait form is a 20-item measure that asks respondents to rate how they generally feel, using a 5-point Likert-type scale with response options ranging from very slightly to not at all = 1 to extremely = 5. One 10-item scale assesses general positive affect (e.g., active, alert, enthusiastic, interested, proud). The other 10-item scale assesses general negative affect (e.g., irritable, frightened, guilty, jittery, upset). The scale measures the moods of positive affectivity (PA) and negative affectivity (NA). This study used only the NA scale. The internal consistency of the NA ranges from good to

excellent (range α s = .85 to .93). Test-retest reliability for the trait version of the NA scale is excellent ($r = .84$) (Watson et al., 1988).

Hoarding Syndrome.

Hoarding Rating Scale-Interview (HRS-I; Tolin, Frost, & Steketee, 2010). The HRS is a self-report measure with 5-items that are rated on a 9-point Likert-type scale (i.e., responses range from *not at all* = 0 to *extremely difficult* = 8). This measure assess the magnitude of impairment caused by hoarding (e.g., “Because of the clutter or number of possessions, how difficult is it for you to use the rooms in your home?”). The measure has excellent internal consistency ($\alpha = .97$; Steketee et al, 2010). Test-retest reliability over the course of twelve weeks ranged from .85 to .94 on individual items and was .96 overall.

Savings Inventory-Revised (SI-R; Frost, Steketee, & Grisham, 2004). This measure is a 23-item self-report measure that uses a 5-point Likert-type scale (i.e., response options range from *not at all*=0 to *very much so*=4). The items assess the severity of hoarding symptoms such as clutter severity, difficulty discarding items, and habits of acquisition (e.g., “To what extent do you have difficulty throwing things away?”). The measure has been shown to have an excellent internal consistency ($\alpha = .92$). Test-retest reliability was tested during a time that ranged from two to four weeks, and resulted in correlations of .86 for the SI-R total, .89 for Difficulty Discarding, .90 for Clutter, and .78 for Acquisition (Frost et al., 2004).

Obsessive-Compulsive Syndrome.

Obsessive Beliefs Questionnaire-44 (OBQ-44; Myers, Fisher, & Wells, 2008). The OBQ-44 consists of 44 self-report items measured with a 7-point Likert-type scale

(i.e., response options range from *disagree very much* = 1 to *agree very much* = 7). The items in this measure assess inflated responsibility, overestimation of threat, perfectionism, intolerance of uncertainty, and thought control (e.g., “I often think things around me are unsafe”). The OBQ has excellent over all internal consistency ($\alpha = .95$; Myers et al., 2008). There is no published information about the measure’s test-retest reliability (S. Myers, personal communication, September 13, 2015).

Schedule of Compulsions, Obsessions, and Psychological Impulses (SCOPI; Watson & Wu, 2005). The SCOPI is an assessment which consists of 47 items that are rated on a 5-point Likert-type scale (i.e., response options range from *strongly disagree* = 1 to *strongly agree* = 5). It measures the symptoms of OCD such as obsessive checking, obsessive cleanliness, compulsive rituals, hoarding, and pathological impulses. (e.g., “Even when I do something very carefully, I worry that it is not quite right”). It has a good internal consistency (median $\alpha = .86$). The test-retest reliabilities over an eight-week time-period were good ($r_s = .79$ to $.82$; Watson & Wu, 2005).

Body Dysmorphic Syndrome.

Body Image Disturbance Questionnaire (BIDQ; Cash, Phillips, Santos, & Hrabosky, 2004). The BIDQ is a 7-item measure with 5-point Likert-type responses. Items including “Are you concerned about the appearance of some part(s) of your body which you consider especially unattractive?” are scored on a range of *not at all concerned* = 1 to *extremely concerned* = 5. The measure determines concern about body parts, mental preoccupation, emotional distress, impairment to functioning, interference with social life and occupation or education, and avoidance because of perceived defect. This measure offers high internal consistency when assessing both college men

(Cronbach's $\alpha = .88$) and women (Cronbach's $\alpha = .90$). The test-retest reliability over a two-week, time-period was good ($r = .88$; Cash & Grasso, 2005).

Dysmorphic Concerns Questionnaire (DCQ; Oosthuizen, Lambert, & Castle, 1998). The DCQ is a 7-item measure that uses a 4-point Likert-type scale (i.e., response options range from *not at all* = 0 to *much more than most people* = 3). It measures over-concern with physical appearance (e.g., "Have you ever been very concerned with some aspect of your appearance?"). The measure has good internal consistency ($\alpha = .88$) in clinical samples (Oosthuizen, Lambert, & Castle, 1998). The DCQ was able to correctly classify those with BDD 91.6% of the time (Mancuso, Knoesen, & Castle, 2010). S. Mancuso indicated that to date, there are no studies that show test-retest reliability of the DCQ (S. Mancuso, personal communication, August 4, 2015).

Anxiety: Generalized Anxiety Disorder.

Generalized Anxiety Disorder 7 (GAD 7; Spitzer, Kroenke, Williams, & Löwe, 2006). The GAD 7 is a 7-item measure that uses a 4-point Likert-type scale (i.e., response options range from *not at all* = 1 to *nearly every day* = 7). Participants are asked how often they have been bothered by anxiety related issues (such as "trouble relaxing" or "becoming easily annoyed or irritable") in the last two weeks. This measure has excellent internal consistency ($\alpha = .92$) and good test-retest reliability over a brief one-week time-period ($r = .83$; Spitzer et al., 2006).

Worry and Anxiety Questionnaire (WAQ; Dugas & Francis, 2000). The WAQ is a 6-item measure and uses a 9-point Likert-type scale (i.e., response options range from *not at all* = 1 to *totally excessive* = 9). It assesses the magnitude of various domains of worry (e.g., "Do your worries seem excessive or exaggerated?"). This measure has

adequate internal consistency ($\alpha = .76$) and test-retest reliability over a four-week time-period ($r = .76$; Deschenes & Dugas, 2012).

Trauma: Post-Traumatic Stress Disorder

Modified PTSD Symptom Scale-Self Report (MPSS-SR; Falsetti, Resnick, Resick, & Kilpatrick, 1993). The MPSS is a 17-item measure that uses a 5-point Likert-type scale (i.e., response options range from *not at all = 1* to *extremely = 5*). It assesses the frequency and severity of post-traumatic stress disorder symptoms (e.g., “Have you had repeated or intrusive upsetting thoughts or recollections of the event(s)?”). The MPSS-SR has excellent internal consistency ($\alpha = .96$; Falsetti et al., 1993). S. Falsetti indicated that to date, there are no studies that show test-retest reliability of the MPSS-SR (S. Falsetti, personal communication, August 5, 2015).

PTSD Checklist-Civilian Version (PCL-C; Weathers, Huska, & Keane, 1991).

The PTSD Checklist is a self-administered 17-item measure with a 5-point Likert-type scale (i.e., response options range from *not at all = 1* to *extremely = 5*). The items from this measure assess the severity and presence of PTSD symptoms (e.g., “Repeated, disturbing *memories, thoughts, or images* of a stressful experience from the past?”). The internal consistency for this measure is excellent ($\alpha = .94$), but the test retest reliability over a two-week, time-period was low ($r = .66$) (Conybeare, Behar, Solomon, Newman, & Borkoven, 2012).

Analyses

Preliminary correlations

Descriptive Statistics. In Table 1, the mean scores and standard deviations for the undergraduates are reported. This sample generally has scores similar to those

previously reported in the literature for similarly aged, nonclinical, student samples. For example, mean scores from our sample on the Positive and Negative Affectivity Schedule, Dysmorphic Concern Questionnaire, and Worry Anxiety Questionnaire scales are similar to those reported in the original validation manuscripts (Mancuso et al., 2010; Nuevo et al., 2008; Watson et al., 1988). All the reported mean scores were within one standard deviation of the available normed data.

Correlations. This sample is relatively large ($N = 30$) and even weak correlations will be statistically significant at the .05 level. We, therefore, emphasized the relative magnitude of the correlations. We will use the following recommended range of correlations, weak—less than $|.10|$; moderate—greater than or equal to $|.30|$; strong—greater than or equal to $|.50|$) (Cohen, Cohen, West, & Aiken, 2003).

The zero-order correlations between the broad component of the model, N/NA, and the syndrome specific obsessive-compulsive, body dysmorphic, hoarding, generalized anxiety and post-traumatic stress disturbances. As expected, these correlations showed initial support for the general factor of negative emotionality being shared by all of the specific dimensions or marker scales. All the markers of the OCS syndrome, GAD and PTSD had a pattern of correlations with NA that were in a similar moderate to strong range ($r_s = .388 - .515$).

In Tables 2 and 3 are the Pearson product-moment correlations between the specific markers for the obsessive-compulsive spectrum, anxiety, and trauma syndromes. We expected these correlations to show initial support for the general factor of negative emotionality being shared by all of the specific dimensions or marker scales. It was also expected that all of the markers would have a pattern of correlations consistent with

emotional disorders; all had at least moderate associations with NA.

In Table 2 are the correlations between NA and the marker scales. The associations range from .39 to .51 and are consistent with what would be expected for emotional disorder syndromes. The correlations of NA with the markers of body dysmorphic, hoarding, and obsessive-compulsive syndromes are all moderate ($r_s = .39$ to .49). The correlations of the anxiety and trauma syndromes were generally strong and somewhat higher ($r_s = .50$ to .51).

In Table 3 are the correlations among the markers for OCS, anxiety, and trauma syndromes. As we expected, the correlations with markers of the same constructs that share the same variance (i.e., in the boldface type) had the strongest correlations. The highest correlations were between the pairs of the markers that measured the same syndromes (e.g., the SIR with the HRS) ($r_s = .60$ to .77). This was in contrast to the comparatively lower correlations between the pairs of markers that measured different syndromes (e.g., the SIR and the WAQ; $r_s = .17$ to .51). It is notable that the measures of OCS and BDS were very weakly correlated ($r_s = .17$ to .24); this suggests that the two syndromes are largely unrelated to each other.

Confirmatory Factor Analyses

Confirmatory factor analysis (CFA) was used to specify and examine the identified bifactor and higher order models. The data were analyzed with EQS 6.1 for Windows. The maximum likelihood robust (ML, robust) method of estimation (Bentler, 2004), was used as data from nonclinical samples when assessing psychopathology is usually somewhat skewed. Accordingly, Satorra and Bentler (1994) developed a family of corrected normal-theory fit indices that have been found to behave well with non-

normal data in medium to large samples (Bentler, 2004; Satorra & Bentler, 2001). The analyses were conducted on the covariance matrix to establish which of the models best fit the data.

In this study, five indices were used to empirically evaluate the models. These indices were the overall model Chi-square (χ^2); the Non-normed fit index or Tucker-Lewis Index (NNFI/TLI); the comparative fit index (CFI); the incremental fit index (IFI), and the root-mean-square error of approximation (RMSEA). Although there are no strict criteria for a good model fit, recent recommendations are values of .95 for CFI and .06 or less for RMSEA. Thus NNFI, CFI, and IFI values of .90 or greater indicate an "acceptable" fit and values of .95 or greater represent a "good" fit; similarly, and RMSEA values of .08 or less represent an "acceptable" fit and values of .06 or less to reflect a "good" fit (Hu & Bentler, 1999).

The Models. Figure 1 shows the two, higher-order models that were compared. Model 1A is a second-order model, and Model 1B is a bifactor model. Descriptions of these models are in the paragraphs below. Yung, Thissen, and McLeod (1999) showed that the second-order model, Model 1A, is nested within the bifactor model, Model 1B and this enabled us to directly test the improvement in fit between the two models. Both models had a second-order latent factor of N/NA and five first-order latent factors for the following syndromes: (a) body dysmorphic, (b) hoarding, (c) obsessive-compulsive, (d) generalized anxiety and (e) post-traumatic stress.

Model-1A, is a second-order model with a higher-order factor of negative affectivity that has a direct effect on the five first-order factors. The first order factors are the five emotional disorder syndromes (i.e., body dysmorphic, hoarding, obsessive-

compulsive, generalized anxiety and post-traumatic stress). This second-order model was identified by including a disturbance factor for each lower-order factor. Furthermore, the higher-order factor variance was constrained to 1.0 as were the first-order factor variances. This model implies that all the variance for the lower-order, specific factors is mediated by the higher-order factor of negative affectivity (Chen et al., 2006; Giles, 2007).

Model-1B, a bifactor model, was the next model examined. This model has one higher-order, general factor of negative affectivity, and five orthogonal, first-order factors. In this model, the first order factors are the five emotional disorder syndromes (i.e., body dysmorphic syndrome, hoarding syndrome, obsessive-compulsive syndrome, generalized anxiety and post-traumatic stress). The model was identified by constraining all latent variable variances to 1.0. The bifactor model is appropriate for variables that are moderately correlated and implies that the lower-order factors contribute unique variance beyond that of the general factor of negative emotionality (Chen et al., 2006). In other words, the shared factor of negative emotionality is generally related to all of the indicators, whereas, the specific factors are related to their construct specific indicators.

Model Evaluation. Table 4 shows the fit indices of Model 1A and Model 1B, the bifactor model. This solution yielded generally acceptable fit indices. The incremental fit indices were good (i.e., IFI, CFI, and NNFI) and ranged from .969 to .983. The RMSEA was .056 and was good. In Table 5, the factor loadings for the three factors were all positive and statistically significant, suggesting that the factors were reasonably well defined.

We compared Model 1A to the bifactor model (i.e., Model 1B). We chose Model

1B over Model 1A not only because it was the best fit to the data, but also because it was consistent with the emotional disorders model. In Table 4, all of the fit indices were superior to Model 1A; the incremental fit indices were all good (IFI, CFI, and NNFI \geq .966 as was the closer fit index (RMSEA = .059). Moreover, the better fit of Model 1B to the data is suggested by the scaled difference chi-square test; we used this test because it is consistent with the ML estimator we used. There was a significant reduction in the chi-square statistics from Model 1A to 1B [χ^2 diff (25) = 12.5145 $p < .05$]. In Table 5, the good fit of the bifactor model was further supported by the standardized loadings that were all positive and statistically significant on all factors.

Discussion

This empirical project examined syndromes that are within the obsessive-compulsive spectrum (OCS) (APA, 2013). Our research question was whether the three dimensional OCS syndromes were part of the broader taxonomy of the emotional disorders. The emotional disorders model proposes that each of the syndromes (a) shares the broad risk factor of N/NA, and (b) has a unique constellation of symptoms making it a distinct syndrome (Brown et al., 1998). Data from a series of studies supported that the three OCS syndromes (hoarding, body dysmorphic syndrome, obsessive-compulsive syndrome) have characteristics that correspond to other emotional disorders (Allen et al., 2008; Barlow et al., 2004; Goldberg et al., 2009). Consistent with the expected pattern, the studies suggest that the select syndromes appeared to share moderate levels of N/NA (Allen et al., 2008; Barlow et al., 2004). In addition, there was support for each syndrome having had its own distinct set of symptoms (Allen et al., 2008; Barlow et al., 2004).

Associations

Common factor of NA. Pearson product-moment correlations of the OCS syndromes with N/NA provided initial support for this common factor being shared as with the emotional disorders. The well-known emotional disorders of GAD and PTSD provided a benchmark for the OCS hoarding, body dysmorphic and obsessive-compulsive syndromes (Monzani et al., 2012; Wheaton et al., 2006). The relationship of N/NA with GAD and PTSD, were very similar to this broad trait's relationships with the select OCS syndromes. The similar strength and direction of these correlations suggests that NA is a common factor for all the syndromes we studied.

Unique Symptoms. The convergent and discriminant correlations of the marker scales for GAD, PTSD, and OCS syndromes corresponded to the prediction that each syndrome had unique symptoms. The convergent correlations between pairs of markers for the same syndromes (e.g., two measures of hoarding) were substantially stronger than the discriminant correlations between pairs of markers for different syndromes (a measure of hoarding with a measure of PTSD). The strongest correlations between pairs of markers for the same syndrome showed these shared substantial similarities in specific symptoms (Goldberg et al., 2009). In comparison, the much weaker correlations between markers of different syndromes show that the symptoms are distinct from each other.

Confirmatory Factor Analyses: Common and Unique Characteristics

The emotional disorders model and the status of the OCS syndromes within that taxonomy were further supported with confirmatory factor analysis (CFA). When two CFA models were compared the predicted bifactor model was a better fit to the data than an alternative model (Goldberg et al., 2009; Malouff et al., 2005). The bifactor model

CFA allowed verification for both the common latent factor of N/NA sharing variance with all five syndromes evaluated (i.e., GAD, PTSD, OC, hoarding, and BD) and that each of the syndromes contributed unique variance. This findings supported the hypotheses by demonstrating that the syndromes not only shared the common factor of N/NA, but also that the syndromes have unique, unshared symptoms (Allen et al., 2008; Barlow et al., 2004). Also, our findings supported the hypothesis by the bifactor model demonstrating a good model fit.

Implications

This is one of the first studies to examine the validity of the OCS syndromes. These findings provide some support for an alternative organization to the current categorization of OCS syndromes and warrant further investigation and consideration. Obsessive-compulsive syndrome is designated as the exemplar for five other syndromes in the OC spectrum (i.e., body dysmorphic, obsessive compulsive, trichotillomania and excoriation) and has features which the other syndromes of the OCS share (Abramowitz & Jacoby, 2014). The findings from this study, however, suggest that obsessive-compulsive syndrome is an emotional disorder. In other words, the perceived commonalities among the syndromes we studied may actually be attributed to the broader underlying factor of N/NA.

Our findings link the OCS syndromes to the emotional disorders and have implications for the obsessive-compulsive and related disorders (OCRD) category that is currently in the DSM-5 (APA, 2013). Empirical support for this category may be raised in subsequent editions of the DSM-5. At the beginning of this study, it was noted that the dimensional syndromes we selected are sub-clinical manifestations of the clinically

impairing disorders that are identified in the DSM-5 OCRDs. These empirical findings suggest that the disorders in this category may be better grouped by risk factors as opposed to observed symptomology. For this reason, the validity of the OCRDs may need to be reexamined.

These findings have extended the model of the emotional disorders and have implications for treatment. The Unified Protocol (UP), a fourth generation cognitive behavioral therapy (CBT), uses a single approach that ameliorates the shared etiological risk factor N/NA for all the emotional disorders (Barlow et al., 2004). The UP targets a broad range of emotional disorders and can be used to reduce many of the common symptoms of N/NA (Barlow et al., 2004; Goldberg et al, 2009; Longley, Calamari, Noyes, Meyers & McDowell, 2014). This suggests that the UP can be extended to body dysmorphia and hoarding; the UP is already being used to effectively treat OCD. In addition, based on the research in this literature review, the emotional disorders frequently co-occur and the source of the overlap in disorders is shared N/NA (Clark et al., 1995). The UP is particularly effective for co-occurring disorders, because it teaches management of this shared risk factor. Expanding the taxonomy of the emotional disorders has the potential to improve treatment of psychological disorders.

These findings also have implications for assessment of psychological disorders. Assessment for the presence of an emotional disorder and response to treatment can be potentially simplified. Both the identification and response to treatment could be easily monitored by using a short, simple measurement of N/NA. One such measure is the twenty-item, Positive and Negative Affect Scale (PANAS; Watson et al., 1988). It would be beneficial to monitor N/NA, as fluctuations in the level of N/NA may coincide with

fluctuations in symptoms of the syndromes (Hofman & Meyer, 2006; Shahar & Herr, 2011). Rather than monitoring separate sets of symptoms for each syndrome, N/NA alone could be measured to indicate current levels of distress.

Strengths and Limitations

This study has both strengths and weaknesses. The sample was composed of college students who were largely female and Caucasian. These restricted demographic characteristics may limit how well these results generalize to the population at large. An additional limitation is that the means of assessing symptoms was with self-report measures. It is possible that the participants' self-evaluation is biased and not an accurate reflection of their actual symptoms. Another limitation of this study is that not all OCS syndromes were examined, trichotillomania and excoriation were not included. For this reason, the conclusions about the validity of the obsessive-compulsive and related disorders category are presently limited.

This study also has strengths. The sample for this study was relatively large. Errors in responses are largely compensated for by the number and variability in the overall number of responses. Moreover the large sample size of 300 participants provides confidence that there is sufficient power to analyze the data using CFA. There are several rules of thumb for the optimal sample size for a CFA (Jackson, 2001). Our sample sizes exceeds the most commonly cited rules of thumb that are 10 participants for each indicator and at least equal to 200 participants (Jackson, 2001).

Future directions of this research

There are a number of studies that would extend these findings. For instance, replicating the same CFA model with a sample from the general population would

enhance the generalizability of these findings. In addition, emotional disorders that were not included in the CFA model from this study would be of interest. For example, there were several OCS syndromes that were excluded from this study, trichotillomania and excoriation. A CFA that includes the trichotillomania, excoriation, hoarding, body dysmorphia, and obsessive compulsive syndromes would further test whether these are or are not emotional disorders.

Conclusions

This study makes a contribution to the literature by examining the validity of the OCRD category in the new DSM-5 (APA, 2013). At the broadest level, the DSM-5 is under scrutiny because there is little scientific support for a number of its newly proposed categories (Clark et al., 1995; Widiger & Samuel, 2005). In this regard, the OCRDs is a new category that warrants further investigation (Murphy et al., 2010). As is typical of DSM organization, the OCRDs are categorized based on observed similarity of symptoms (Monzani et al., 2014; Storch et al., 2008). Of particular interest for this study are two syndromes in the OCRDs: body dysmorphic disorder, which was formerly in somatoform disorders and hoarding which was formerly one symptom of OCD (APA, 1987). The category of obsessive-compulsive and related disorders does not address two issues pertinent to this study: the reason that similar symptoms and frequent co-occurrence of disorders occur across different categories (Brown et al., 2001; Roy-Byrne et al., 2006).

The issues of the similar symptoms and co-occurrence across disorders were addressed by this study's reconceptualization of the obsessive-compulsive and related disorders as syndromes within the emotional disorders. It was concluded that there is a

broad, shared factor of N/NA among hoarding, body dysmorphic, and obsessive-compulsive syndromes which helps to dispute the current categorization (Lahey, 2009; Middeldorp et al., 2005). In addition, the model of the emotional disorders also addresses another issue, the reason that there are unique symptoms that make each syndrome distinct (Hettema et al., 2006; Kendler et al., 2011). This study provided empirical evidence for the emotion disorders model that proposes both shared and unique symptoms are included in the constellation of characteristics for each syndrome (Brown et al., 1998).

Our study has contributed to a growing literature that advocates the use of the taxonomy of the emotional disorders (Allen et al., 2008; Barlow et al., 2004). The emotional disorder's broader and more inclusive organization of psychological disorders will facilitate promises to be of greater clinical utility (Barlow 2008, Barlow et al., 2004). This simpler, alternative system of classification will enhance a clinician's ability to diagnose syndromes and to select appropriate treatment (Barlow 2008, Barlow et al., 2004). This study also provides more succinct understanding of true relationship of the syndromes within the Obsessive Compulsive Spectrum. It further suggests that the obsessive-compulsive and related disorders category in the DSM-5 may have limited validity. Overall this study suggests a new direction for the DSM with a classification based on shared risk factors rather than shared phenomenology.

References

- Abramowitz, J. S., Franklin, M. E., Schwartz, S. A., & Furr, J. M. (2003). Symptom presentation and outcome of cognitive-behavioral therapy for obsessive-compulsive disorder. *Journal of Consulting and Clinical Psychology, 71*(6), 1049–1057. doi:10.1037/0022-006X.71.6.1049
- Abramowitz, J. S., & Jacoby, R. J. (2014). Obsessive-Compulsive Disorder in the DSM-5. *Clinical Psychology: Science & Practice, 21*(3), 221-235. doi:10.1111/cpsp.12076
- American Psychiatric Association (1980). *Diagnostic and statistical manual of mental disorders* (3rd ed.). Washington, DC: Author.
- Allen, L. B., McHugh, R. K., & Barlow, D. H. (2008). Emotional disorders: A unified protocol. In D. H. Barlow (Ed.), *Clinical handbook of psychological disorders: A step-by-step treatment manual* (4th ed., pp. 216–249). New York: Guilford Press.
- American Psychiatric Association (1987). *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.). Washington, DC: Author.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.
- Arnold, L., Auchenbach, M., & McElroy, S. (2001). Psychogenic Excoriation: Clinical Features, Proposed Diagnostic Criteria, Epidemiology and Approaches to Treatment. *CNS Drugs, 15*(5), 351-359. doi:10.2165/00023210-200115050-00002
- Barlow, D. H. (2008). *Clinical Handbook of Psychological Disorders: A Step-by-step treatment manual* (4th Ed.). Chapter 6. New York: Guilford Press.
- Barlow, D., Allen, L., & Choate, M. (2004). Toward a Unified Treatment for Emotional

Disorders. *Behavior Therapy*, 35(2), 205-230. doi:10.1016/S0005-7894(04)80036-4

Bentler, P. M. (2004). EQS 6.1 structural equations program manual. Encino, CA: Multivariate Software.

Bhatia, M. S., & Jhanjee, A. (2013). Familial trichotillomania responding to SSRIs. *German Journal of Psychiatry*, 16(1), 51-53.

Brown, T. A., Campbell, L. A., Lehman, C. L., Grisham, J. R., & Mancill, R. B. (2001). Current and lifetime comorbidity of the DSM-IV anxiety and mood disorders in a large clinical sample. *Journal of Abnormal Psychology*, 110(4), 585-599. doi:10.1037/0021-843X.110.4.585

Brown, T. A., Chorpita, B. F., & Barlow, D. H. (1998). Structural relationships among dimensions of the DSM-IV anxiety and mood disorders and dimensions of Negative affect, positive affect, and autonomic arousal. *Journal of Abnormal Psychology*, 107(2), 179-192. doi:10.1037/0021-843X.107.2.179

Cash, T. F. & Grasso, K. (2005). The norms and stability of new measures of the multidimensional body image construct. *Body Image*, 2, 199-203. doi:10.1016/j.bodyim.2005.03.007

Cash, T.F., Phillips, K.A., Santos, M.T., & Hrabosky, J.I. (2004). Measuring “negative body image:” Validation of the body image disturbance questionnaire in a non-clinical population. *Body Image: An International Journal of Research*, 1(4), 363-372. doi:10.1016/j.bodyim.2004.10.001

Chen, F. F., West, S. G., & Sousa, K. (2006). A comparison of bifactor and second-order models of quality of life. *Multivariate Behavioral Research*, 41(2), 189-225.

doi:10.1207/s15327906mbr4102_5

Clark, L. A., Watson, D., & Reynolds, S. (1995). Diagnosis and classification of psychopathology: Challenges to the current system and future directions. *Annual Review of Psychology*, *46*, 121-53. doi:10.1146/annurev.ps.46.020195.001005

Cohen, J., Cohen, P. West, S. G. & Aiken, L. S. (2003). *Applied Multiple Regression/Correlation Analysis for the Behavioral Sciences* (3rd ed.). New Jersey: Lawrence Erlbaum Associates

Cohen, L. J., Kingston, P., Bell, A., Kwon, J., Aronowitz, B., & Hollander, E. (2000). Comorbid personality impairment in body dysmorphic disorder. *Comprehensive Psychiatry*, *41*(1), 4-12. doi:10.1016/S0010-440X(00)90124-X

Conceicao-Costa, D. L., Chagas-Assuncao, M., Arzeno-Ferrão, Y., Archetti-Conrado, L., Hajaj-Gonzalez, C., Fontenelle, L., . . . Gedanke-Shavitt, R. (2012). Body dysmorphic disorder in patients with obsessive-compulsive disorder: prevalence and clinical correlates. *Depression & Anxiety* *29*(11), 966-975. doi:10.1002/da.21980

Conybeare, D., Behar, E., Solomon, A., Newman, M. G., & Borkovec, T. D. (2012). The PTSD Checklist-Civilian Version: Reliability, Validity, and Factor Structure in a Nonclinical Sample. *Journal of Clinical Psychology*, *68*(6), 699-713. doi:10.1002/jclp.21845

Costa, P., & McCrae, R. (1992). Normal personality assessment in clinical practice: The NEO personality inventory. *Psychological Assessment*, *4*(1), 5-13. doi:10.1037/1040-3590.4.1.5

Deschenes, S., & Dugas, M. (2013). Sudden Gains in the Cognitive-Behavioral

- Treatment of Generalized Anxiety Disorder. *Cognitive Therapy & Research*, 37(4), 805-811. doi:10.1007/s10608-012-9504-1
- Didie, E. R., Kelly, M. M., & Phillips, K. A. (2010). Clinical features of body dysmorphic disorder. *Psychiatric Annals*, 40(7), 310-316. doi:10.3928/00485713-20100701-03
- Dugas, M. J., & Francis, K. (2000). Review of the Worry and Anxiety Questionnaire. In: J. Maltby, C. A. Lewis, & A. P. Hill (Eds.), *Commissioned reviews on 300 Psychological Tests*. Lampeter, Wales: Edwin Mellen Press.
- Falsetti, S. A., Resnick, H. S., Resick, P. A., & Kilpatrick, D. G. (1993). The Modified PTSD Symptom Scale: A brief self-report measure of posttraumatic stress disorder. *The Behavior Therapist*, 16, 161-162. <http://web.b.ebscohost.com.proxy1.library.eiu.edu/ehost/detail/detail?vid=34&sid=29560e32-6e35-4513-ae57ddf7e2a61a75%40sessionmgr110&hid=118&bdata=JnNpdGU9ZWwhvc3QtbGl2ZQ%3d%3d#db=psych&AN=2011-20330-001>
- Frost, R. O., Steketee, G., & Grisham, J. (2004). Measurement of compulsive hoarding: Saving Inventory-Revised. *Behaviour Research and Therapy*, 42(10), 1163-1182. doi:10.1016/j.brat.2003.07.006
- Frost, R. O., & Hartl, T. L. (1996). A cognitive-behavioral model of compulsive hoarding. *Behaviour Research and Therapy*, 34(4), 341-350. doi:10.1016/0005-7967(95)00071-2
- Frost, R. O., Steketee, G., & Tolin, D. (2011). Comorbidity in hoarding disorder. *Depression and Anxiety*, 28, 876-884. doi:10.1002/da.20861
- Frost R. O., Steketee G, Williams L. (2002). Compulsive buying, compulsive hoarding, and obsessive-compulsive disorder. *Behavior Therapy*, 33(2), 201-214.

doi:10.1016/S0005-7894(02)80025-9

- Frost, R. O., Steketee, G., & Williams, L. (2000). Hoarding: a Community Health Problem. *Health Social Care and Community*, (8)4, 229-234. http://web.b.ebscohost.com.proxy1.library.eiu.edu/ehost/detail/detail?vid=44&sid=29560e32-6e35-4513-ae57ddf7e2_a61a75%40sessionmgr110&hid=118&bdata=JnNpdGU9ZW_hvc3QtbGl2ZQ%3d%3d#db=a9h&AN=5454709
- Fullana, M., Mataix-Cols, D., Trujillo, J., Caseras, X., Serrano, F., Alonso, P., . . . Torrubia, R. (2004). Personality characteristics in obsessive-compulsive disorder and individuals with subclinical obsessive-compulsive problems. *British Journal of Clinical Psychology*, 43(4), 387-398. <http://search.proquest.com/docview/218642401?accountid=12125>
- Giles, G. E. (2007). Multi-factor modeling in individual differences research: Some recommendations and suggestions. *Personality and Individual Differences*, 42(1), 37-48. doi:10.1016/j.paid.2006.06.019
- Goldberg, D. P., Krueger, R. F., Andrews, G., & Hobbs, M. J. (2009). Emotional disorders: Cluster 4 of the proposed meta-structure for DSM-V and ICD-11. *Psychological Medicine*, 39(12), 2043-2059. doi:10.1017/S0033291709990298
- Gunstad, J. & Phillips, K. (2003). Axis I Comorbidity in Body Dysmorphic Disorder. *Comprehensive Psychiatry*, 44(4), 270-276. doi:10.1016/S0010-440X(03)00088-9
- Hettema, J. M., Neale, M., Myers, J. M., Prescott, C. A., & Kendler, K. S. (2006). A population-based twin study of the relationship between neuroticism and internalizing disorders. *American Journal of Psychiatry*, 163(5), 857-864. doi:10.1176/appi.ajp.163.5.857

- Hofmann, B. U., & Meyer, T. D. (2006). Mood fluctuations in people putatively at risk for bipolar disorders. *The British Journal of Clinical Psychology, 45*, 105-10. <http://search.proquest.com/docview/218670189?accountid=12125>
- Hollander, E. (1993). Obsessive-compulsive spectrum disorders: An overview. *Psychiatric Annals, 23*(7), 355-358. <http://search.proquest.com/docview/894252998?accountid=12125>
- Hollander, E., Cohen, L., & Simeon, D., (1993). Body dysmorphic disorder. *Psychiatric Annals 23*(7), 359-364. <http://search.proquest.com/docview/894195718?accountid=12125>
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*, 1-55.
- Jackson, D. L. (2001). Sample size and number of parameter estimates in maximum likelihood confirmatory factor analysis: A Monte Carlo investigation. *Structural Equation Modeling, 8*, 205–223.
- Kendler K.S., Aggen, S. H., Knudsen, G., Røysamb, E., Neale, M.C., & Reichborn-Kjennerud, T. (2011). The structure of genetic and environmental risk factors for syndromal and subsyndromal common DSM-IV axis I and all axis II disorders. *American Journal of Psychiatry, 168*(1), 29-39. <http://search.proquest.com/docview/839308135?accountid=12125>
- Kotov, R., Gamez, W., Schmidt, F. & Watson, D. (2010). Linking “big” personality traits to anxiety, depressive and substance use disorders: A meta-analysis. *Psychological Bulletin, 136*(5), 768-821. doi:10.1037/a0020327

- Lahey B. B. (2009). Public health significance of neuroticism. *American Psychologist*, *64*(4), 241-256. doi:10.1037/a0015309
- LaSalle-Ricci, V., Arnkoff, D., Glass, C., Crawley, S., Ronquillo, J., & Murphy, D. (2005). The hoarding dimension of OCD: Psychological comorbidity and the five-factor personality model. *Behavior Research and Therapy*, *44*(10), 1503-1512. doi:10.1016/j.brat.2005.11.009
- Longley, S., Calamari, J., Noyes, R., Meyers, K., & McDowell, E. (2014). Health Anxiety (Hypochondriasis): An Emotional Disorder in an Alternative Taxonomy. *Current Psychiatry Reviews*, *10*(1), 3-13. doi:10.2174/1573400509666131119010129
- Malouff, J.M., Thorsteinsson, E.B., & Schutte, N. S. (2005). The relationship between the five-factor model of personality and symptoms of clinical disorders: A meta-analysis. *Journal of Psychopathology and Behavioral Assessment*, *27*(2), 101-114. doi:10.1007/s10862-005-5384-y
- Mancuso S, Knoesen N, Castle DJ. The Dysmorphic Concern Questionnaire: a screening measure for body dysmorphic disorder. *Australian and New Zealand Journal of Psychiatry* 2010; *44*(6), 535-542. doi:10.3109/00048671003596055
- Mataix-Cols, D., Marks, I. M., Greist, J. H., Kobak, K. A., & Baer, L. (2002). Obsessive-compulsive symptom dimensions as predictors of compliance with and response to behaviour therapy: Results from a controlled trial. *Psychotherapy and Psychosomatics*, *71*(5), 255-262. doi:10.1159/000064812
- Mataix-Cols, D.; Rosario-Campos, M. C., & Leckman, J. F. (2005). A multidimensional model of Obsessive-Compulsive Disorder. *American Journal of Psychiatry*,

16(2), 228-238. doi:10.1176/appi.ajp.162.2.228

Mataix-Cols D, Frost R. O., Pertusa A., Clark L.A., Saxena S., Leckman J. F., . . .

Wilhelm, S. (2010). Hoarding disorder: A new diagnosis for DSM-V? *Depression and Anxiety*, 27(6), 556-572. doi:10.1002/da.20693

Middeldorp, C. M., Cath, D. C., Van Dyck, R., & Boomsma, D. I. (2005). The comorbidity of anxiety and depression in the perspective of genetic epidemiology. A review of twin and family studies. *Psychological Medicine*, 35(5), 611-624. doi:10.1017/S003329170400412X

Mineka S., Watson D., & Clark, L. A. (1998). Comorbidity of anxiety and unipolar mood disorders. *Annual Review of Psychology*, 49(1), 377-412. <http://search.proquest.com/docview/205849046>

Monzani B, Rijdsdijk F., Harris J., Anson M., & Mataix-Cols, D. (2014). The structure of genetic and environmental risk factors for dimensional representations of DSM-5 obsessive-compulsive spectrum disorders. *Journal of the American Medical Association Psychiatry*, 71(2), 182-189. doi:10.1001/jamapsychiatry.2013.3524

Monzani B., Rijdsdijk F, Iervolino AC, Anson M, Cherkas L, Mataix-Cols D. (2012). Evidence for a genetic overlap between body dysmorphic concerns and obsessive-compulsive symptoms in an adult female community twin sample. *American Journal of Medical Genetics Part B Neuropsychiatric Genetics*, 159B, 376-382. doi:10.1002/ajmg.b.32040

Munafò, M. R., Clark T. G., Moore L. R., Payne E., Walton R., & Flint J. (2003). Genetic polymorphisms and personality in healthy adults: A systematic review and meta-analysis. *Molecular Psychiatry*, 8(5), 471-84.

doi:<http://dx.doi.org/10.1038/sj.mp.4001326>

- Munafò, M. R., Clark, T. G., Roberts K. H., & Johnstone E. C. (2006). Neuroticism mediates the association of the serotonin transporter gene with lifetime major depression. *Neuropsychobiology*, *53*(1), 1-8. doi:10.1159/000089915
- Murphy, D., Timpano, K., Wheaton, M., Greenberg, B., & Miguel, E. (2010). Obsessive-compulsive disorder and its related disorders: a reappraisal of obsessive-compulsive spectrum concepts. *Dialogues in Clinical Neuropsychiatry*, *12*(2), 131-148. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3181955/?tool=pmcentrez>
- Myers, S. G., Fisher, P. L., & Wells, A. (2008). Belief domains of the Obsessive Beliefs Questionnaire-44 (OBQ-44) and their specific relationship with obsessive-compulsive symptoms. *Journal of Anxiety Disorders*, *22*(3), 475-484. doi:10.1016/j.janxdis.2007.03.012
- Nestadt, G., Di, C. Z., Riddle, M. A., Grados, M. A., Greenberg, B. D., Fyer, A. J., & Roche, K. B. (2009). Obsessive-compulsive disorder: Subclassification based on co-morbidity. *Psychological Medicine*, *39*(9), 1491-501. doi:10.1017/S0033291708004753
- Nuevo, R., Ruiz, M. A., Izal, M., Montorio, I., Losada, A., & Márquez-González, M. (2008). A comparison of the factorial structure of DSM-IV criteria for generalized anxiety disorder between younger and older adults. *Journal of Psychopathology And Behavioral Assessment*, *30*(4), 252-260. doi:10.1007/s10862-008-9084-2
- Oosthuizen, P., Lambert, T., & Castle, D. J. (1998). Dysmorphic concern: Prevalence and associations with clinical variables. *Australian and New Zealand Journal Of*

Psychiatry, 32(1), 129-132. doi:10.3109/00048679809062719

Pertusa, A., Fullana, M., Singh, S., Alonso, P., Menchon, J., & Mataix-Cols, D. (2008).

Compulsive hoarding: OCD symptom, distinct clinical syndrome, or both? *The American Journal of Psychiatry*, 165(10), 1289-1298.

doi:10.1176/appi.ajp.2008.07111730

Phillips, K. *Understanding Body Dysmorphic Disorder: An Essential Guide*. New York, NY: Oxford University Press; 2009.

Phillips, K., McElroy, S. (2000.) Personality disorders and traits in patients with body dysmorphic disorder. *Comprehensive Psychiatry*, 41(4), 229-236.

doi:10.1053/comp.2000.7429

Phillips, K., Menard, W., Pagano, M., Fay, C., Stout, R. (2006). Delusional versus non-delusional body dysmorphic disorder: Clinical features and courses of illness. *Journal of Psychiatric Research*, 40, 95-104.

doi:10.1016/j.jpsychires.2005.08.005

Phillips, K., Pinto, A., Menard, W., Eisen, J., Mancebo, M., & Rasmussen, S. (2007).

Obsessive-compulsive disorder versus body dysmorphic disorder: a comparison study of two possibly related disorders. *Depression & Anxiety*, 24, 1091-1100.

Rahat, M., Rahimi, C., & Mohamadi, N. (2012). Psychometric Properties of the Arabic Version of the Obsessive Compulsive Beliefs Questionnaire-44 in a Student Population. *Iranian Journal of Psychiatry*, 7(4), 184-190. <http://web.a.ebscohost.com.proxy1.library.eiu.edu/ehost/detail/detail?vid=12&sid=2935a032-ca07-4798-8148-31e3475bc6b6%40sessionmgr4002&hid=4106&bdata=JnNpdGU9ZWwhvc3QtbGl2ZQ%3d%3d#db=a9h&AN=85229344>

- Ross, J., Gowers, S. (2011). Body dysmorphic disorder. *Advances in Psychiatric Medicine, 17*(2), 142-149. doi:10.1192/apt.bp.109.007716
- Samuels, J. F., Bienvenu, O. J., Grados, M. A., Cullen, B., Riddle, M. A., Liang, K., . . . Nestadt, G. (2008). Prevalence and correlates of hoarding behavior in a community-based sample. *Behaviour Research and Therapy, 46*, 836-844. doi:10.1016/j.brat.2008.04.004
- Samuels, J., Nestadt, G., Bienvenu, O. J., Costa, P., Riddle, M., Liang, K., . . . Cullen, B. (2000). Personality disorders and normal personality dimensions in obsessive-compulsive disorder. *The British Journal of Psychiatry, 177*, 457-462. doi:10.1192/bjp.177.5.457
- Satorra, A., & Bentler, P.M. (1994). Corrections to Test Statistics and Standard Errors in Covariance Structure Analysis. In Alexander von Eye and Clifford C. Clogg (Eds.), *Latent Variables Analysis: Applications to Developmental Research*. (pp. 399-419) SAGE Publications, Inc.
- Satorra, A., & Bentler, P. M. (2001). A scaled difference chi-square test statistic for moment structure analysis. *Psychometrika, 66*(4), 507-514. doi:10.1007/BF02296192
- Saxena, S. (2007). Is compulsive hoarding a genetically and neurobiologically discrete syndrome? Implications for diagnostic classification. *American Journal of Psychiatry, 164*, 380-384. doi:10.1176/appi.ajp.164.3.380
- Shahar, B., & Herr, N. R. (2011). Depressive symptoms predict inflexibly high levels of experiential avoidance in response to daily negative affect: A daily diary study. *Behaviour Research and Therapy, 49*(10), 676-681.

doi:10.1016/j.brat.2011.07.006

Shams, G., Esmaili, Y., Karamghadiri, N., Ebrahimkhani, N., Yousefi, Y., & McKay, D.

(2014). Psychometric Properties of the Persian Language Version of Obsessive

Beliefs Questionnaire (OBQ-44) in Iranian General Population. *Acta Medica*

Iranica, 52(1), 66-75. [http://web.a.ebscohost.com.proxy1.library.eiu.edu/ehost](http://web.a.ebscohost.com.proxy1.library.eiu.edu/ehost/detail/detail?vid=10&sid=2935a032-ca07-4798-8148-31e3475bc6b6%40sessionmgr4002&hid=4106&bdata=JnNpdGU9ZWWhvc3QtbGl2ZQ%3d%3d#db=a9h&AN=95586701)

[/detail/detail?vid=10&sid=2935a032-ca07-4798-8148-31e3475bc6b6%40](http://web.a.ebscohost.com.proxy1.library.eiu.edu/ehost/detail/detail?vid=10&sid=2935a032-ca07-4798-8148-31e3475bc6b6%40sessionmgr4002&hid=4106&bdata=JnNpdGU9ZWWhvc3QtbGl2ZQ%3d%3d#db=a9h&AN=95586701)

[sessionmgr4002&hid=4106&bdata=JnNpdGU9ZWWhvc3QtbGl2ZQ%3d%3d#db=](http://web.a.ebscohost.com.proxy1.library.eiu.edu/ehost/detail/detail?vid=10&sid=2935a032-ca07-4798-8148-31e3475bc6b6%40sessionmgr4002&hid=4106&bdata=JnNpdGU9ZWWhvc3QtbGl2ZQ%3d%3d#db=a9h&AN=95586701)

[a9h&AN=95586701](http://web.a.ebscohost.com.proxy1.library.eiu.edu/ehost/detail/detail?vid=10&sid=2935a032-ca07-4798-8148-31e3475bc6b6%40sessionmgr4002&hid=4106&bdata=JnNpdGU9ZWWhvc3QtbGl2ZQ%3d%3d#db=a9h&AN=95586701)

Spielberger, C., Gorsuch, R., & Lushene, R. (1970). *Manual for the State-Trait anxiety*

Inventory. Palo Alto, CA: Consulting Psychologists Press.

Spitzer, R. L., Kroenke, K., Williams, J. W., & Löwe, B. (2006). A brief measure for

assessing generalized anxiety disorder: The GAD-7. *Archives of Internal*

Medicine, 166, 1092-1097. doi:10.1001/archinte.166.10.1092

Storch, E., Abramowitz, J., & Goodman, W. (2008). Where does obsessive-compulsive

disorder belong in DSM-V? *Depression and Anxiety*, 25, 336-347.

doi:10.1002/da.20488

Taylor, S. (2005). Dimensional and subtype models of OCD. In J. S. Abramowitz and A.

C. Houts (Eds.), *Concepts and controversies in Obsessive-Compulsive Disorder*.

(pp. 27-41). New York: Springer.

Timpano K. R., Broman-Fulks, J. J., Glaesmer, H., Exner, C., Rief, W., Olatunji, B. O.,

... Schmidt NB (2013). A taxometric exploration of the latent structure of

hoarding. *Psychological Assessment*, 25, 194-203. doi:10.1037/a0029966

Tolin, D. F., Frost, R. O., & Steketee, G. (2010). A brief interview for assessing

- compulsive hoarding: The Hoarding Rating Scale-Interview. *Psychiatry Research*, 178, 147-152. doi:10.1016/j.psychres.2009.05.001
- Tukel, R., Tihan, A., & Ozturk, N. (2013). A comparison of comorbidity in body dysmorphic disorder and obsessive-compulsive disorder. *Annals of Clinical Psychiatry (Taylor & Francis Ltd)*, 25, 210-216.
- Watson, D. (2005). Rethinking the mood and anxiety disorders: A quantitative hierarchical model for DSM-V. *Journal of Abnormal Psychology*, 114(4), 522-36. doi:10.1037/0021-843X.114.4.522
- Watson, D., & Clark L. (2006). Clinical Diagnosis at the Crossroads. *Clinical Psychology Science and Practice*, 13(3), 210-215. doi:10.1111/j.1468-2850.2006.00026.x
- Watson, D., & Clark, L. (1984). Negative affectivity: the disposition to experience aversive emotional states. *Psychological Bulletin*, 96, 465-490. doi:10.1037/0033-2909.96.3.465
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, 54(6), 1063-1070. doi:10.1037/0022-3514.54.6.1063
- Watson, D., & Wu, K. (2005). Development and Validation of the Schedule of Compulsions, Obsessions, and Pathological Impulses (SCOPI). *Assessment*, 12, 50-65. doi:10.1177/1073191104271483
- Weathers, F., Huska, J., Keane, T., PCL-C for DSM-IV. Boston: National Center for PTSD—Behavioral Science Division, 1991.

- Wheaton, M., Timpano, K., LaSalle-Ricci, V., Murphy, D. (2006). Characterizing the hoarding phenotype in individuals with OCD: Associations with comorbidity, severity and gender. *Journal of Anxiety Disorders*, 2008, 22. 243-252.
doi:10.1016/j.janxdis.2007.01.015
- Widiger T, Samuel D. (2005). Diagnostic categories or dimensions? A question for the Diagnostic and statistical manual of mental disorders—fifth edition. *Journal of Abnormal Psychology*, 114, 494-504. doi:10.1037/0021-843X.114.4.494
- Yung, Y-F., Thissen, D., & McLeod, L. D. (1999). On the relationship between the higher-order factor model and the hierarchical factor model. *Psychometrika*, 64, 113-128.

Table 1

Means and Standard Deviations for scales measuring Negative Affectivity, Body Dysmorphic, Hoarding, Obsessive-Compulsive, Anxiety, and Trauma Syndromes

Marker/Scale	Mean Score	SD
<u>Negative Affectivity</u>	20.23	6.21
<u>Body Dysmorphic</u>		
Body Image Disturbance Questionnaire (BIDQ)	13.06	4.61
Dysmorphic Concerns Questionnaire (DCQ)	12.38	4.21
<u>Hoarding</u>		
Savings Inventory Revised (SIR)	38.12	12.01
Hoarding Rating Scale (HRS)	9.92	5.77
<u>Obsessive Compulsive</u>		
Obsessive Beliefs Questionnaire-44 (OBQ-44)	139.17	38.04
Schedule of Compulsions, Obsessions, and Psychological Impulses (SCOPI)	80.17	22.48
<u>Anxiety Syndromes</u>		
Generalized Anxiety Disorder-7 (GAD-7)	12.29	3.65
Worry Anxiety Questionnaire (WAQ)	36.06	13.69
<u>Trauma Syndromes</u>		
Modified PTSD Symptom Scale-Self Report (MPSS-SR)	28.65	10.52
PTSD Checklist-Civilian Version (PCL-C)	32.96	10.55

Notes. N = 300

Table 2

Correlations: Negative Affectivity with the Obsessive-Compulsive Spectrum, Anxiety-Related, and Trauma-Related Syndromes

<u>Syndrome Scale/Marker</u>	Negative Affectivity
<u>Body Dysmorphic</u>	
Body Image Disturbance Questionnaire (BIDQ)	.47
Dysmorphic Concern Questionnaire (DCQ)	.45
<u>Hoarding</u>	
Savings Inventory-Revised (SI-R)	.49
Hoarding Rating Scale (HRS)	.46
<u>Obsessive-Compulsive</u>	
Obsessive Beliefs Questionnaire-44 (OBQ-44)	.47
Schedule of Compulsions, Obsessions, and Psychological Impulses (SCOPI)	.39
<u>Anxiety Syndromes</u>	
Generalized Anxiety Disorder-7 (GAD-7)	.50
Worry Anxiety Questionnaire (WAQ)	.51
<u>Trauma Syndromes</u>	
Modified PTSD Symptom Scale-Self Report (MPSS-SR)	.50
PTSD Checklist (PCL-C)	.51

Note. N = 300

Table 3

Intercorrelations between Syndrome Scales/Marker

Syndrome Scales/Markers	1. BDQ	2. DCQ	3. SIR	4. HRS	5. OBQ	6. SCOPI	7. GAD-7	8. WAQ	9. MPSS-SR	10. PCL-C
<u>Body dysmorphic</u>										
1. Body Dysmorphic Questionnaire(BDQ)	-----									
2. Dysmorphic Concerns Questionnaire (DCQ)	.64									
<u>Hoarding</u>										
3. Savings Inventory Revised (SIR)	.38	.32								
4. Hoarding Rating Scale (HRS)	.35	.27	.75							
<u>Obsessive Compulsive</u>										
5. Obsessive Beliefs Questionnaire (OBQ)	.23	.24	.48	.42						
6. Schedule of Compulsions Obsessions and Pathological Impulses (SCOPI)	.18	.17	.43	.35	.60					
<u>Anxiety</u>										
7. Generalized Anxiety Disorder-7 (GAD-7)	.42	.40	.44	.41	.41	.36				
8. Worry Anxiety Questionnaire (WAQ)	.44	.46	.37	.38	.38	.30	.66			
<u>Trauma</u>										
9. Modified PTSD Symptom Scale-Self Report (MPSS-SR)	.39	.28	.48	.49	.46	.33	.51	.50		
10. PTSD Checklist-Civilian Version (PCL-C)	.40	.34	.49	.44	.48	.38	.48	.50	.77	-----

Notes. N = 300. Correlations between markers measuring the same construct are shown in bold.

Table 4

Comparison of Confirmatory Factor Analyses (CFA): Second-Order and Bifactor Models

Model	df	χ^2	$\chi^2 \Delta$	NNFI	CCFI	IFI	RMSEA
1-A Second-Order, 6-factor	30	60.773		.966	.977	.977	.059
1-B Bifactor, 6 factor	25	48.193	12.515*	.969	.983	.983	.056

Note. N= 300; See text and diagram for the description of the two models. df = degrees of freedom, χ^2 = Chi-square; $\chi^2 \Delta$ = Chi-square difference; CFI = comparative fit index; IFI = Incremental fit index; NNFI/TLI = Non-Normed fit index or Tucker-Lewis Index; RMSEA = root mean-square error of approximation.

* $p \geq .05$

Table 5
Factor loadings associated with the Bifactor Model and Second-Order Model

Factor	Bifactor Model						Second-Order Model					
	F1	F2	F3	F4	F5	F6: NA	F1	F2	F3	F4	F5	F6: NA
<u>Factor 1 (F1): Body Dysmorphic</u>												
1. DCQ	.735					.468	.856					.624
2. BDIQ	.534					.534	.750					
<u>Factor 2 (F2) Hoarding syndrome</u>												
3. SIR		.457				.694		.725				.750
4. HRS		.792				.611		.815				
<u>Factor 3 (F3): Obsessive Compulsive</u>												
5. OBQ			.450			.609			.866			.702
6. SCOPI			.773			.488			.695			
<u>Factor 4: Anxiety Syndrome-GAD</u>												
7. GAD-7				.463		.690				.624		.838
8. WAQ				.744		.668				.797		
<u>Factor 5 (F5): Trauma Syndrome</u>												
9. MPSS-SR					.381	.754					.859	.879
10. PLC-R					.611	.791					.701	

Note. N = 300. Body Dysmorphic Questionnaire (BDQ); Dysmorphic Concerns Questionnaire (DCQ); Hoarding Rating Scale (HRS); Savings Inventory Revised (SIR); Obsessive Beliefs Questionnaire (OBQ); Schedule of Compulsions, Obsessions, and Psychological Impulses (SCOPI); Generalized Anxiety Disorder-7 (GAD-7); Worry Anxiety Questionnaire (WAQ); Modified PTSD Symptom Scale-Self Report (MPSS-SR); PTSD Checklist-Civilian Version (PCL-C); Negative Affectivity (NA). The standard errors associated with the unstandardized parameter estimates were all within a sensible range.

Figure 1

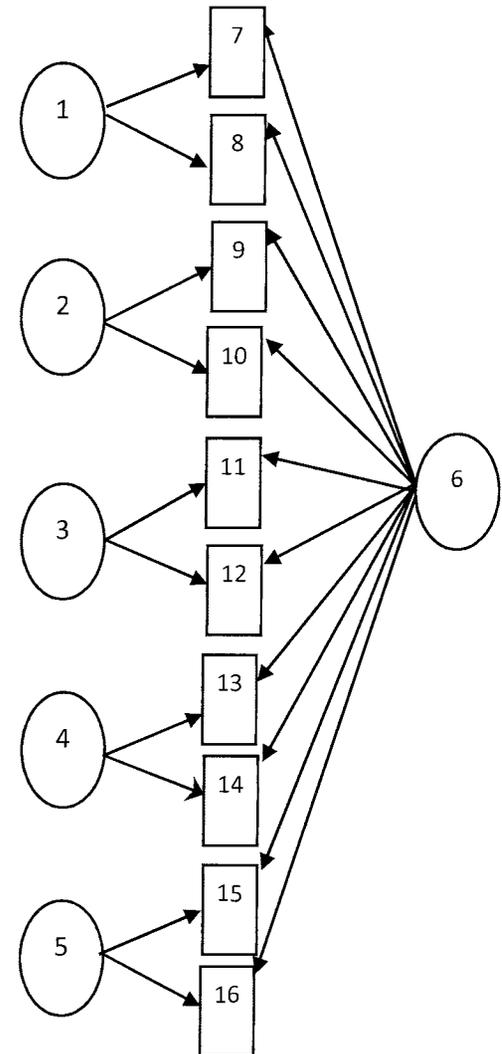
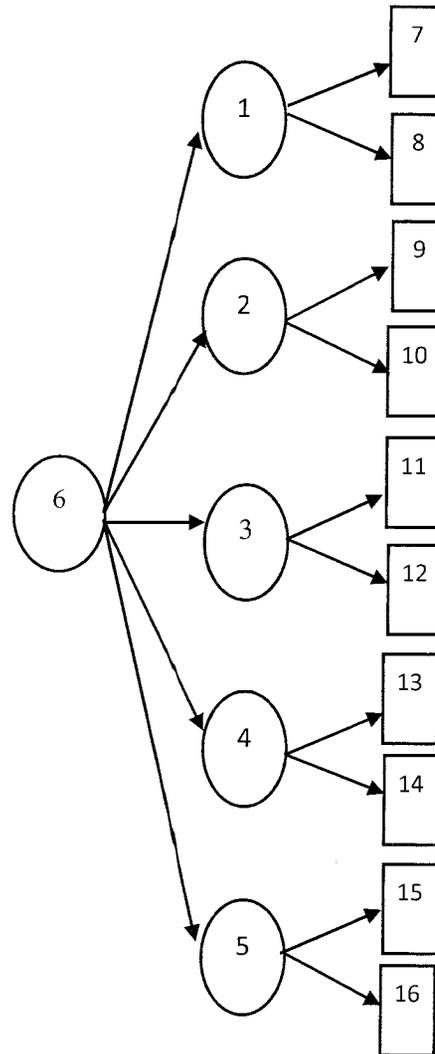
Model 1-A: Second-Order Model

Model 1-B: Bifactor Model

Diagram: Bifactor, Six-Factor Model and 2nd Order, Six Factor Model

Figure Legend

Symbol	Name
1.	Body Dysmorphic Factor
2.	Hoarding Factor
3.	Obsessive Compulsive Factor
4.	Anxiety Factor
5.	Trauma Factor
6.	Negative Affectivity Factor
7.	Body Dysmorphic Marker (DCQ)
8.	Body Dysmorphic Marker (BDQ)
9.	Hoarding Marker (SIR)
10.	Hoarding Marker (HRS)
11.	Obsessive Compulsive Marker (OBQ)
12.	Obsessive Compulsive Marker (SCOPI)
13.	Anxiety Marker (GAD-7)
14.	Anxiety Marker (WAQ)
15.	Trauma Marker (MPSS-SR)
16.	Trauma Marker (PLC-C)



APPENDIX A

PANAS

This scale consists of a number of words and phrases that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to the word. Indicate to what extent you have felt this way ***in general***, that is on the average.

1	2	3	4	5
Very Slightly or not at all	A little bit	Moderately	Quite a bit	Extremely

_____ 1. Interested	_____ 11. Irritable
_____ 2. Distressed	_____ 12. Alert
_____ 3. Excited	_____ 13. Ashamed
_____ 4. Upset	_____ 14. Inspired
_____ 5. Strong	_____ 15. Nervous
_____ 6. Guilty	_____ 16. Determined
_____ 7. Scared	_____ 17. Attentive
_____ 8. Hostile	_____ 18. Jittery
_____ 9. Enthusiastic	_____ 19. Active
_____ 10. Proud	_____ 20. Afraid

APPENDIX B

Hoarding Rating Scale-Interview (HRS-I)

1. Because of the clutter or number of possessions, how difficult is it for you to use the rooms in your home?

0		2		4		6		8
Not at all		Mild		Moderate		Severe		Extremely difficult

2. To what extent do you have difficulty discarding (or recycling, selling, giving away) ordinary things that other people would get rid of?

0		2		4		6		8
No difficulty		Mild		Moderate		Severe		Extreme difficulty

3. To what extent do you currently have a problem with collecting free things or buying more things than you need or can use or can afford?

0		2		4		6		8
No problem		Occasionally (less than weekly) acquires items not needed or acquires a few unneeded items		Moderate, regulatory (once or twice weekly) acquires items not needed or acquires some unneeded items		Severe, frequently (several times per week) acquires items not needed or acquires many unneeded items		Extremely very often (daily) acquires items not needed or acquires large numbers of unneeded items

4. To what extent do you experience emotional distress because of clutter, difficulty discarding or problems with buying or acquiring things?

0		2		4		6		8
None/not at all		Mild		Moderate		Severe		Extreme

5. To what extent do you experience impairment in your life (daily routine, job/school, social activities, family activities and financial difficulties) because of clutter, difficulty discarding or problems with buying or acquiring things?

0		2		4		6		8
None/not at all		Mild		Moderate		Severe		Extreme

APPENDIX C
Saving Inventory – Revised (Modified Format)

For each question below, circle the number that corresponds most closely to your experience **DURING THE PAST WEEK.**

	0	1	2	3	4
	None	A little	A moderate amount	Most/ Much	Almost All/ Complete
1. How much of the living area in your home is cluttered with possessions? (Consider the amount of clutter in your kitchen, living room, dining room, hallways, bedrooms, bathrooms, or other rooms).	0	1	2	3	4
2. How much control do you have over your urges to acquire possessions?	0	1	2	3	4
3. How much of your home does clutter prevent you from using?	0	1	2	3	4
4. How much control do you have over your urges to save possessions?	0	1	2	3	4
5. How much of your home is difficult to walk through because of clutter?	0	1	2	3	4

For each question below, circle the number that corresponds most closely to your experience **DURING THE PAST WEEK.**

	0	1	2	3	4
	Not at all	Mild	Moderate	Considerable/ Severe	Extreme
6. To what extent do you have difficulty throwing things away?	0	1	2	3	4
7. How distressing do you find the task of throwing things away?	0	1	2	3	4
8. To what extent do you have so many things that your room(s) are cluttered?	0	1	2	3	4
9. How distressed or uncomfortable would you feel if you could not acquire something you wanted?	0	1	2	3	4
10. How much does clutter in your home interfere with your social, work or everyday functioning? Think about things that you don't do because of clutter.	0	1	2	3	4
11. How strong is your urge to buy or acquire free things for which you have no immediate use?	0	1	2	3	4

DURING THE PAST WEEK:

	0	1	2	3	4
	Not at all	Mild	Moderate	Considerable/ Severe	Extreme
12. To what extent does clutter in your home cause you distress?	0	1	2	3	4
13. How strong is your urge to save something you know you may never use?	0	1	2	3	4
14. How upset or distressed do you feel about your acquiring habits?	0	1	2	3	4
15. To what extent do you feel unable to control the clutter in your home?	0	1	2	3	4
16. To what extent has your saving or compulsive buying resulted in financial difficulties for you?	0	1	2	3	4

For each question below, circle the number that corresponds most closely to your experience **DURING THE PAST WEEK.**

	0	1	2	3	4
	Never	Rarely	Sometimes/Occasionally	Frequently/ Often	Very Often
17. How often do you avoid trying to discard possessions because it is too stressful or time consuming?	0	1	2	3	4
18. How often do you feel compelled to acquire something you see? e.g., when shopping or offered free things?	0	1	2	3	4
19. How often do you decide to keep things you do not need and have little space for?	0	1	2	3	4
20. How frequently does clutter in your home prevent you from inviting people to visit?	0	1	2	3	4
21. How often do you actually buy (or acquire for free) things for which you have no immediate use or need?	0	1	2	3	4
22. To what extent does the clutter in your home prevent you from using parts of your home for their intended purpose? For example, cooking, using furniture, washing dishes, cleaning, etc.	0	1	2	3	4
23. How often are you unable to discard a possession you would like to get rid of?	0	1	2	3	4

APPENDIX D
(OBQ-44)

This inventory lists different attitudes or beliefs that people sometimes hold. Read each statement carefully and decide how much you agree or disagree with it. For each of the statements, choose the number matching the answer that best describes how you think. Because people are different, there are no right or wrong answers. To decide whether a given statement is typical of your way of looking at things, simply keep in mind what you are like most of the time.

Use the following scale:

1	2	3	4	5	6	7
Disagree very much	Disagree moderately	Disagree a little	Neither agree nor disagree	Agree a little	Agree moderately	Agree very much

In making your ratings, try to avoid using the middle point of the scale (4), but rather indicate whether you usually disagree or agree with the statements about your own beliefs and attitudes.

- | | |
|---|---------------|
| 1. I often think things around me are unsafe. | 1 2 3 4 5 6 7 |
| 2. If I'm not absolutely sure of something, I'm bound to make a mistake | 1 2 3 4 5 6 7 |
| 3. Things should be perfect according to my own standards. | 1 2 3 4 5 6 7 |
| 4. In order to be a worthwhile person, I must be perfect at everything I do. | 1 2 3 4 5 6 7 |
| 5. When I see any opportunity to do so, I must act to prevent bad things from happening. | 1 2 3 4 5 6 7 |
| 6. Even if harm is very unlikely, I should try to prevent it at any cost. | 1 2 3 4 5 6 7 |
| 7. For me, having bad urges is as bad as actually carrying them out. | 1 2 3 4 5 6 7 |
| 8. If I don't act when I foresee danger, then I am to blame for any consequences | 1 2 3 4 5 6 7 |
| 9. If I can't do something perfectly, I shouldn't do it at all. | 1 2 3 4 5 6 7 |
| 10. I must work to my full potential at all times. | 1 2 3 4 5 6 7 |
| 11. It is essential for me to consider all possible outcomes of a situation. | 1 2 3 4 5 6 7 |
| 12. Even minor mistakes mean a job is not complete. | 1 2 3 4 5 6 7 |
| 13. If I have aggressive thoughts or impulses about my loved ones, this means I may secretly want to hurt them. | 1 2 3 4 5 6 7 |
| 14. I must be certain of my decisions. | 1 2 3 4 5 6 7 |
| 15. In all kinds of daily situations, failing to prevent harm is just as bad as deliberately causing harm. | 1 2 3 4 5 6 7 |
| 16. Avoiding serious problems (for example, illness or accidents) requires constant effort on my part. | 1 2 3 4 5 6 7 |
| 17. For me, not preventing harm is as bad as causing harm. | 1 2 3 4 5 6 7 |
| 18. I should be upset if I make a mistake. | 1 2 3 4 5 6 7 |
| 19. I should make sure others are protected from any negative consequences of my decisions or actions | 1 2 3 4 5 6 7 |
| 20. For me, things are not right if they are not perfect. | 1 2 3 4 5 6 7 |
| 21. Having nasty thoughts means I am a terrible person. | 1 2 3 4 5 6 7 |
| 22. If I do not take extra precautions, I am more likely than others to have or cause a serious disaster. | 1 2 3 4 5 6 7 |
| 23. In order to feel safe, I have to be as prepared as possible for anything that could go wrong. | 1 2 3 4 5 6 7 |
| 24. I should not have bizarre or disgusting thoughts. | 1 2 3 4 5 6 7 |
| 25. For me, making a mistake is as bad as failing completely. | 1 2 3 4 5 6 7 |
| 26. It is essential for everything to be clear cut, even in minor matters. | 1 2 3 4 5 6 7 |
| 27. Having a blasphemous thought is as sinful as committing a sacrilegious act | 1 2 3 4 5 6 7 |

- | | |
|---|---------------|
| 28. I should be able to rid my mind of unwanted thoughts. | 1 2 3 4 5 6 7 |
| 29. I am more likely than other people to accidentally cause harm to myself or others | 1 2 3 4 5 6 7 |
| 30. Having bad thoughts means I am weird or abnormal. | 1 2 3 4 5 6 7 |
| 31. I must be the best at things that are important to me. | 1 2 3 4 5 6 7 |
| 32. Having an unwanted sexual thought or image means I really want to do it. | 1 2 3 4 5 6 7 |
| 33. If my actions could have even a small effect on a potential misfortune, I am responsible for the outcome. | 1 2 3 4 5 6 7 |
| 34. Even when I am careful, I often think that bad things will happen. | 1 2 3 4 5 6 7 |
| 35. Having intrusive thoughts means I'm out of control. | 1 2 3 4 5 6 7 |
| 36. Harmful events will happen unless I am very careful. | 1 2 3 4 5 6 7 |
| 37. I must keep working at something until it's done exactly right. | 1 2 3 4 5 6 7 |
| 38. Having violent thoughts means I will lose control and become violent | 1 2 3 4 5 6 7 |
| 39. To me, failing to prevent a disaster is as bad as causing it. | 1 2 3 4 5 6 7 |
| 40. If I don't do a job perfectly, people won't respect me. | 1 2 3 4 5 6 7 |
| 41. Even ordinary experiences in my life are full of risk. | 1 2 3 4 5 6 7 |
| 42. Having a bad thought is morally no different than doing a bad deed. | 1 2 3 4 5 6 7 |
| 43. No matter what I do, it won't be good enough. | 1 2 3 4 5 6 7 |
| 44. If I don't control my thoughts, I'll be punished. | 1 2 3 4 5 6 7 |

APPENDIX E

SCOPI

Read each statement carefully, then mark the appropriate response in the space in front of that item. Use the following scale to record your responses:

1 = *strongly disagree*; the statement is definitely false

2 = *disagree*; the statement is mostly false

3 = *neutral* or *cannot decide*; the statement is about equally true and false

4 = *agree*; the statement is mostly true

5 = *strongly agree*; the statement is definitely true

- _____ 1. Even when I do something very carefully, I worry that it is not quite right.
- _____ 2. I worry a lot about germs.
- _____ 3. I like to follow a particular order as I dress myself each day.
- _____ 4. I sometimes am troubled by unpleasant thoughts that occur over and over again.
- _____ 5. I occasionally get a sudden impulse to do something violent or destructive.
- _____ 6. I often worry that the food I am eating may be contaminated with germs.
- _____ 7. I often follow the same, fixed order in performing everyday tasks.
- _____ 8. I spend a lot of time checking things over and over again.
- _____ 9. Cleanliness is very important to me.
- _____ 10. I like to collect things.
- _____ 11. Occasionally I will have a sudden urge to steal something.
- _____ 12. I sometimes count things over and over again.
- _____ 13. Whenever my clothes get dirty, I like to change them right away.
- _____ 14. I sometimes find myself rearranging things to make sure that everything is in the proper order.
- _____ 15. I sometimes have to check things (e.g., whether the door is locked) several times because I'm just not sure whether I have already done it.

- _____ 16. I sometimes avoid using public restrooms because I am worried about getting germs.
- _____ 17. I have a number of different rituals (e.g., sorting or touching things in a particular way) that I follow in my everyday life.
- _____ 18. I sometimes will check to see if I have done something (e.g., whether I have turned off my car lights) even though I'm pretty sure I already have done it.
- _____ 19. I worry about getting germs through contact with animals.
- _____ 20. I find it difficult to throw things away, even when I know I don't need them.
- _____ 21. After I have left my home, I often worry that I have failed to do something.
- _____ 22. I sometimes avoid contact with people because I am worried about getting germs.
- _____ 23. I find that I am fascinated by fire.
- _____ 24. I like to do things in a particular order when I am getting ready for bed.
- _____ 25. When I handle money, I count and recount it several times.
- _____ 26. I find it difficult to touch something that I know has been touched by strangers.
- _____ 27. I have trouble throwing things away because I worry that I might need them later.
- _____ 28. I often am plagued by the nagging doubt that I've failed to do something important.
- _____ 29. People should wash their hands frequently to eliminate contamination from germs.
- _____ 30. I sometimes feel the need to break things for no reason.
- _____ 31. I sometimes find that I cannot get rid of unpleasant thoughts that have popped into my mind.
- _____ 32. Cleanliness is important in maintaining good health.
- _____ 33. I have little rituals that I follow even though I know they are silly.
- _____ 34. While driving, I sometimes have the impulse to do something crazy.
- _____ 35. I sometimes will return home to make sure that I've locked doors and turned off lights and appliances.
- _____ 36. I don't like wearing clothes that are dirty.
- _____ 37. I have wondered what it would be like to tear off my clothes in public.
- _____ 38. I sometimes find that I have to go back to check whether or not I've done something.

- _____ 39. I collect items that others would consider junk.
- _____ 40. Before putting a letter in the mail, I sometimes will check the address several times to make sure it is right.
- _____ 41. If I don't do certain tasks in a specific order, I feel uncomfortable.
- _____ 42. As I watch a car or train approaching, I sometimes imagine throwing myself in front of it.
- _____ 43. My hands feel dirty after touching money.
- _____ 44. There are certain routine tasks that I always perform in exactly the same way.
- _____ 45. No matter how many times I check something over, I can't help wondering whether I have done everything correctly.
- _____ 46. I keep many items I do not need.
- _____ 47. I sometimes feel a sudden urge to play with fire.

APPENDIX F

BIDQ (© Thomas F. Cash and Kathleen A. Phillips)

This questionnaire assesses concerns about physical appearance. Please read each question carefully and circle the answer that best describes your experience.

Are you concerned about the appearance of some part(s) of your body which you consider especially unattractive? (Circle the best answer)

1	2	3	4	5
Not at all concerned	Somewhat concerned	Moderately Concerned	Very concerned	Extremely concerned

If you are at least somewhat concerned, do these concerns preoccupy you? That is, you think about them a lot and they're hard to stop thinking about? (Circle the best answer)

1	2	3	4	5
Not at all preoccupied	Somewhat preoccupied	Moderately Preoccupied	Very preoccupied	Extremely preoccupied

Has your physical "defect" often caused you a lot of distress, torment, or pain? How much? (Circle the best answer)

1	2	3	4	5
No distress	Mild, and not too disturbing	Moderate and disturbing but still manageable	Severe, and very disturbing	Extreme, and disabling

Has your physical "defect" caused you impairment in social, occupational or other important areas of functioning? How much? (Circle the best answer)

1	2	3	4	5
No limitation	Mild interference but overall performance not impaired	Moderate, definite interference, but still manageable	Severe, causes substantial impairment	Extreme, incapacitating

Has your physical “defect” significantly interfered with your social life? How much?
(Circle the best answer)

1	2	3	4	5
Never	Occasionally	Moderately Often	Often	Very Often

Has your physical “defect” significantly interfered with your schoolwork, your job, or your ability to function in your role? How much? (Circle the best answer)

1	2	3	4	5
Never	Occasionally	Moderately Often	Often	Very Often

Do you ever avoid things because of your physical “defect”? How often? (Circle the best answer)

1	2	3	4	5
Never	Occasionally	Moderately Often	Often	Very Often

APPENDIX G

DYSMORPHIC CONCERN QUESTIONNAIRE

These questions ask about how you see yourself.

Please read the questions carefully and answer them by ticking the box which you think is most appropriate for your specific situation.

HAVE YOU EVER:	Not at all	Same as most people	More than most people	Much more than most people
1. Been very concerned about some aspect of your physical appearance				
2. Considered yourself to be misformed or misshaped in some way (eg. nose / hair skin / sexual organs / overall body build).				
3. Considered your body to be malfunctional in some way (eg. excessive body odour, flatulence, sweating).				
4. Consulted or felt that you needed to consult a plastic surgeon / dermatologist / physician about these concerns.				
5. Been told by others / doctor that you are normal spite of you strongly believing that something is wrong with your appearance or bodily functioning.				
6. Spent a lot of time worrying about a defect in your appearance / bodily functioning				
7. Spent a lot of time covering up defects in your appearance / bodily functioning.				
TOTAL SCORE				

APPENDIX H

GAD-7

Over the last 2 weeks, how often have you been bothered by the following problems?	Not at all	Several days	More than half the days	Nearly every day
<i>(Use "✓" to indicate your answer)</i>				
1. Feeling nervous, anxious or on edge	0	1	2	3
2. Not being able to stop or control worrying	0	1	2	3
3. Worrying too much about different things	0	1	2	3
4. Trouble relaxing	0	1	2	3
5. Being so restless that it is hard to sit still	0	1	2	3
6. Becoming easily annoyed or irritable	0	1	2	3
7. Feeling afraid as if something awful	0	1	2	3

APPENDIX J

MODIFIED PTSD SYMPTOM SCALE

The purpose of this scale is to measure the frequency and severity of symptoms in the past two weeks that you may have been having in reaction to a traumatic event or events. Please indicate how much you have experienced the following by selecting the number that fits best.

0=NOT AT ALL

1=A LIT BIT

2=MODERATELY

3=QUITE A BIT

4=EXTREMELY

- ____ 1. Have you had repeated or intrusive upsetting thoughts or recollections of the event(s)?
- ____ 2. Have you been having repeated bad dreams or nightmares about the event(s)?
- ____ 3. Have you had the experience of suddenly reliving the event(s), flashbacks of it or acting or feeling as if the event were happening again?
- ____ 4. Have you been intensely EMOTIONALLY upset when reminded of the event(s), including anniversaries of when it happened?
- ____ 5. Do you often make efforts to avoid thoughts or feelings associated with the event(s)?
- ____ 6. Do you often make efforts to avoid activities, situations, or places that remind you of the event(s)?
- ____ 7. Are there any important aspects about the event(s) that you still cannot recall?
- ____ 8. Have you markedly lost interest in free time activities that used to be important to you?
- ____ 9. Have you felt detached or cut off from others around you since the event?
- ____ 10. Have you felt that your ability to experience emotions is less (unable to have loving feelings, feel numb, or can't cry when sad)?
- ____ 11. Have you felt that any future plans or hopes have changed because of the event(s) (for example: no career, marriage, children, or long life)?
- ____ 12. Have you been having a lot of difficulty falling or staying asleep?
- ____ 13. Have you been continuously irritable or having outbursts of anger?
- ____ 14. Have you been having persistent difficulty concentrating?
- ____ 15. Are you overtly alert (checking to see who is around you) since the event?
- ____ 16. Have you been jumpier, more easily startled, since the event?
- ____ 17. Have you been having intense PHYSICAL reactions (for example: sweating, heart beating fast) when reminded of the event(s)?

APPENDIX K

PTSD Checklist – Civilian Version (PCL-C)

Instruction to participant: Below is a list of problems and complaints that people sometimes have in response to stressful life experiences. Please read each one carefully, select the answer that reflects how much you have been bothered by that problem *in the last month*.

	Response:	Not at all (1)	A little bit (2)	Moderately (3)	Quite a bit (4)	Extremely (5)
1.	Repeated, disturbing <i>memories, thoughts, or images</i> of a stressful experience from the past?					
2.	Repeated, disturbing <i>dreams</i> of a stressful experience from the past?					
3.	Suddenly <i>acting or feeling</i> as if a stressful experience <i>were happening again</i> (as if you were reliving it)?					
4.	Feeling <i>very upset</i> when <i>something reminded</i> you of a stressful experience from the past?					
5.	Having <i>physical reactions</i> (e.g., heart pounding, trouble breathing, or sweating) when <i>something reminded</i> you of a stressful experience from the past?					
6.	Avoid <i>thinking about or talking about</i> a stressful experience from the past or avoid <i>having feelings</i> related to it?					
7.	Avoid <i>activities or situations</i> because <i>they remind</i> you of a stressful experience from					

	the past?					
8.	Trouble <i>remembering important parts</i> of a stressful experience from the past?					
9.	Loss of <i>interest in things that you used to enjoy</i> ?					
10.	Feeling <i>distant</i> or <i>cut off</i> from other people?					
11.	Feeling <i>emotionally numb</i> or being unable to have loving feelings for those close to you?					
12.	Feeling as if your <i>future</i> will somehow be <i>cut short</i> ?					
13.	Trouble <i>falling</i> or <i>staying asleep</i> ?					
14.	Feeling <i>irritable</i> or having <i>angry outbursts</i> ?					
15.	Having <i>difficulty concentrating</i> ?					
16.	Being " <i>super alert</i> " or watchful on guard?					
17.	Feeling <i>jumpy</i> or easily startled?					