Core OCD Symptoms: Exploration of Specificity and Relations with Psychopathology

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Abstract

Obsessive-compulsive disorder (OCD) is a heterogeneous condition, comprised of multiple symptom domains. This study used aggregate composite scales representing three core OCD dimensions (Checking, Cleaning, Rituals), as well as Hoarding, to examine the discriminant validity, diagnostic specificity, and predictive ability of OCD symptom scales. The core OCD scales demonstrated strong patterns of convergent and discriminant validity – suggesting that these dimensions are distinct from other self-reported symptoms – whereas hoarding symptoms correlated just as strongly with OCD and non-OCD symptoms in most analyses. Across analyses, our results indicated that Checking is a particularly strong, specific marker of OCD diagnosis, whereas the specificity of Cleaning and Hoarding to OCD was less strong. Finally, the OCD Checking scale was the only significant predictor of OCD diagnosis in logistic regression analyses. Results are discussed with regard to the importance of assessing OCD symptom dimensions separately and implications for classification.

Keywords

obsessive compulsive disorder; symptoms; specificity; hoarding; clinical population; discriminant validity

1. Introduction

Obsessive-compulsive disorder (OCD) is a debilitating anxiety disorder characterized by persistent obsessions (intrusive thoughts, impulses or images) and/or compulsions (repetitive behaviors or mental acts aimed at reducing distress) that cause significant distress and disruption in social and occupational functioning (American Psychiatric Association, 2000; Koran, Thienemann, & Davenport, 1996). Although once considered relatively rare, recent estimates suggest OCD has an approximate lifetime prevalence rate of 2.3% (Ruscio, Stein, Chiu, & Kessler, 2010), with subclinical rates of obsessions and compulsions ranging from

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13 – 49% (Fullana et al., 2009). OCD is associated with significant impairment; data from the National Comorbidity Study Replication identified OCD as the anxiety disorder with the highest percentage of "serious" classifications (defined as any of several indicators, such as a 12-month suicide attempt or substantial work disability or role impairment; Kessler, Chiu, Demler, & Walters, 2005), and Ruscio et al. (2010) further reported that 65.3% of 12-month cases indicated serious role impairment on the Sheehan Disability Scale (Leon, Olfson, Portera, Farber, & Sheehan, 1997). Thus, accurate identification, assessment, and treatment of this disorder is vital.

1.1 Heterogeneity of OCD

It is widely recognized that OCD is a heterogeneous disorder and structural analyses of OCD instruments have led to the identification of several replicable symptom domains. Summarizing the results from eight published factor and cluster analyses of OCD symptoms, Calamari et al. (2004) found that contamination/washing, harming/checking, and hoarding factors were universally represented; a symmetry/ordering factor was present in all of the factor analyses. Similarly, reviewing 12 factor-analytic studies, Mataix-Cols, Rosario-Campos, and Leckman (2005) concluded that the four most consistently extracted dimensions were symmetry/ordering, hoarding, contamination/cleaning, and obsessions/checking. Furthermore, in an international survey of OCD experts (Mataix-Cols, Pertusa & Leckman, 2007), 85 – 92% of respondents acknowledged the existence of these same four symptom dimensions. Finally, several measures have been created to provide dimensional assessment of OCD symptoms, including the Dimensional Yale-Brown Obsessive-Compulsive Scale (Rosario-Campos et al., 2006), Obsessive-Compulsive Inventory–Revised (OCI-R; Foa et al., 2002), Schedule for Obsessions, Compulsions, and Pathological Impulses (SCOPI; Watson & Wu, 2005), and Vancouver Obsessional Compulsive Inventory (VOCI; Thordarson et al., 2004).

Although the content of obsessions and compulsions varies markedly, shared underlying mechanisms have been proposed. For instance, the purpose of primary OCD compulsions is to reduce threat and/or lessen anxiety (Rachman, Elliott, Shafran, & Radomsky, 2009), irrespective of the form of compulsion. In addition, cognitive theories posit that negative appraisals of intrusive thoughts—based on maladaptive beliefs related to responsibility, overestimation of threat, and intolerance of ambiguity, among others—are fundamental to the development and maintenance of OCD symptoms (OCCWG, 1997, 2005; Rachman, 1976; Salkovskis, 1985). These beliefs demonstrate relative specificity to OCD and predict change in OCD symptoms over time (Abramowitz, Nelson, Rygwall, & Khandker, 2007; Altin & Gençöz, 2007; Coles & Horng, 2006; Tolin, Woods, & Abramowitz, 2003; Wu & Carter, 2008). In sum, research has identified distinct OCD symptom dimensions, which are linked through shared etiological mechanisms and symptom function.

1.2 Hoarding

Although hoarding symptoms are commonly considered a manifestation of OCD, and many OCD assessment instruments contain hoarding content, it is questionable whether this symptom dimension is specific to OCD (e.g., Abramowitz, Wheaton, & Storch, 2008; Rachman et al., 2009; Wu & Watson, 2005). Many OCD patients report hoarding symptoms (18–53%; Frost, Krause, & Steketee, 1996; Samuels et al., 2002; Rasmussen & Eisen, 1989; Mataix-Cols, Nakatani, Micali, & Heyman, 2008), but hoarding is similarly associated with a range of other disorders (e.g., mood, anxiety and eating disorders, schizophrenia, dementia, ADHD) (Ayers, Saxena, Golshan, & Wetherell, 2010; Frankenberg, 1984; Hartl, Duffany, Allen, Steketee, & Frost, 2005; Hwang, Tsai, Yang, Lui, & Lirng, 1998; Luchins, Goldman, Lieb, & Hanrahan, 1992; Muroff et al., 2009). Furthermore, hoarding does not

clearly fit the diagnostic criteria for OCD and lacks defining features that link primary OCD symptoms (Rachman et al., 2009).

It has been suggested, for instance, that hoarding behaviors do not meet the definition of obsessions or compulsions; although hoarders may be preoccupied with maintaining collections, they do not experience their thoughts as intrusive or distressing, and often find pleasure in the acquisition of new items. Furthermore, the purpose of hoarding behavior is not typically to reduce threat or anxiety, but rather to add to one's collection (Rachman et al., 2009). In addition, hoarding symptoms are not predicted by the same proposed cognitive mechanisms as OCD (e.g., maladaptive cognitive beliefs; Abramowitz, Lackey, & Wheaton, 2009; Abramowitz, Khandker, Nelson, Deacon, & Rygwall, 2006; Tolin, Woods, et al., 2003; Wheaton, Abramowitz, Fabricant, Berman, & Franklin, 2011), suggesting that hoarding may not share a common core mechanism of symptom development. It has now been suggested that hoarding can be conceptualized either as a manifestation of OCD (secondary to a primary OCD symptom) or as an independent, comorbid, disorder (Mataix-Cols, de la Cruz, & Pertusa, 2011).

There is also variability in the reported relations between hoarding and other OCD symptoms. Watson and Wu (2005) found hoarding to be substantially less correlated with other OCD symptom dimensions: the mean correlation among SCOPI Checking, Cleanliness and Rituals was .52, whereas their mean correlation with Hoarding was only .30. However, in the data presented in Gönner, Leonhart, and Ecker (2008), the mean correlation of OCI-R Hoarding with Checking, Washing, and Ordering was .31, versus .36 between the other symptom domains.

The accumulating evidence thus suggests the existence of several "core" OCD symptom dimensions[1]; however there is continued debate about whether hoarding is specific to OCD or represents a non-specific symptom set or even a distinct syndrome (Pertusa, Frost, Fullana, et al., 2010); in fact, the *International Journal of Cognitive Therapy* (September 2011) recently dedicated a special section to this subject. Therefore, despite their inclusion in many OCD instruments, hoarding symptoms should not be assumed to be a manifestation of OCD and analyses involving hoarding would benefit from a comparative examination of how hoarding relates to a broad range of psychopathology, including OCD symptoms.

1.3 Specificity of symptom dimensions

Although core OCD dimensions are linked by fundamental symptom function and maintenance mechanisms, they are not identical and have many distinctive features. There is increasing evidence to suggest that the specific symptom dimensions of OCD have unique correlates and differential patterns of comorbidity.

Watson (2009) summarized the relations between OCD dimensions and depression, reporting weighted mean correlations using two datasets involving the SCOPI and eight datasets involving the OCI-R. Of the core OCD symptom domains, SCOPI Obsessive Checking demonstrated the strongest link to depression (weighted mean $r = .43$); in contrast, the other scales, including Hoarding, had correlations ranging from only .24 to .27 with depression. Less is known about relations involving anxiety; however data reported in Gönner et al. (2008) indicate that core OCD symptom scales, and Hoarding, were all

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[1]Core OCD symptoms refer to those symptom domains that are consistently strong indicators of OCD and share substantial relations with each other, as opposed to other symptoms that have an association with OCD symptoms but are not necessarily strong, unambiguous markers of OCD (e.g., hoarding; Watson & Wu, 2005; Wu & Carter, 2008). For example, core scales of the SCOPI include Obsessive Checking, Obsessive Cleanliness, and Compulsive Rituals; core scales of the Padua Inventory – Washington State University Revision (Burns, Keortge, Formea, & Sternberger, 1996) include Checking, Washing, and Grooming; and core scales of the OCI-R include Checking, Washing, and Ordering (e.g., Wu & Carter, 2008).

comparably correlated with anxiety in an OCD patient sample ($r = .18 – .25$). In contrast, across non-OCD patients with depression and/or anxiety, Ordering ($r = .30$ after Fisher's r-to-z transformation) and Checking ($r = .29$) had the strongest correlations with anxiety, whereas the Hoarding-anxiety correlation was only .08. Wu and Carter (2008) reported correlations between OCD dimensions and symptoms of hyperarousal/panic using the OCI-R, SCOPI, and PI-WSUR scales. Results did not indicate a substantial difference in magnitude of relations across symptom dimensions (mean $r = .29 – .40$).

Thus, although the findings are mixed, particularly for anxiety, there is some evidence to suggest that some symptoms dimensions (e.g., Checking and Ordering) are more strongly correlated with depression/anxiety than others, and that hoarding is among the weaker correlations. These findings highlight the importance of assessing OCD symptom dimensions separately, as there are clear differences in how they relate to other symptoms. Moreover, these patterns of correlations are not identical across samples or investigations. In addition, no study has examined the incremental predictive power of specific symptom dimensions relative to OCD diagnosis – that is, do the individual symptom dimensions differ in their ability to predict OCD? Given that experts agree these dimensions may be useful specifiers in future editions of the DSM (Mataix-Cols et al., 2007), an understanding of their incremental diagnostic power is critical. Thus, further investigation of these OCD symptom dimensions, including their comparative relations with other diagnostic constructs and incremental predictive power, would be beneficial in defining their distinct properties and potential diagnostic utility (Leckman et al., 2010).

2. Current Study

Although there is agreement about the heterogeneous nature of OCD, whether or not all identified symptom dimensions represent core constructs of OCD diagnosis, and the specificity of their relations with a range of variables, is still debated. The overarching goal of this research is to examine the construct validity of these dimensions using four well represented symptom domains (Checking, Cleaning, Rituals, Hoarding).

Our first goal was to examine the specificity and discriminant validity of these dimensions in relation to other self-reported psychopathology symptoms by determining whether OCD symptoms cohere to form one common domain. In examining the correlations between the symptom scales, significantly higher correlations among the OCD scales relative to non-OCD symptoms would signify these dimensions represent one overarching construct that is distinct from other types of psychopathology. Whereas extant data demonstrate the core OCD symptoms hang together, the relations involving hoarding are less clear; therefore we focus our analysis on how hoarding relates to core OCD dimensions relative to other symptoms. In addition, previous investigations have used a limited set of variables; we include a wider range of psychopathology symptoms, thereby providing a more informative and stringent test of these relations.

Our second goal was to determine the diagnostic specificity of individual OCD symptom dimensions. These analyses were designed to address two important questions that have not been a focus of previous research. First, do each of the OCD symptom dimensions correlate more strongly with OCD diagnosis than with other DSM-IV anxiety and mood disorders? Second, do OCD diagnoses correlate more strongly with OCD symptom dimensions than with non-OCD symptoms? In this context, hoarding is again the most interesting case, as its association with OCD is the most debatable. Although previous research has investigated the diagnostic power of hoarding relative to other OCD symptoms, we take a unique approach in examining its relations not only to OCD but to a variety of DSM-IV diagnoses – if it is

indeed a marker of OCD, then hoarding should demonstrate relative specificity to that diagnosis.

Finally, as little is known about the individual, unique contributions of these symptom dimensions to OCD, the third goal of our study was to examine the incremental power of these symptoms by conducting logistic regression analyses predicting OCD diagnosis. Including all of the dimensions in a single regression analysis allows us to see the relative contributions of each one, after accounting for their shared variance. To make these findings maximally informative, we (a) also include non-OCD psychopathology symptoms to remove general distress variance and (b) report results from regression analyses involving a range of DSM-IV diagnoses. If these dimensions are specific diagnostic indicators of OCD, we would expect them to have greater power in predicting OCD compared to other diagnoses.

This study reports on both self-reported symptoms and clinician-rated diagnoses in two large outpatient psychiatric samples. We used composite assessment of the four OCD symptom dimensions to remove reliance on the idiosyncrasies of any one given assessment instrument.

3. Method

3.1 Participants

Participants came from two independent psychiatric outpatient samples recruited in Iowa City, IA. Sample 1 consisted of a subset of 349 psychiatric outpatients initially described in Watson et al. (2008) who were recruited in-person from local psychiatric outpatient treatment centers between June 2005 and November 2007. Sample 2 consisted of 254 outpatients recruited through fliers placed in the offices of local mental health service providers as well as through listserv announcements and ads in a local newsletter between August 2009 and March 2010. Inclusion criteria were identical across groups and specified that participants be at least 18 years of age, currently receiving mental health or substance abuse treatment, and capable of providing informed consent. Both samples were predominantly Caucasian (91% and 90%, respectively). All participants were paid for their participation.

Participants completed self-report measures in small group sessions and were assessed with a clinician-administered interview individually. A portion of Sample 1 completed a subset of the self-report instruments – including the SCOPI[2] and OCI-R – within approximately one week of their interview session. Please see Table 1 for full sample characteristics.

3.2 Self-report questionnaires

3.2.1 Inventory of Depression and Anxiety Symptoms (IDAS; Watson et al., 2007; 2008)—The IDAS is a multidimensional self-report instrument that assesses a range of depression and anxiety symptoms. Participants rate themselves over the past two weeks on a 5-point scale ranging from *not at all* to *extremely*. The IDAS scales are stable over a short retest period, demonstrate good convergent and discriminant validity with existing self-report and interview-based measures (Watson et al., 2007), and account for significant incremental variance in several DSM-IV diagnoses, relative to the Beck Depression Inventory-II (Beck, Steer, & Brown, 1996) and the Beck Anxiety Inventory (Beck & Steer, 1990) (Watson et al., 2008). Participants in Sample 1 completed the expanded 99-item version of the IDAS; the Dysphoria (10 items), Anxious Mood (6), Panic (8), Social Anxiety (5), and Traumatic Intrusions (4) scales were used in the present study. Participants in

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[2]154 participants completed the SCOPI at the initial session; 195 completed it at the follow-up session.

Sample 2 completed a reduced 46-item version of the IDAS, which again included the Dysphoria, Anxious Mood, and Traumatic Intrusions scales, as well as an expanded version of the Social Anxiety scale (6 items, see Watson et al., 2012). The alpha coefficients ranged from .86 – .92 in Sample 1 and .82 – .90 in Sample 2.

3.2.2 Mood and Anxiety Symptom Questionnaire – Anxious Arousal Scale (MASQ: AA; Watson et al., 1995)—The MASQ is a 90-item self-report instrument developed to assess specific and nonspecific symptoms of depression and anxiety. The 17 items of the MASQ: AA scale measure somatic tension and physiological hyperarousal; this scale is very similar in content and strongly related to the IDAS Panic scale (Watson et al., 2007, Appendix A). The MASQ: AA scale was administered in Sample 2 as a measure of panic symptoms; it had an alpha coefficient of .90.

3.2.3 Obsessive-Compulsive Inventory-Revised (OCI-R; Foa et al., 2002)—The OCI-R is an 18-item self-report measure of OCD symptoms. It is comprised of six scales assessing Checking, Washing, Ordering, Obsessing, Neutralizing, and Hoarding. Participants respond using a 5-point scale ranging from *not at all* to *extremely*. The OCI-R scales generally show good internal consistency and retest correlations in OCD patients (Foa et al., 2002). The Checking, Washing, Ordering and Hoarding scales were used in the present study; coefficient alphas ranged from .72 – .88 in Sample 1 and .75 – .89 in Sample 2.

3.2.4 Schedule for Compulsions, Obsessions, and Pathological Impulses (SCOPI; Watson & Wu, 2005)—The SCOPI is a 47-item self-report measure of OCD symptoms. It consists of three core scales: Obsessive Checking, Obsessive Cleanliness, and Compulsive Rituals. It also contains two scales that tap related, but separate, content: Hoarding and Pathological Impulses. Participants answer on a 5-point scale indicating level of agreement (*1=strongly disagree, 5=strongly agree*). The SCOPI demonstrates good internal consistency and stability over time in student samples (Watson & Wu, 2005). The Obsessive Checking, Obsessive Cleanliness, Compulsive Rituals and Hoarding scales were used in the present study; alpha reliabilities ranged from .79 – .88 in Sample 1 and from .82 – .89 in Sample 2.

3.3 Clinician-rated interviews

3.3.1 Structured Clinical Interview for DSM-IV (SCID-IV; First et al., 2002)—The SCID-IV is a clinician-administered semi-structured interview for use in making Axis I DSM-IV-TR diagnoses. The interviewers were trained staff members with a background in clinical/counseling psychology or public health; all interviewers for Sample 1 had masters' level training while interviewers for Sample 2 had either bachelors' or masters' training. In the present study, we report on the major depressive episode (MDE), OCD, Post-Traumatic Stress Disorder (PTSD), panic disorder, social phobia, and generalized anxiety disorder (GAD) modules. Diagnoses on the SCID-IV are coded as 0 = *absent* or 1 = *present*; thus, higher scores indicate a greater likelihood of receiving the diagnosis. See Table 1 for prevalence rates.

To assess interrater reliability, the SCID-IV interviews were audiotaped and a subset was scored independently by a second interviewer. In Sample 1, 76 interviews were independently scored (as reported in Watson et al., 2008, the actual *N* ranged from 74 to 76 across disorders due to audiotape problems) and kappa values ranged from .70 (GAD) to .95 (MDE); in Sample 2, 51 interviews were independently scored and kappa values ranged from .83 (panic and OCD) to 1.0 (PTSD and GAD).

3.4 Data analysis

Statistical analyses were performed using Statistical Analysis System (SAS®) software for the personal computer, version 9.2 (SAS Institute Inc., Cary, NC). Multiple imputation using SAS PROC MI was used to impute item-level values for missing data in cases that were not missing more than 20% of the items in an individual measure (Allison, 2003; Graham, Cumsille, Elek-Fisk, 2003); none of the cases in which we used item-level imputation were missing more than 12% of the items in a single measure ($n = 17$ for Sample 1 and $n = 4$ for Sample 2). Scale-level imputation was employed in cases in which more than 20% of the items in an individual measure were missing ($n = 1$ for Sample 1 and $n = 2$ for Sample 2), utilizing scores on all remaining self-report questionnaires.

Composite OCD symptom scales were created for the four target symptom dimensions (Checking, Cleaning, Rituals, Hoarding). To create the composites, scores on each of the scales of the SCOPI and OCI-R were first standardized ($M = 0$, $SD = 1$) within each sample; corresponding scales were then summed and their average was computed (e.g., (Checking$_{composite}$ = SCOPI Checking + OCI-R Checking)/2)[3]. Correlations between the OCI-R and SCOPI scales are presented in Table 2.

Descriptive statistics were used to summarize demographic characteristics, and two-sample t-tests and chi-square tests were used to compare samples on demographic and diagnostic variables. We used Pearson correlation coefficients to examine relations between the self-report questionnaires; polychoric correlations were computed between the self-report measures and SCID-IV diagnoses. Polychoric correlations are appropriate to use in estimating the associations between normally distributed latent continuous variables that are measured continuously or discretely (e.g., Flora & Curran, 2004; Schmukle & Egloff, 2009; Watson & Tellegen, 1999), as they maintain the same relative rank order information provided by Pearson correlations (i.e., the same symptom scales will still be relatively strong, or weak, predictors of particular DSM-IV diagnoses), but are not affected by differences in prevalence rates. The use of polychoric correlations thus facilitates cross-diagnosis comparisons.

Two-tailed significance testing of the differences between Pearson correlations was carried out formally using the Williams modification of the Hotelling test for two correlations involving a common variable (see Kenny, 1987); significance testing of the differences between polychoric correlations was carried out by first transforming each polychoric correlation into a z using the Fisher-z transformation, and subsequently computing the difference scores employing the Delta method, which uses the following formula and is appropriate for asymptotically normal distributions (Casella & Berger, 2002):

$$z = \frac{\rho_1 - \rho_2}{((SE_{\rho 1})^2 + (SE_{\rho 2})^2)}$$

Finally, logistic regression using PROC LOGISTIC was used to compute odds ratios for the prediction of SCID-IV diagnoses from self-report scale scores; to facilitate interpretation, all variables used in the regression analyses were standardized ($M = 0$, $SD = 1$) prior to model entry.

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[3]It should be noted that a substantial proportion of the variance in the OCI-R Neutralizing and Obsessing scales is captured in our four composite scales, as indicated by the results of multiple regression analyses predicting Neutralizing and Obsessing from the four composites. In Sample 1, $R_{neutralizing} = .70$ and $R_{obsessing} = .57$; in Sample 2, $R_{neutralizing} = .57$ and $R_{obsessing} = .49$).

4. Results

4.1 Sample comparison

Table 1 presents demographic comparisons and prevalence data for the DSM-IV diagnoses in both samples. The only significant demographic difference between the samples was that Sample 2 was significantly older than Sample 1 (41.9 vs. 37.6, $p < .0001$). There was a significantly higher prevalence of MDE in Sample 1 (43.27 vs. 34.65%, $p = .04$, Fisher's exact test), whereas Sample 2 had a greater prevalence of both social phobia (14.04 vs. 28.75%, $p < .0001$) and GAD (23.78 vs. 37.01%, $p < .0001$).

Mean scores on self-report scales for each sample are presented in Table 3. Sample 1 scored substantially higher on all self-report measures ($d = |.28 - .76|$), with the exception of IDAS Dysphoria ($d = .18$) and Anxious Mood ($d = .03$), indicating the presence of more severe psychopathology in Sample 1.

4.2 Specificity of OCD scales – self-reported symptoms

The first goal of this study was to examine the specificity of OCD symptoms in relation to non-OCD symptoms in order to determine whether the four OCD symptom dimensions define a distinct category. Table 4[4] presents correlations between the self-report symptom scales in each sample. We first examined the relations among the OCD composite scales. As expected, the OCD scales correlated moderately to strongly with one another. Notably, the correlations among Checking, Cleaning and Rituals ($r = .55 - .67$ in Sample 1 and $.48 - .64$ in Sample 2) were significantly stronger than the correlations between Hoarding and each of the other three composites ($r = .26 - .41$, $z = 3.90 - 8.10$, $p < .0001$, in Sample 1; $r = .18 - .29$, $z = 2.84 - 6.96$, $p < .01$ in Sample 2) in 11 of 12 comparisons.

We next examined the relations between the OCD scales and the IDAS and MASQ scales. In these analyses, the correlations among the core OCD symptom dimensions tended to be significantly stronger than the correlations between those dimensions and non-OCD symptoms. More specifically, across both samples, the correlations among Checking, Cleaning and Rituals ($r = .48 - .67$) were significantly greater than the correlations between each of those scales and any of the IDAS or MASQ symptom scales ($r = .10 - .45$; $z = 1.99 - 9.68$, $p < .05$) in 58 of 60 comparisons. In addition, Checking (mean $r = .38$ after Fisher's r-to-z transformation) was consistently more strongly related to each of the IDAS and MASQ scales than were Cleaning (mean $r = .22$) and Rituals (mean $r = .24$).

To examine associations with hoarding in further detail, we compared the magnitude of the relations between the core OCD symptoms and Hoarding with the relations between the core OCD symptoms and non-OCD psychopathology. In Sample 1, the correlations between each of the core OCD dimensions and Hoarding (mean $r = .33$) were not significantly greater than the correlations between each of the core OCD dimensions and any of the IDAS scales (mean $r = .27 - .37$). The results in Sample 2 were very similar to those reported in Sample 1 – the correlations between the core OCD dimensions and Hoarding (mean $r = .32$) did not differ from the correlations between the core OCD dimensions and the IDAS or MASQ scales (mean $r = .18 - .35$) in 24 of 30 comparisons.

Finally, we examined whether Hoarding correlated more strongly with core OCD symptoms than with non-OCD symptoms. Overall, the pattern of the relations involving Hoarding was more variable, and in many cases Hoarding had correlations of similar magnitude with both

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[4]We ran 28 comparisons to determine whether the correlations differed between the two samples. Only two correlations differed significantly: the Checking–Cleaning and Checking–Anxious Mood correlations were significantly stronger in Sample 1 than Sample 2 at $p < .05$).

OCD and non-OCD scales. Hoarding was particularly strongly correlated with Checking (r = .41 in Sample 1 and .48 in Sample 2); in fact, the correlation between Hoarding and Checking was significantly stronger than the correlations between Hoarding and any of the other OCD, IDAS or MASQ scales in both samples (r = .04 – .31, z = 2.51 – 6.53, p < .05 in Sample 1; r = .13 – .29; z = 3.83 – 5.29, p < .0001 in Sample 2). In contrast, correlations between Hoarding and the Cleaning and Rituals composites were substantially lower (r = .26 and .31 in Sample 1 and .18 and .29 in Sample 2, respectively), and were significantly stronger than the relations between Hoarding and the IDAS and MASQ scales in only eight of the 20 comparisons.

To summarize, results from this series of analyses indicated that the three core OCD symptom dimensions cohere to form a distinct grouping and are more strongly related to each other than to symptoms of hoarding, depression, and anxiety. Although Hoarding shared a specific relation with Checking, the correlations between the other core OCD symptoms and Hoarding were of a similar magnitude to the relations between these core OCD symptom dimensions and all other symptoms assessed. Thus, at the symptom level, the OCD construct appears to be defined by Checking, Cleaning, and Rituals, but not Hoarding.

4.3 Diagnostic specificity of OCD scales

The second goal of this study was to determine the diagnostic specificity of individual OCD symptom dimensions. Table 5 presents the correlations between each of the self-report scales and SCID-IV diagnoses in Sample 1. Looking across the columns in Table 5, all four OCD scales had their highest correlations with OCD diagnosis (r = .29 – .58). Moreover, the correlations between the Checking, Cleaning, and Rituals composites and OCD were significantly higher than those scales' correlations with most other diagnoses assessed; Checking and Cleaning were significantly more strongly correlated with OCD than with MDE, Social Phobia and PTSD (z = 2.91 – 3.32, p < .01) and Rituals was significantly more strongly correlated with OCD than with MDE, Social Phobia, PTSD, and Panic Disorder (z = 2.22 – 2.94, p < .05). The correlation between Hoarding and OCD, on the other hand, was of comparable magnitude to the correlations between Hoarding and the other SCID-IV diagnoses; Hoarding's relation to OCD was only significantly greater than its relation to PTSD (z = 2.09; p < .05).

Within the OCD diagnosis column, Checking was significantly more strongly correlated with OCD (r = .58) than were any of the other symptom scales (r = .29 – .44; z = 1.96 – 3.36, p .05). In contrast, it is noteworthy that Hoarding actually had the weakest individual association with OCD diagnosis; moreover, the correlation between Hoarding and OCD (r = .29) did not significantly differ from the correlation between OCD and any of the IDAS scales (r = .31 – .44).

Table 6 presents the same correlations in Sample 2. The four OCD composites once again had their strongest correlations with OCD diagnoses (r = .30 – .58); moreover, Checking (r = .58) and Rituals (r = .49) were significantly more strongly related to OCD than to any other SCID-IV diagnosis (z = 2.54 – 4.29, p < .05). The pattern for Cleaning and Hoarding, however, was somewhat different in Sample 2. Hoarding (r = .41) had a stronger association with OCD in Sample 2 than in Sample 1 and was significantly more strongly related to OCD than to another SCID-IV diagnoses in four out of five comparisons (z = 2.07 – 2.77, p < . 05). In contrast, the correlation between Cleaning and OCD (r = .30) was relatively weak and was not significantly different from the correlations between Cleaning and any of the other SCID-IV diagnoses. The Checking composite scale again had the strongest association with OCD diagnosis, and was significantly more strongly related to OCD than were the

other self-report scales in five out of eight comparisons ($z = 2.02 – 3.57$, $p < .05$); in contrast, Cleaning was the symptom dimension with the weakest relation to OCD diagnosis.

This set of analyses demonstrated some replicable patterns across samples: all four OCD composites shared their highest correlation with OCD diagnosis and Checking consistently had the strongest correlation with OCD diagnosis relative to both OCD and non-OCD symptoms. Interestingly, in Sample 1 Hoarding did not demonstrate specificity to OCD, whereas in Sample 2 Cleaning showed the weaker relations. These results suggest that, whereas Checking and Rituals appear to be consistently strong and specific markers of OCD diagnosis, the status of cleaning and hoarding symptoms is more variable. We revisit this issue in the Discussion.

4.4 Incremental predictive power of OCD scales

Although correlational analyses provide interesting information about the pattern of relations between the self-report scales and diagnoses, they do not take into account the significant correlations among these scales. Consequently, the third goal of our study was to utilize a series of logistic regression analyses to examine both the incremental predictive power of the individual symptom scales in relation to each of the included diagnoses, as well as the predictive validity of the OCD composite scales in relation to the other self-report measures. In each separate analysis, one SCID-IV disorder served as the criterion variable. Table 7 displays the odds ratios (ORs) from the logistic regression analyses in Sample 1. The results of this analysis largely paralleled the bivariate correlational data between the scales and SCID-IV diagnoses. In looking at the OCD scales, Checking was the only significant predictor of OCD diagnosis (OR = 2.13, 95% confidence interval [CI] = 1.15 – 3.94, $p = .017$); Checking also contributed to the diagnosis of both Panic Disorder (OR = 2.51, 95% CI = 1.31 – 4.81, $p = .006$) and GAD (OR = 1.79, 95% CI = 1.11 – 2.87, $p = .017$). In addition, Rituals was associated with a *reduced* likelihood of receiving a PTSD diagnosis. Finally, as expected, each of the IDAS scales predicted its corresponding diagnosis.

Table 8 shows the same results in Sample 2. Similar to Sample 1, Checking was again the sole predictor of OCD diagnosis (OR = 2.35, 95% CI = 1.04 – 5.32, $p = .041$); it also significantly contributed to a diagnosis of MDE (OR = 1.94, 95% CI = 1.02 – 3.72, $p = .045$). In addition, each of the IDAS and MASQ scales again predicted its corresponding diagnosis.

Thus, when the overlapping variance among the OCD and non-OCD symptoms is accounted for, Checking consistently emerged as the only significant predictor of OCD diagnosis. These results indicate that a large proportion of the OCD-relevant variance is encompassed in checking symptoms.

5. Discussion

5.1 Implications of our findings

5.1.1 Discriminant validity of OCD scales—The findings from the current study contribute to the literature in several ways. The first aim of this study was to explore the specificity and discriminant validity of OCD scales vis-à-vis the IDAS and MASQ scales. The three core OCD composites demonstrated strong patterns of convergent and discriminant validity in relation to other self-reported psychopathology; across samples, the correlations among Checking, Cleaning, and Rituals were significantly stronger than the correlations between those OCD scales and the majority of the IDAS and MASQ scales. This is in line with previous work (e.g., Wu & Carter, 2008) and suggests that these OCD scales are capturing variance that is distinct from other forms of psychopathology. In

contrast, Hoarding does not appear to assess the same overarching construct as the core OCD dimensions: although Hoarding was relatively more strongly related to Checking, its correlations with Cleaning and Rituals were similar to its relations with non-OCD symptoms.

Consistent with extant results, we found that Checking shared stronger correlations with a variety of psychopathology, including hoarding, than did Cleaning or Rituals. Whereas Watson (2009) reported that checking was more strongly linked to depression than were other OCD symptoms, our analysis extends this literature by demonstrating that checking is also more strongly related to symptoms of general anxiety, social anxiety, traumatic intrusions, and panic. Checking symptoms tend to be broader in content and more heterogeneous in nature (Markarian et al., 2010), thus potentially tapping a wider range of psychopathology. In addition, although OCD symptoms contain a modest general distress component relative to other depression and anxiety symptoms (Watson, 2009), some checking items may be more inherently distressing due to specific content. For instance, previous research has shown that depression is more strongly related to obsessions than compulsions (Markarian et al., 2010; Ricciardi & McNally, 1995); therefore, items assessing intrusive and recurring thoughts may drive the relationship between checking and depression (Watson, 2009). Moreover, an intolerance of uncertainty (e.g., "I will check to see if I have done something even though I'm sure I already have done it") is inherent in checking items. Such beliefs have not only been linked to OCD, but may be reflective of anxiety disorders in general (Ferreri, Lapp, & Peretti, 2011; Myers, Fisher, & Wells, 2008; Tolin, Abramowitz, Brigidi, & Foa, 2003). Thus, content related to ambiguity and uncertainty may account for the stronger relations between Checking and other types of anxiety.

5.1.2 Diagnostic specificity of OCD symptoms—The second aim of this study was to explore the diagnostic specificity of OCD symptom dimensions to establish whether (a) the OCD symptom dimensions correlate more strongly with OCD than with other anxiety and mood disorder diagnoses and (b) OCD diagnosis correlates more strongly with OCD symptom dimensions than with non-OCD symptoms. Several important patterns replicated across both samples. First, all four OCD composite scales were more strongly correlated with a diagnosis of OCD than with any other diagnosis. In addition, Checking consistently was the strongest predictor of OCD, indicating that a good proportion of the OCD-specific variance is captured in this scale. The biggest difference in the findings across samples was related to Cleaning and Hoarding's relation to OCD. In Sample 1, Hoarding had a significantly weaker correlation with OCD than did the other composites and related similarly to OCD and the other SCID-IV diagnoses. In contrast, in Sample 2, the correlation between Cleaning and OCD was weaker and of a similar magnitude to Cleaning's relation to the other SCID-IV diagnoses, while Hoarding was more highly correlated with OCD. These results suggest that, whereas Checking and Rituals appear to be consistently strong markers of OCD diagnosis, the status of cleaning and hoarding symptoms is more variable.

To gain a more complete understanding of these relations, that is less dependent on sample-specific variance, we reconducted these correlational analyses on the total patient sample (N = 603), excluding IDAS Panic and MASQ Anxious Arousal. Similar to the results found in the individual samples, each of the four OCD composites was significantly more strongly correlated with OCD than with any other SCID-IV diagnosis ($z = 2.72 – 6.66$; $p < .01$). Checking ($r = .57$) was again the strongest predictor of OCD: it was significantly more strongly correlated with OCD diagnosis than was Cleaning ($r = .37$) or Hoarding ($r = .36$; $z = 3.15 – 3.26$, $p < .01$) and was the only symptom composite to demonstrate a significantly stronger correlation with OCD than any of the IDAS scales.

These data suggest that (a) all four OCD composites demonstrate some specificity to OCD but that (b) Checking is a particularly strong and specific marker of OCD diagnosis. It is noteworthy that the correlations of Cleaning ($r = .37$) and Hoarding ($r = .36$) with OCD are not very impressive when one considers the relations between the other scales and OCD; most notably, the IDAS Dysphoria ($r = .40$) and Anxious Mood ($r = .38$) scales correlated just as strongly with OCD as did Cleaning and Hoarding. Thus, Cleaning and Hoarding appear to be less specific to OCD diagnosis than are the Checking and Rituals dimensions.

The weaker specificity of Cleaning to OCD is especially puzzling given its long-standing association with OCD and the high prevalence of contamination obsessions and compulsions in OCD patients (Ball, Baer, & Otto, 1996; Lawrence et al., 2006; Matsunaga, Hayashida, Kiriike, Maebayashi, & Stein, 2010; Muris, Merckelbach, & Clavan, 1997). It is possible that these findings are due to a reduced prevalence of contamination symptoms in unselected samples. For instance, Fullana et al. (2009) followed an unselected community sample over time and found that contamination concerns were the least prevalent of four OCD symptom dimensions and were even less common in those individuals who did not have a history of childhood OCD symptoms. Similarly, we found that the contamination scales of the SCOPI and OCI-R demonstrated reduced variance in both samples (see Table 3), which may be one factor in Cleaning's lack of clear specificity to OCD in these analyses.

5.1.3 Predictive power of OCD scales—The final aim of this study was to determine the differential incremental predictive power of these OCD scales in relation to OCD diagnosis. Across both patient samples, Checking was the only significant predictor of OCD diagnosis, above and beyond all other self-report measures included, further indicating that this symptom domain captures the core OCD-relevant variance particularly well. Thus, even though Checking contains a stronger general distress component than other OCD symptoms, it still shows a strong and specific association with OCD even after the overlapping variance of other mood and anxiety symptoms is removed. These results have implications for the consideration of using symptom dimensions as specifiers in future editions of the DSM. The finding that Checking was the only symptom dimension to evidence incremental power to predict OCD diagnosis suggests that a "primarily doubting/checking" subtype may have clinical utility, as this dimension does seem to be unique and informative. The inconsistent relations involving Cleaning and Hoarding indicate that, while the non-Checking symptom dimensions may be beneficial *descriptors*, as currently assessed they may be less useful as required *diagnostic specifiers*. Further research into this issue is warranted (see Leckman et al. (2010) for a review).

5.1.4 The status of hoarding—Given the controversial nosological status of hoarding, we aimed to explicate its relation to OCD. Our analyses indicate that, although Hoarding is associated with OCD, it does not demonstrate clear specificity to core OCD symptoms or OCD diagnoses. These findings have important implications, as hoarding currently is being considered for inclusion in DSM-5 as (a) a distinct OCD symptom dimension, (b) a variant of OCD occurring in the absence of other OCD symptoms, (c) a consequence of other OCD symptoms, or (d) a separate mental disorder, distinguishable from – and not better accounted for – by other mental disorders, including OCD (Mataix-Cols et al., 2010; Pertusa, Frost, Fullana, et al., 2010; Pertusa, Frost, & Mataix-Cols, 2010; for more information, see: http://www.dsm5.org/ProposedRevision/Pages/proposedrevision.aspx?rid=398).

The current results offer little support to the conceptualization of hoarding as either a specific symptom dimension or variant of OCD. Hoarding correlated more weakly with the core OCD composites than they did with each other; moreover, Hoarding was not more strongly associated with OCD diagnosis than were non-OCD symptoms. With regard to conceptualizing hoarding as a *consequence* of other OCD symptoms, our data are interesting

in that we found Hoarding to share a particularly strong relation with Checking; in fact, Hoarding correlated more strongly with Checking than with any other scale across both samples. To the extent that hoarding behavior develops as a *response* to checking symptoms, such as not discarding items to avoid triggering doubts and checking rituals (e.g., as described in Pertusa, Frost, & Mataix-Cols, 2010), hoarding may be considered a consequence of checking, rather than a distinct manifestation of OCD. However, other OCD symptom dimensions have been linked to the development of hoarding behavior as well (e.g., Pertusa, Frost, & Mataix-Cols, 2010); thus, it is unclear whether this can account for a specific link between hoarding and checking. In addition, Checking shared stronger relations with non-OCD psychopathology than did Cleaning or Rituals; consequently, the relation between Checking and Hoarding may not be particularly unique. Furthermore, longitudinal data are needed to make causal or directional inferences.

Our results most strongly support the proposal to include hoarding as a distinct clinical syndrome in DSM-5. This would permit a more comprehensive examination of the hoarding domain, including underlying motivations and cognitive-behavioral systems, which may have been masked when considering hoarding only in the context of OCD. For instance, as noted earlier, hoarding is not strongly associated with OCD-relevant cognitive beliefs. However, instruments assessing OCD cognitions do not contain content specifically relevant to hoarding cognitions, such as urges to save and the desire to acquire (Abramowitz et al., 2008). Extricating hoarding from the OCD domain may allow for a more targeted examination of its underlying etiologies, comorbidities, and correlational patterns.

5.2 Limitations and future directions

This study provided a more comprehensive examination of the nature of core OCD symptoms in relation to hoarding and a variety of other symptoms and diagnoses. Strengths of the study include the composite assessment of OCD symptoms using two well-validated self-report instruments, the inclusion of a broader range of self-reported symptoms and clinician-rated DSM-IV diagnoses than have been examined in previous investigations, and the ability to establish the robustness of the observed associations across two reasonably sized clinical outpatient samples.

Although our results contribute to the literature in several ways, the present study is not without its limitations. First, our assessment of hoarding symptoms was limited to hoarding subscales included in instruments that were explicitly developed to assess OCD and, consequently, do not provide a comprehensive assessment of hoarding. For instance, neither the SCOPI nor the OCI-R systematically assesses specific hoarding dimensions, such as excessive acquisition, difficulty discarding, or clutter/disorganization. In addition, the OCI-R and SCOPI Hoarding scales were not validated using existing hoarding measures or examined in populations of patients with hoarding symptoms (Frost & Hristova, 2011). A more comprehensive assessment of hoarding and its domains, using well-validated assessment measures (e.g., Saving Inventory – Revised (Frost, Steketee, & Grisham, 2004), Hoarding Rating Scale – Interview (Tolin, Frost, & Steketee, 2010), Clutter Image Rating (Frost, Steketee, Tolin, & Renaud, 2008)), would increase our understanding of how different dimensions within hoarding are related to OCD and other forms of psychopathology.

Second, we limited our assessment of OCD to the core symptoms that have been included most consistently in OCD assessment instruments. It is important to note, however, that a wider range of potential OCD symptom dimensions have been identified and assessed. These domains include content related to taboo or unwanted thoughts (Abramowitz et al., 2010; Foa et al., 2002; Thordarson et al., 2004), harm impulses (Burns et al., 1996; Sanavio, 1988; van Oppen, Hoekstra, & Emmelkamp, 1995; Watson & Wu, 2005), and neutralizing

(Foa, Kozak, Salkovskis, Coles, & Amir, 1998; Foa et al., 2002). Such symptoms may share important and differential relations with other symptom and diagnostic variables, including hoarding. For example, Pertusa, Frost, and Mataix-Cols (2010) presented a case series in which several patients demonstrated hoarding behavior as a result of OCD symptoms related to forbidden thoughts or aggressive impulses. To gain a broader understanding of the OCD construct, inclusion of a comprehensive set of symptoms in future investigations is warranted.

In addition, future work might include the assessment of a wider range of psychopathology. Focusing on disorders that represent stronger comorbidities with hoarding, such as schizophrenia, eating disorders, and dementia (e.g., Frankenburg, 1984; Hwang et al., 1998; Luchins et al., 1992) may help to clarify the nature of hoarding, its relations to other types of psychopathology, and its specificity (or lack thereof) to OCD.

Finally, our samples were relatively racially homogeneous, as more than 90% of our participants were Caucasian. Therefore, the generalizability of our results to the broader population is unclear.

5.3 Conclusion

Despite these limitations, our results (a) underscore the utility of OCD self-report measures, as they contain useful clinical information that is not captured through the assessment of other depression and anxiety symptoms, and (b) highlight the importance of assessing OCD symptom dimensions separately, as they evidence differential associations and predictive power in relation to other self-reported symptoms and formal DSM diagnoses. We found that the three core OCD composites (Checking, Cleaning, Rituals) demonstrated good discriminant validity in relation to a wide range of self-reported and clinician-rated psychopathology, that Checking is a consistently strong marker of OCD diagnosis, and that Hoarding does not demonstrate clear specificity to OCD but rather may be better conceptualized as a distinct clinical syndrome. We hope that our results will inform future work related to the assessment and classification of OCD and hoarding symptoms.

Acknowledgments

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- We examined differential properties of OCD symptom scales relative to SCID diagnoses

- Checking, Cleaning and Rituals showed good convergent and discriminant validity

- Checking was a particularly strong, specific marker of OCD diagnosis

- Specificity of Cleaning and Hoarding to OCD was weak relative to non-OCD symptoms

- Checking was the only significant predictor of OCD in logistic regression analyses

Table 1

Sample Characteristics

Variable	Sample 1 (n = 349)	Sample 2 (n = 254)	Comparison
Age (years; $M \pm SD$)	37.6 (12.5)	41.9 (13.1)	$p < .0001$, $t(593) = 4.09$
	n (%)	n (%)	Fisher's exact test
Gender			
Male	120 (34.4)	68 (26.8)	$p = .06$
Female	228 (63.3)[1]	183 (72.0)[2]	
Diagnosis			
MDE	151 (43.27)	88 (34.6)	$p = .04$
OCD	39 (11.17)	21 (8.3)	$p = .27$
PTSD	45 (12.89)	35 (13.8)	$p = .81$
Social phobia	49 (14.04)	73 (28.7)	$p < .0001$
GAD	83 (23.78)	94 (37.0)	$p < .0001$
Panic	44 (12.61)	41 (16.1)	$p = .24$

Note. MDE = major depressive episode. OCD = obsessive-compulsive disorder. PTSD = post-traumatic stress disorder. GAD = generalized anxiety disorder.

[1] the gender of one participant was unknown.

[2] the gender of three participants was unknown.

Table 2

Correlations between SCOPI and OCI-R Subscales

| | | | OCI-R Scale | | | |
SCOPI Scale	Check	Wash	Order	Hoard	Neut	Obsess
Sample 1						
Checking	**.77**	.54	.57	.36	.60	.61
Cleanliness	.47	**.73**	.41	.16	.39	.26
Rituals	.55	.48	**.69**	.26	.54	.33
Hoarding	.35	.26	.28	**.84**	.24	.23
Sample 2						
Checking	**.78**	.40	.55	.48	.49	.57
Cleanliness	.40	**.75**	.39	.15	.23	.18
Rituals	.54	.42	**.72**	.23	.47	.25
Hoarding	.37	.15	.24	**.86**	.26	.23

Note. N= 349 in Sample 1 and 254 in Sample 2. Convergent correlations are highlighted; each convergent correlation is significantly greater than all other correlations in its row and column (*p* < .001). SCOPI = Schedule for Obsessions, Compulsions, and Pathological Impulses. OCI-R = Obsessive-Compulsive Inventory – Revised.

Table 3

Comparison of Datasets on Mean Scores (reported as means per item)

Variable	Sample 1 (n = 349) M (sd)	Sample 2 (n = 254) M (sd)	Comparison (Cohen's d)
SCOPI			
SCOPI Checking	2.83 (0.91)	2.13 (0.87)	.73[*]
SCOPI Cleanliness	2.56 (0.75)	2.10 (0.67)	.61[*]
SCOPI Rituals	2.49 (1.01)	1.89 (1.01)	.57[*]
SCOPI Hoarding	2.97 (1.11)	2.24 (1.20)	.60[*]
OCI-R			
OCI-R Checking	2.26 (1.06)	1.48 (0.79)	.76[*]
OCI-R Washing	1.89 (0.93)	1.28 (0.60)	.71[*]
OCI-R Ordering	2.59 (1.12)	1.78 (1.02)	.71[*]
OCI-R Hoarding	2.70 (1.18)	1.90 (1.10)	.66[*]
IDAS/MASQ			
IDAS Dysphoria	2.88 (1.01)	2.71 (0.85)	.18[*]
IDAS Anxious Mood	3.11 (1.10)	3.08 (1.02)	.03
IDAS Social Anxiety[a]	2.47 (1.15)	2.25 (1.03)	--
IDAS Traumatic Intrusions	2.41 (1.22)	2.09 (1.00)	.28[*]
IDAS Panic	1.96 (0.88)	--	--
MASQ: AA	--	1.69 (0.67)	--

Note. SCOPI = Schedule for Compulsions, Obsessions, and Pathological Impulses. OCI-R = Obsessive Compulsive Inventory – Revised. MASQ: AA = Mood and Anxiety Symptom Questionnaire: Anxious Arousal scale.

[*] Difference is significant at p .05.

[a]No statistical comparison was made due to the use of different versions of the Social Anxiety scale across samples

Table 4

Correlations between Predictor Variables

	1	2	3	4	5	6	7	8	9	10
1. Checking	.--	.48	.64	.48	.32	.29	.34	.26	.--	.43
2. Cleaning	.61	.--	.49	.18	.10	.11	.17	.17	.--	.25
3. Rituals	.67	.55	.--	.29	.14	.13	.17	.15	.--	.36
4. Hoarding	.41	.26	.31	.--	.23	.18	.23	.13	.--	.21
5. IDAS Dysphoria	.42	.22	.25	.17	.--	.84	.62	.58	.--	.51
6. IDAS Anxious Mood	.45	.25	.27	.18	.86	.--	.58	.54	.--	.49
7. IDAS Social Anxiety	.43	.26	.29	.14	.70	.66	.--	.47	.--	.42
8. IDAS Traumatic Intrusions	.33	.26	.21	.04	.61	.61	.48	.--	.--	.47
9. IDAS Panic	.45	.34	.33	.11	.62	.61	.58	.55	.--	.--
10. MASQ: AA	.--	.--	.--	.--	.--	.--	.--	.--	.--	.--

Note. Sample 1 is below diagonal ($n = 349$); Sample 2 is above diagonal ($n = 254$). Correlations of |.11| and greater in Sample 1 and |.12| or greater in Sample 2 are significant at p .05, two-tailed. IDAS = Inventory of Depression and Anxiety Symptoms. MASQ: AA = Mood and Anxiety Symptom Questionnaire: Anxious Arousal scale.

Table 5

Polychoric Correlations between Self-Report Scales and SCID-IV Diagnoses in Sample 1

Scale	OCD	MDE	GAD	Social Phobia	PTSD	Panic
OCD Scale						
Checking	.58*	.38*	.48*	.31*	.32*	.47*
Cleaning	.40*	.11	.22*	.08	.14	.30*
Rituals	.44*	.21*	.33*	.14	.22	.20*
Hoarding	.29*	.15*	.21*	.08	.05	.13
IDAS Scale						
Dysphoria	.42*	.81*	.55*	.46*	.47*	.68*
Anxious Mood	.43*	.71*	.64*	.42*	.45*	.61*
Social Anxiety	.37*	.59*	.46*	.73*	.45*	.60*
Traumatic Intrusions	.31*	.45*	.35*	.22*	.64*	.51*
Panic	.44*	.51*	.36*	.31*	.45*	.70*

N = 349. Correlations ≥ .35 are highlighted. SCID-IV = Structured Clinical Interview for DSM-IV. OCD = obsessive-compulsive disorder. MDE = major depressive episode. GAD = generalized anxiety disorder. PTSD = post-traumatic stress disorder.

*
significant at *p* ≤ .05

Table 6

Polychoric Correlations between Self-Report Scales and SCID-IV Diagnoses in Sample 2

Scale	OCD	MDE	GAD	Social Phobia	PTSD	Panic
OCD Scale						
Checking	.58*	.31*	.24*	.22*	.28*	.30*
Cleaning	.30*	.18*	.13	.05	.13	.11
Rituals	.49*	.04	.13	−.01	.11	.20*
Hoarding	.41*	.08	.16*	.17*	.12	.23*
IDAS Scale						
Dysphoria	.37*	.68*	.53*	.36*	.59*	.39*
Anxious Mood	.27*	.52*	.59*	.37*	.48*	.45*
Social Anxiety	.30*	.48*	.27*	.70*	.39*	.35*
Traumatic Intrusions	.15	.31*	.30*	.17*	.78*	.46*
MASQ: AA	.46*	.39*	.32*	.29*	.52*	.60*

N = 254. Correlations .35 are highlighted. SCID-IV = Structured Clinical Interview for DSM-IV. OCD = obsessive-compulsive disorder. MDE = major depressive episode. GAD = generalized anxiety disorder. PTSD = post-traumatic stress disorder. MASQ: AA = Mood and Anxiety Symptom Questionnaire: Anxious Arousal scale.

*
significant at *p* .05

Table 8

Odds Ratios from Logistic Regression Analyses in Sample 2

Scale	OCD	MDE	GAD	Social Phobia	PTSD	Panic
Scale						
Checking	**2.35**	**1.94**	1.19	1.30	1.41	1.60
Cleaning	1.06	1.29	1.11	1.01	0.83	0.59
Rituals	1.40	**0.54**	0.96	0.63	0.85	0.82
Hoarding	1.50	0.70	0.94	1.13	1.11	1.14
IDAS Scale						
Dysphoria	2.61	**7.29**	1.78	0.83	**2.65**	0.51
Anxious Mood	0.76	0.65	**2.75**	0.97	0.72	1.93
Social Anxiety	0.86	1.28	0.70	**4.88**	0.72	1.07
Traumatic Intrusions	0.49	**0.64**	0.78	**0.56**	**5.92**	1.55
MASQ: AA	1.50	1.32	1.05	1.31	1.33	**2.74**

N = 254. Significant values (p 0.05) are highlighted. OCD = obsessive-compulsive disorder. MDE = major depressive episode. GAD = generalized anxiety disorder. PTSD = post-traumatic stress disorder. MASQ: AA = Mood and Anxiety Symptom Questionnaire: Anxious Arousal scale.