Research Article

MYTH OF THE PURE OBSESSIONAL TYPE IN OBSESSIVE–COMPULSIVE DISORDER

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Background: *Several studies have identified discrete symptom dimensions in obsessive–compulsive disorder (OCD), derived from factor analyses of the individual items or symptom categories of the Yale–Brown Obsessive–Compulsive Scale Symptom Checklist (YBOCS-SC). This study aims to extend previous work on the relationship between obsessions and compulsions by specifically including mental compulsions and reassurance-seeking. Because these compulsions have traditionally been omitted from prior factor analytic studies, their association to what have been called "pure obsessions" may have been overlooked.* **Method:** *Participants (N = 201) were recruited from two multi-site randomized clinical treatment trials for OCD. The YBOCS-SC was used to assess OCD symptoms, as it includes a comprehensive list of obsessions and compulsions, arranged by content category. Each category was given a score based on whether symptoms were present and if the symptom was a primary target of clinical concern, and a factor analysis was conducted. Mental compulsions and reassurance-seeking were considered separate categories for the analysis.* **Results:** *Using an orthogonal geomin rotation of 16 YBOCS-SC categories/items, we found a five-factor solution that explained 67% of the total variance. Inspection of items that composed each factor suggests five familiar constructs, with mental compulsions and reassurance-seeking included with sexual, aggressive, and religious obsessions*

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(unacceptable/taboo thoughts). <u>Conclusions:</u> *This study suggests that the concept of the "pure obsessional" (e.g., patients with unacceptable/taboo thoughts yet no compulsions) may be a misnomer, as these obsessions were factorially associated with mental compulsions and reassurance-seeking in these samples. These findings may have implications for DSM-5 diagnostic criteria. Depression and Anxiety 0:1–6, 2011.* © 2011 Wiley-Liss, Inc.

INTRODUCTION

Obsessive–compulsive disorder (OCD) is a severe and disabling neuropsychiatric condition marked by phenotypic heterogeneity. One way researchers have attempted to overcome this heterogeneity is by identifying dimensions of the disorder based on symptom presentation, which includes groups of obsessions and compulsions that tend to cluster together.[1] Using data from the Yale-Brown Obsessive Compulsive Symptom Checklist (YBOCS-SC[2]), studies have consistently identified three to six symptom dimensions,[3] including one that has often been termed the "pure obsessional" subtype. Baer[4] was the first to describe this factor, and found it to be composed of aggressive, sexual, and religious obsessions but no compulsions.

Pinto et al.[5,6] developed a more nuanced view of this symptom dimension by dividing those items categorized as "aggressive obsessions" into two categories that represented fears of unintentional harm versus impulsive harm. These two types of aggressive obsessions were associated with different OCD symptom dimensions, with unintentional harm contributing to a Doubt/Checking dimension, and impulsive harm contributing to a dimension termed Taboo Thoughts (sexual, religious, and impulsive aggressive obsessions). This distinction is clinically useful as these domains have been associated with differential treatment responses.[7,8] However, like the study by Baer, the Taboo Thoughts dimension did not include any compulsions.

The current DSM-IV-TR criteria for OCD assumes a functional relationship between obsessions and compulsions, because compulsions are performed in response to an obsession, but contradictorily allows a diagnosis of OCD to be made if a patient has either obsessions or compulsions.[9] In the DSM-IV field trial, 96% of adults with OCD had both obsessions and compulsions when evaluated by trained raters using the YBOCS-SC, with only 2% having "predominantly obsessions,"[10] which indicates that the pure obsessional type may be less common than indicated by studies of symptoms dimensions. It is possible that this symptom dimension has numerous associated compulsions, but it is not clear exactly which compulsions are factorially associated to "pure obsessions," because prior factor analytic studies tended to omit the many common symptoms categorized as "miscellaneous" in the YBOCS-SC.[11]

It has been suggested that pure obsessional patients may be experiencing primarily mental rituals. Abramowitz et al.[12] conducted a category-based cluster analysis, where aggressive, sexual, and religious obsessions were included in a symptom dimension termed Unacceptable Thoughts; mental rituals were the most prominent compulsion associated with that symptom dimension. However, these findings may have been somewhat confounded by the failure to separate the two types of aggressive obsessions described by Pinto et al.[5,6] Another notable study was an item-level analysis by Katerberg et al.[13] using a large sample of participants from sites in the United States, The Netherlands, and South Africa ($N = 1,224$). A Taboo dimension emerged that included no compulsions, but mental rituals were associated with a dimension termed Rituals and Superstition. The authors note that the heterogeneity of the sample, differential application of the YBOCS-SC items across sites, and lack of interrater reliability data may have lead to substantial measurement error; which accounts for why the unusual resulting factor structure may not be the best representation of patients actually seen in clinical practice.

Another ritual that may be connected to the pure obsessional profile is compulsive reassurance-seeking. Reassurance-seeking has been recognized as a common behavior among those with OCD,[14] but little research has focused on what types of obsessions are most closely related to this compulsion. Reassurance can be sought from others or can take the form of a mental ritual as self-reassurance.

Thus, prior work has left us unable to answer the clinically and phenomenologically important question: are there specific types of compulsions typically experienced by people previously categorized as pure obsessional? We hypothesize that OCD patients typically considered pure obsessional—those with impulsive aggressive, sexual, and religious obsessions—engage in mental rituals and demands for reassurance. We arrive at this hypothesis because both reassurance-seeking and mental compulsions are fairly common,[10,14] and the unobservable nature of mental compulsions may cause them to be missed or mistakenly classified as an

obsession.[12] This study examines this issue by factor analyzing a broader set of symptoms than prior studies in a well-characterized clinical sample.

METHOD

PARTICIPANTS

Participants ($N = 201$) were recruited from two multisite randomized clinical treatment trials for OCD: "Clomipramine and Behavior Therapy for OCD," (BT-CMI[15]) and "Cognitive Behavior Therapy Augmentation of Serotonin Reuptake Inhibitor" (AUG[16]). BT-CMI compared the effectiveness of behavior therapy (exposure and ritual prevention), clomipramine, and their combination, whereas AUG compared the effectiveness of augmenting SRI medication with of one of two types of cognitive behavior therapy. After complete description of the study to subjects in both studies, written informed consent was obtained. Both projects were funded by the National Institute of Mental Health.

Participants were recruited for BT-CMI during 1990–2000 ($N = 92$) from three sites (Philadelphia, New York, and Winnipeg). All patients were free of medication at the time of their baseline assessment. Participants were recruited for AUG during 2000–2005 ($N = 109$) from two sites (Philadelphia and New York), and all were required to be on a therapeutic dose on an SRI for at least 12 weeks before the baseline assessment. The total N does not include 59 participants, primarily from the BT-CMI study, for whom complete baseline data were no longer available (e.g., YBOCS-SC target symptoms were not identified).

Participants on average were 36.7 years of age ($SD = 13.1$), where 53.7% of the sample was male. The majority of the participants were ethnically European-American (86.7%), and either single (61.1%) or married (29.2%). For more information on sample composition and methodology, see Foa et al.[15] and Simpson et al.[16] In our sample, the mean number of obsessions endorsed from the YBOCS-SC was 10.7 ($SD = 5.9$) and the mean number of compulsions was 10.5 ($SD = 5.3$).

MEASURES

All participants completed an initial assessment to ensure a primary diagnosis of OCD, assessed by the Structured Clinical Interview for DSM-IV disorders[17] and the Yale–Brown Obsessive–Compulsive Severity Scale (YBOCS). The YBOCS severity scale scores range from 0 to 40, with a score ≥ 16 indicating clinically significant symptoms. A score on the YBOCS severity scale of ≥ 16 was required for inclusion.

The YBOCS-SC that assessed OC symptoms in this study includes a comprehensive list of specific obsessions and compulsions, arranged by content category. The content categories for obsessions include Aggressive, Contamination, Sexual, Hoarding/Saving, Religious, Symmetry/Exactness, and Somatic. The compulsion categories include Washing/Cleaning, Checking, Repeating, Counting, Ordering/Arranging, and Hoarding. Based on evidence that two of the aggressive obsession items ("Harm others because of not being careful enough"; "Will be responsible for something terrible happening") load onto a factor distinct from the others,[5,6] these items were re-classified under a separate category entitled Unintentional Harm. If a participant endorsed "Other" in the category of Aggressive Obsessions, the open-ended descriptions were reviewed to determine which category (Impulsive Aggressive or Unintentional Harm) provided the best fit for that item. There were 13 such instances; these were reviewed by the first and second authors, who agreed on the classification of each case by consensus.

As in the DSM-IV Field Trial, a version of the YBOCS-SC was used that included additional items designed to assess mental compulsions.[12] This category included mental repetition of special words, images, or numbers; repetition of special prayers; mental counting; mental listmaking; and mental reviewing. We did not include the complete Miscellaneous Obsessions or Miscellaneous Compulsions categories, but we did examine the item in the Miscellaneous Compulsions category associated with reassurance, "Urges to ask, tell, confess, SEEKING REASSURANCE," because of our interest in this particular ritual. Sixteen symptom categories were included in all.

STATISTICAL PROCEDURES

The most impairing or distressing current obsessions and compulsions were identified and ranked as primary or "target symptoms." Each participant could have up to three target obsessions and three target compulsions. Following the methodology originally described by Baer,[4] each patient was assigned a score for each symptom category based on the participant's response to the individual checklist items. Within each category, a score of one indicated that the participant endorsed one or more of the individual items in that category as being currently experienced. A score of two meant that at least one of the symptoms in that category was not only current, but also considered a target symptom.

Scores for each category were entered into a factor analysis, using a probit model that relates polytomous responses to each item to an underlying latent continuous variable. This procedure offers considerable advantages over the application of traditional factor analysis methods that were designed for continuous variables, to categorical item responses that fail to meet many of the linearity and normality assumptions of the multivariate factor analytic model. Categorical models for factor analysis of polytomous items are closely related to item response theory (see MacDonald[18] for a complete treatment of categorical factor analysis methods and their relationship to traditional methods for factor analysis, structural equation modeling, and item response theory). Analyses were conducted using the computer program MPlus, version 6,[19] using a robust weighted least squares algorithm. The number of factors extracted for rotation was selected by inspection of the scree plot of Eigenvalues and examination of fit indices. Extracted factors were rotated using an orthogonal geomin algorithm.

RESULTS

We performed a weighted least squares orthogonal geomin exploratory factor analysis for 16 YBOCS-SC groups/items. The first ten Eigenvalues were 2.94, 2.58, 2.22, 1.63, 1.38, 1.03, 0.93, 0.82, 0.66, and 0.57. Examination of the scree plot indicated that five factors was the best solution. The five-factor solution was the simplest solution to show adequate fit using accepted standards for quality of fit and fit the data very well (RMSEA = .035; CFI = .994). The five-factor solution explained 67% of the total variance.

Table 1 provides the significant factor loadings of 16 YBOCS-SC categories or items. Loadings of 0.400 and greater are printed in boldface for ease of interpretation. Inspection of items that compromised each factor suggests the five-symptom dimensions that follow: Contamination-Cleaning, Symmetry-Ordering, Hoarding, Doubt-Checking, and Unacceptable Taboo Thoughts-Mental Rituals. Consistent with the

TABLE 1. Factor loadings of YBOCS-SC categories or items

YBOCS-SC category or item	Doubt-checking	Contamination-cleaning	Symmetry-ordering	Unacceptable taboo thoughts-mental rituals	Hoarding
Unintentional harm obsessions	**1.001**	−0.011	0.023	−0.013	0.056
Impulsive aggression obsessions	0.377	0.022	−0.211	**0.400**	−0.168
Contamination obsessions	−0.022	**1.017**	−0.053	−0.009	−0.145
Sexual obsessions	−0.212	−0.040	−0.250	**0.747**	0.002
Hoarding obsessions	0.083	−0.063	0.039	0.035	**0.893**
Religious obsessions	−0.077	−0.059	0.277	**0.431**	−0.093
Symmetry obsessions	0.045	0.110	**0.827**	−0.004	0.117
Somatic obsessions	0.181	−0.007	0.020	**0.564**	0.084
Cleaning compulsions	0.043	**0.846**	0.113	−0.213	−0.109
Checking compulsions	**0.403**	0.248	0.196	0.166	0.161
Repeating compulsions	0.158	0.018	**0.500**	**0.409**	0.010
Counting compulsions	0.010	0.071	0.342	0.013	0.109
Ordering compulsions	−0.076	−0.027	**0.601**	0.007	**0.434**
Hoarding compulsions	0.035	−0.061	0.027	−0.047	**1.039**
Mental compulsions	0.109	−0.047	0.199	**0.567**	−0.133
Reassurance seeking	0.018	0.205	0.108	**0.559**	0.101

TABLE 2. Rate of mental rituals and reassurance seeking by primary obsession type

		Primary compulsions			
Primary obsessions	N	Mental rituals		Reassurance seeking	
Impulsive aggression	31	16	(51.6%)	3	(9.7%)
Sexual obsessions	14	9	(64.3%)	5	(35.7%)
Religious obsessions	33	15	(45.5%)	8	(24.2%)
Somatic obsessions	27	12	(44.4%)	4	(14.8%)
All other obsessions	144	19	(16.7%)	11	(9.6%)

Primary symptoms are those identified as one of up to three target obsessions or one of up to three target compulsions. All other obsessions = anyone who did not endorse Impulsive Aggression, Sexual Obsessions, Religious Obsessions, or Somatic Obsessions as a primary obsession.

five-symptom dimension model, Contamination Obsessions, Cleaning Compulsions, Hoarding Obsessions, Hoarding Compulsions, Unintentional Harm Obsessions, and Checking Compulsions were found to load most highly onto their respective symptom factors. Mental Compulsions (0.567) and Reassurance-seeking (0.559), along with Impulsive Aggression, Sexual Obsessions, Religious Obsessions, and Somatic Obsessions were found to load most highly onto the Unacceptable Taboo Thoughts-Mental Rituals factor.

Several items showed some cross-loading between factors. Repeating Compulsions loaded primarily not only onto Symmetry-Ordering, but also onto Unacceptable Taboo Thoughts-Mental Rituals. Ordering Compulsions loaded primarily not only onto Symmetry-Ordering, but also onto Hoarding. Impulsive Aggressive Obsessions loaded not only onto the Unacceptable Taboo Thoughts-Mental Rituals factor, but also onto Doubt-Checking to a lesser degree. Counting Compulsions loaded weakly onto the Symmetry-Ordering factor.

Table 2 reports the rate of mental rituals and reassurance-seeking among those with primary/target obsessions within the Unacceptable Taboo Thoughts-Mental Rituals factor as compared to those with other primary obsessions. This table illustrates the high prevalence of mental rituals and reassurance-seeking in the sample, particularly among those with Unacceptable Taboo Thoughts. (A frequency table of all obsessions and compulsions is available from the authors upon request.) In the sample, all participants endorsed at least one current obsession and one current compulsion.

DISCUSSION
COMPULSIONS IN PURE OBSESSIONS

To improve our understanding of OCD phenomenology and inform the treatment of a condition notable for its heterogeneity, it is important to explore compulsions previously omitted from factor analytic studies (mental rituals and reassurance-seeking), and how these fit in a multidimensional model of OCD symptoms. We demonstrate in a new factor analysis that these compulsions are associated with the symptom dimension, described in the literature as "pure obsessions,"[4,20] "taboo thoughts,"[5,6] or "unacceptable thoughts."[12] These data suggest that individuals with unacceptable taboo thoughts are engaging in mental rituals and/or reassurance-seeking to manage their distress.

Our result regarding reassurance-seeking is consistent with a finding by Mataix-Cols et al.[21] who noted that the "sexual/religious obsessions" factor was

positively correlated with higher scores on the item "the need to tell, ask, or confess." Interestingly, in our analysis somatic obsessions was included in the Unacceptable Taboo Thoughts-Mental Rituals factor. In Pinto et al.'s[6] item-level analysis, this symptom was weakly associated with Taboo Thoughts. It seems that those with somatic obsessions share the same compulsions as those with sexual, religious, and aggressive obsessions, including demands for reassurance, as typically seen in the related disorders of hypochondriasis and body dysmorphic disorder.[22]

CLINICAL IMPLICATIONS

Recognition of compulsions performed by those previously considered purely obsessional can aid in the improved diagnosis and treatment of people with OCD. Mental rituals can include a wide array of cognitive acts (e.g., mental repetition of special words, mental reviewing, mental undoing). Without direct questioning, patients may be reluctant to describe these symptoms or be unaware of the need to disclose such acts. Reassurance-seeking can also be a ritual, often not identified or recognized as a compulsion by patients. Reassurance can be sought in many forms (i.e., asking others, self-assurance, internet searching), but for this study, reassurance-seeking was focused on the need to ask, tell, or confess to others. This can be a particularly troubling symptom for those living with the OCD patient, as repeated demands for assurance can contribute to family stress.[14]

Cognitive–behavioral therapy (CBT) for OCD is highly effective; however, it requires a thorough understanding of both the patient's obsessions and compulsions. If a clinician treating an OCD patient with unacceptable thoughts believes there are likely no compulsions to address, then treatment will be incomplete and less effective. Recognition of all compulsions is important for successful CBT. It is recommended that clinicians and researchers make use of the expanded version of the YBOCS-SC or ask additional questions about mental rituals to ensure that these compulsions are adequately captured.

CBT has been shown to be less effective for unacceptable or taboo thoughts.[23–25] Is this because practitioners have been neglecting the associated compulsions or because these types of obsessions actually require a longer or more rigorous course of treatment? Further research is needed to examine this issue.

SUGGESTIONS FOR DSM-5: REQUIRE COMPULSIONS IN AN OCD DIAGNOSIS

OCD can be difficult to diagnose.[26,27] Requiring the presence of compulsions for a diagnosis of OCD will improve diagnostic accuracy for this disorder. Requiring compulsions will help to distinguish OCD from other disorders that may have obsessional qualities but do not include compulsions, such as worry within generalized anxiety disorder, rumination within depression, racing thoughts within mania, and preoccupation with substances within substance dependence.[28]

LIMITATIONS

In this study, there were no OCD patients without an identifiable compulsion, which supports our thesis. However, inclusion in this study required clinically significant symptoms (YBOCS ≥ 16). Therefore, we cannot exclude the possibility that OCD patients with only obsessions are more likely to be found in the mild symptom range, and thus we did not detect them. That being said, no study can prove that a certain symptom presentation does not exist; we can only provide mounting evidence in support of this idea.

Like the prior symptom category-based factor analyses of the YBOCS-SC, this study depends on the a priori structure of the symptom checklist. Although we have extended the literature by separating the Aggressive Obsessions into two categories[5,6] for the analysis, the ideal study would be one with a large enough sample to include all YBOCS-SC items, including miscellaneous and all individual supplemental mental compulsion items. Like this study, such a study must also include a careful and consistent assessment of mental rituals by experienced clinicians.

Although racial and ethnic diversity in the sample was a priority for the research team, the study suffered from relatively low minority participation, a common problem for OCD studies.[29] Whether the factor structure of the YBOCS-SC as determined using a racially and ethnically homogeneous sample is generalizable to a more diverse sample remains unknown, and is an important target of future research.

FUTURE DIRECTIONS

This work contributes to a growing body of research that has supported the association between "pure obsessions"/"taboo thoughts"/"unacceptable thoughts" and mental compulsions and reassurance-seeking.[6,12,21] As this is the first factor analysis to demonstrate this relationship, it will be important to build upon these results with additional research, such as replication studies and an examination of the outcome of various treatment modalities associated with this group. It is also important that future researchers include other miscellaneous items in their factor analytic studies— such as the need to touch, tap, or rub; rituals involving blinking or staring; eating behaviors; list-making; and superstitious behaviors—to better determine the phenomenology of the various symptom dimensions. Finally, as this study only included adults, future studies should extend these findings to child/adolescent samples.

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