EXPERT REVIEWS

Assessment of obsessive–compulsive disorder: review and future directions

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Careful evaluation of obsessive–compulsive disorder (OCD) is critical owing to its under-recognition, difficulty ascertaining accurate diagnoses and the need for detailed treatment planning. We review current methods for the assessment of OCD in adults, including unstandardized clinical interviews, standardized diagnostic and other clinical interviews, patient- and family-report measures, and brief or web-based screening measures. Depending upon the question of interest, clinicians and researchers may select from these measures to best assess obsessive–compulsive symptoms in multiple settings. Current research regarding the assessment of OCD has focused on the underlying symptom dimensions, suggesting that each symptom dimension may be associated with different etiology and require tailored treatment. In the future, research may show that effective assessment of OCD involves identification of relevant symptom dimensions to facilitate the choice of appropriate treatment.

Keywords: adults • assessment • interview • measure • obsessive–compulsive disorder • primary care • symptom dimensions • validity

Obsessive–compulsive disorder (OCD) affects approximately 2% of the adult population and is characterized by intrusive, anxiety-provoking thoughts (obsessions) and/or maladaptive, repetitive behaviors (compulsions) [1,2]. Obsessions include worries or images that are distressing and may persist even when patients recognize obsessions as unrealistic [1]. Compulsions are usually performed in response to obsessions with the goal of reducing or avoiding distress or feared consequences (Table 1). Without treatment, obsessive–compulsive symptoms may persist or exacerbate over time, and are associated with impairment in social, academic and family functioning [3]. OCD also represents a significant public health problem, with over 3 million Americans having a diagnosis of OCD [4] and US$8.4 billion spent on OCD in the USA alone [5].

Currently, efficacious treatments for adults and children with OCD include cognitive–behavioral therapy (CBT) using exposure and response prevention and/or pharmacology [6,7]. However, OCD remains under-recognized in many affected people owing to a number of barriers to identification [8–10], making it difficult to deliver these treatments to all affected individuals. These barriers can include issues with differential diagnosis (e.g., other anxiety disorders, neurological disorders and personality factors), patient reluctance to discuss symptoms (owing to potentially embarrassing content), and the heterogeneous nature of obsessive–compulsive symptoms [10,11]. Such barriers may be addressed through optimal selection and use of OCD assessment tools. These assessment tools should be used to facilitate screening for the presence of OCD, for diagnostic utility and for treatment planning.

This article provides a brief review of commonly used measures and methods for the assessment of adult OCD, with a focus on emerging trends in both clinical and research fields (Merlo *et al.* provide a review of assessment tools for pediatric OCD [12] and Grabill *et al.* provide a comprehensive review of adult OCD measures [13]). To enhance the utility of our article across settings, we will discuss the role of OCD assessment measures for screening, diagnosis and treatment planning. Our article will include a discussion of brief or web-based screeners, patient report measures, unstructured clinical interviews and the use of diagnostic interviews and other clinician-administered measures in the assessment of OCD. For each measure discussed, we will briefly discuss the format, psychometric properties (see Table 2) and overall advantages and disadvantages of the particular measure.

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Table 1. Obsessions and compulsions.

Term	Definition	Examples
Obsessions	Intrusive, distressing thought, impulse or image	Worries about dirt/germs Fears that harm may come to self/others Doubting an action was performed correctly Sexual/religious obsessions Worries about losing things
Compulsions	Repetitive action aimed at reducing distress or anxiety	Hand washing/cleaning Counting Praying Checking Reassurance-seeking Ordering Hoarding

Screening for OCD: web-based & other brief measures

Despite the availability of excellent diagnostic and other assessment tools for patients with OCD, as little as 20% of those with OCD ever seek help from a professional [14]. Researchers have identified barriers to treatment-seeking among patients with OCD, including those that are common to many mental disorders (e.g., cost and unavailability of providers) [15]. However, factors associated specifically with OCD may further decrease self-referral for treatment, including fear of disclosing obsessions, obsessions that are not readily recognized by clinicians and reluctance to engage in exposure-based treatment [14,15]. Given that patients with OCD may be unlikely to identify themselves for treatment, it is important to facilitate routine screening to increase the likelihood that clinicians will recognize patients with obsessive–compulsive symptoms. Brief screening measures and web- or computer-based surveys may be used to prescreen patients before office visits and to reduce the burden of evaluation in primary care settings.

Using previously validated measures in a web-based format may offer utility in a clinical or research setting. For example, commonly used paper-and-pencil questionnaires have been psychometrically validated for use in a web-based format, including the Obsessive Compulsive Inventory (OCI) [16] and the Obsessive Beliefs Questionnaire (OBQ-44) [17,18]. The most frequently used measure of obsessive–compulsive symptoms in both research and practice, the Yale–Brown Obsessive–Compulsive Scale (Y–BOCS) [19], has been converted into a computerized version and measures symptom presence and severity similarly to the clinician-administered version for patients with OCD, but had a high rate of false-positive symptoms for those without OCD [20]. Other studies have adapted the Y–BOCS using computerized or computer-assisted digital speech via telephone, reporting moderate-to-high correlations between clinician and computer versions [21–23]. Notably, the BT STEPS program, a web-based assessment and treatment package for OCD, has reported that use of their website and computerized interactive telephone system was effective for self-assessment and treatment planning in the context of a randomized controlled trial for adult OCD [24].

Despite the preliminary use of web-based assessments, the technology has predominantly been used in research settings. Furthermore, research related to its use has slowed in recent years. However, the utility of web-based assessment for screening has been increasingly recognized in primary care settings. Several researchers have created broad screening measures that identify OCD, as well as other mental health concerns, with the goal of referring patients for further evaluation should areas of concern be identified. Advantages of these screening measures include the ability to assess a large number of individuals with limited time or cost burden, elimination of the need for trained administrators, and the potential for recognizing those who may not otherwise self-refer for treatment. Disadvantages include the tendency for a high number of false-positive symptoms and insufficient detail for diagnostic or treatment planning utility. Several of these measures are described in the following sections.

Web Screening Questionnaire

The Web Screening Questionnaire (WSQ) is a web-based screening measure containing 15 items, with one to two items each measuring a variety of mental disorders, including anxiety disorders, mood disorders and substance disorders [25]. Responses are given in yes/no or 7-point Likert-type format. The WSQ can be completed in approximately 2 min and was designed to be used as a prescreening measure prior to a primary care visit or in mental health clinics to screen for comorbidity. The screening item for OCD was based on the Y–BOCS, and demonstrated good sensitivity but only adequate specificity for detection of OCD symptoms when compared with full-length structured clinical interview. Overall, this measure may be a useful tool in settings with limited time to devote to assessment and the capacity to triage further in-depth evaluation.

Web-Based Depression & Anxiety Test

The Web-Based Depression and Anxiety Test (WB-DAT) is an 11-item measure that screens for symptoms of major depressive disorder and several anxiety disorders, including OCD [26]. Based on initial endorsement of symptoms, patients may be presented with additional questions to complete. Items on the WB-DAT were chosen based on Diagnostic and Statistical Manual of Mental Disorders – Fourth Edition (DSM-IV) and International Statistical Classification of Diseases and Related Health Problems – Tenth Revision criteria for relevant disorders. The WB-DAT was designed to be used in primary care settings, automatically generating a summary sheet with positive symptoms identified for physicians to discuss with patients. Sensitivity for OCD diagnosis was adequate (0.71) and specificity was excellent (0.97) when comparing symptoms identified by the WB-DAT to structured diagnostic interview using the Structured Clinical Interview for DSM Disorders (SCID).

Symptom-Driven Diagnostic System for Primary Care

The Symptom-Driven Diagnostic System for Primary Care (SDDS-PC) has been tested in both paper-and-pencil and computerized formats [27]. It consists of a two-stage system in

Table 2. Psychometric properties of assessment measures.

Term	Definition
Reliability	
Internal consistency	Consistency of items within a measure
Test–retest reliability	Consistency of a measure when administered across time
Inter-rater reliability	Consistency of a measure when administered across raters
Validity	
Construct validity	Extent to which a measure assesses the construct in question
Convergent validity	Correlation between a measure and one that theoretically measures a similar construct
Divergent validity	Lack of correlation between a measure and one that theoretically measures a dissimilar construct
Criterion-related validity	Correlation between measure and criterion variable, such as establishing diagnostic cutoff score
Diagnostic validity	Extent to which a measure correctly diagnoses a given disorder
Sensitivity	Proportion of those having a disorder correctly classified by a measure as having the disorder
Specificity	Proportion of healthy individuals correctly classified by a measure as not having the disorder

which first, patients complete a self-report screening scale and second, nurses administer a follow-up interview (ranging from 1.5 to 3.5 min in length). Results yield a one-page summary and computer-generated diagnosis for the primary care physician, who follows up with the patient. The SDDS-PC screens for a variety of mental health disorders, including major depression, substance dependence and anxiety disorders (including OCD). In particular, the SDDC-PC may over-identify OCD symptoms and showed moderate agreement with physician diagnoses. However, physicians were unlikely to detect mental health disorders not previously identified by the SDDS-PC.

Patient-report measures: screening & diagnostic utility

Patient-report measures are often used in both research and clinical settings because they are easy and quick to administer and offer the advantage of gathering information from the perspective of a patient or patient's family member. They are particularly helpful when screening for OCD because of their quick administration and as a supplement to interview when diagnosing OCD. Other advantages include utility in gauging treatment response, ability to directly compare responses of patients and family members with different forms of the same measure, and availability of large normative databases for some self-report measures. Drawbacks of patient-report measures include difficulty of use for those with a language barrier or low reading level, potential for item misinterpretation and reduced flexibility compared with other assessment methods. In addition, among patients with idiosyncratic symptoms, self-report measures may underestimate symptom severity and/or impairment. Commonly used self- and family-report measures are outlined in the following sections.

Yale–Brown Obsessive–Compulsive Scale – Self Report

The Y–BOCS – Self Report (Y–BOCS–SR) [28] combines the utility of a self-report measure with the advantages of the clinician-administered Y–BOCS [19,29]. The Y–BOCS–SR asks patients to indicate the presence or absence of 58 obsessions and compulsions, noting the three primary obsessions and compulsions. Patients provide separate ratings for obsessions and compulsions for time spent, interference, distress, resistance and control. Responses are rated on a 5-point Likert-type scale (0 = 'none', 4 = 'extreme'). The Y–BOCS–SR has demonstrated good psychometric properties, including internal consistency, test–retest reliability, convergent validity with the Y–BOCS and adequate criterion-related validity [28,30]. Criterion-related validity, assessed using a cutoff of 16 for OCD diagnosis, is adequate. Overall, the Y–BOCS–SR is a good measure of symptom severity and may be used to facilitate diagnostic decisions. However, while sensitive to OCD symptoms, the measure demonstrates poor specificity and may over-identify obsessive–compulsive symptoms.

Obsessive–Compulsive Inventory – Revised

The OCI–R is based on the original OCI [16] and contains 18 items measuring six factorally derived subscales: washing, checking, ordering, obsessing, hoarding and mental neutralizing. Each item is rated on a 5-point scale assessing degree of distress (0 = 'not at all', 4 = 'extremely') [31]. The OCI–R has demonstrated good internal consistency for subscales, adequate-to-good test–retest reliability, convergent validity with the Y–BOCS, and discriminant validity [31,32]. Optimal cutoff for distinguishing patients with OCD from nonanxious controls is 21 [31]. Overall, the OCI–R has demonstrated good psychometric properties in both clinical and normative samples and may be useful in making diagnostic decisions, as the measure has published clinical cutoff scores. Disadvantages of the OCI–R include lack of a severity scale and that compulsions are assessed more heavily than obsessions. In addition, the OCI–R total scores may misrepresent overall severity in a given patient (e.g., one with mild symptoms across several domains may seem more impaired than one with severe impairment in only one area). As a result, some researchers have suggested that individual subscale scores of the OCI–R may be a better indicator of obsessive–compulsive symptoms [33].

Schedule of Compulsions, Obsessions & Pathological Impulses

The Schedule of Compulsions, Obsessions and Pathological Impulses (SCOPI) is a 45-item scale that reflects symptom dimensions frequently reported in patients with OCD [34]. Subscales assess obsessive checking, obsessive cleanliness, pathological impulses, compulsive rituals and hoarding. Each item is rated on a 5-point scale according to severity (1 = 'strongly disagree', 5 = 'strongly agree'). The SCOPI has demonstrated good internal consistency, 2-month test–retest reliability, and convergent validity with the OCI–R and Y–BOCS scores. Overall, the SCOPI has good preliminary psychometric properties and may be used to measure obsessive–compulsive symptom dimensions. However, divergent validity of the SCOPI remains unknown, as it has not yet been compared with a measure that does not assess obsessive–compulsive symptoms.

Dimensional Obsessive–Compulsive Scale

The Dimensional Obsessive–Compulsive Scale (DOCS) is a 20-item measure assessing obsessive–compulsive symptoms based on prior empirical study of the underlying symptom dimensions of OCD [35]. The DOCS measures four symptom dimensions: contamination, responsibility for harm, unacceptable obsessional thoughts and symmetry/completeness/exactness. Within each dimension, the DOCS contains five items assessing time occupied, avoidance, distress, functional impairment and difficulty disregarding obsessions/compulsions. Overall, psychometric properties of the DOCS are good, with good internal consistency, 12-week test–retest reliability, good convergent validity with the Y–BOCS and OCI–R, divergent validity with measures of depression and overall stress and anxiety, and evidence of criterion validity. The DOCS has also shown sensitivity to treatment effects (when considering the most elevated dimension). Factor analysis of the DOCS confirmed the four-factor structure in patients with OCD, those with other anxiety disorders, and in those without a diagnosis. Overall, advantages of the DOCS include the ability to measure previously validated OCD symptom domains, measurement of overall severity/impairment and good psychometric data gathered across multiple sites. Disadvantages include the fact that psychometrics from the DOCS have not yet been reported from other studies, not assessing hoarding symptoms and not eliciting detailed information regarding symptom presentation.

Obsessive Compulsive Scale of the Symptom Checklist – 90 – Revised

The Symptom Checklist – 90 – Revised (SCL–90–R) is a 90-item broadband measure of psychopathology, including obsessive and compulsive symptoms [36]. The OCD scale is comprised of 10 items, each rated on a 5-point severity scale (0 = 'not at all distressing' to 4 = 'extremely distressing'). This scale has demonstrated good psychometric properties, including good internal consistency and modest convergent validity with the Y–BOCS total score [37]. However, it has shown poor divergent validity, evidenced by strong correlations with the SCL–90–R depression and anxiety scales. In addition, the Obsessive Compulsive Scale of the SCL–90–R (OCD-SCL–90–R) did not distinguish between patients with OCD and those with panic disorder with agoraphobia, but did discriminate between OCD patients and their nonclinical relatives. The OCD-SCL–90–R was highly sensitive to treatment changes [37]. Overall, the OCD-SCL–90–R shows adequate psychometric properties but mixed evidence for construct validity, such as inability to distinguish between patients with OCD and other anxiety disorders. However, it may be useful as part of a broadband measure in settings where administration of a separate OCD measure is not feasible.

Florida Obsessive–Compulsive Inventory

The Florida Obsessive–Compulsive Inventory (FOCI) contains 25 items across two subscales: a Symptom Checklist and a Symptom Severity Scale [38]. The Symptom Checklist assesses the presence or absence of ten obsessions and ten compulsions, while the Symptom Severity Scale assesses five dimensions of severity (i.e., time spent on obsessive–compulsive symptoms) on a scale from 0 = 'none' to 5 = 'extreme'. The FOCI has good internal consistency, convergent validity of the severity scale with the Y–BOCS, discriminant validity and has demonstrated sensitivity to treatment effects following CBT [38,39]. In general, the FOCI is a self-report measure that is very quick to administer, making it useful for screening purposes. It has also demonstrated good psychometric properties in both OCD patients and nonclinical samples, correlating highly with the Y–BOCS and demonstrating its potential for use as a screener [40]. Inclusion of a subscale for measuring severity is a distinct advantage of the FOCI. However, limited psychometric data are available for the FOCI and it may not be useful for collecting detailed information about individual OCD symptoms.

Leyton Obsessional Inventory – Short Form

The Leyton Obsessional Inventory – Short Form (LOI–SF) is a 30-item measure that assesses the presence or absence of obsessive–compulsive symptoms using a yes/no response format [41]. Items were derived from the original Leyton Obsessional Inventory Survey Form [42]. The psychometric properties of the LOI–SF are adequate, showing good internal consistency and discriminant validity in a sample of college students [41]. The advantages of the LOI–SF include quick and easy administration, while disadvantages include relatively little known psychometric data (e.g., unknown test–retest reliability and convergent validity), and a lack of data available using a clinical sample of OCD patients. The sensitivity of the LOI–SF to treatment effects is unknown and subscales have not been identified.

Diagnosis of OCD

The use of screening and patient-report measures is critical in order to identify patients who may not present for evaluation or treatment. However, such measures do not provide sufficient information to make a diagnosis of OCD. Assessment of OCD for purposes of diagnosis typically involves an interview (standardized or nonstandardized) and is time-consuming owing to the need to establish the presence of OCD symptoms, as well as rule out other causes of symptoms. There are a number of other disorders that may present similarly to OCD, further complicated by the heterogeneous nature of OCD symptoms and difficulty that patients may have disclosing the content of obsessions. For example, individuals with generalized anxiety disorder experience intractable worry that may be accompanied by behaviors such as reassurance seeking or checking. Tic disorders, often comorbid with OCD, are characterized by repetitive behaviors that may be difficult to distinguish from OCD rituals. Individuals with body dysmorphic disorder may have thoughts about body image that are similar in content to OCD obsessions and accompanied by rituals (e.g., checking in the mirror). These and other disorders, including eating disorders, depression, obsessive–compulsive personality disorder, autism spectrum disorders and psychotic disorders, as well as others, have elements that overlap with OCD symptomology and complicate diagnosis. In this section, we review interview techniques that support the correct diagnosis of OCD despite this difficulty.

Unstructured clinical interview

In a research setting, evaluation of OCD is typically made through use of standardized instruments (see 'Clinician-administered measures' section, below), while those in applied clinical practice have historically used an unstructured clinical interview. Typically, this latter type of assessment includes interviews with the patient and/or family members to ascertain diagnoses. Unstructured interviews are most often used in clinical practice to generate diagnoses [43,44] and have a high level of flexibility and ability to tailor questions to the individual patient. This level of individualized assessment can allow clinicians to develop a detailed case formulation incorporating psychosocial and functional information. It may also allow clinicians to relate assessment information to intervention options and to assess information related to prognosis, such as moderators of treatment response. This can be particularly helpful, given a current lack of measures to predict treatment response or assess treatment outcome moderators [45]. Although its flexibility is an important strength in tailoring assessment to individual patients, the lack of standardization of the unstructured clinical interview for determining diagnostic status is a drawback. Overall agreement between unstructured clinical interviews and standardized clinical interviews may be poor [46]. Studies comparing both unstructured and structured clinical interviews to external indices of validity (e.g., expert review, independent observation of daily behavior, other measures of the diagnosis in question) have supported the higher validity of structured interviews compared with unstructured interviews [47,48]. In addition, making inaccurate diagnoses using unstructured interviews may negatively impact treatment planning. For example, Jensen-Doss and Weisz reported that when an unstructured clinician interview generated a different diagnosis compared with standardized interview, patients were more likely to miss appointments or terminate treatment early, and treatment outcome was attenuated [49].

Although diagnostic information about OCD may be best assessed using a structured or semi-structured interview, unstructured interviews are critical for gathering information not assessed by existing diagnostic measures. In particular, gathering information about family psychiatric history will help clinicians when considering an OCD diagnosis. Research has increasingly demonstrated familiarity of OCD and related disorders, which may be important in determining preponderance of evidence for a diagnosis of OCD or the risk of a patient developing OCD or a related disorder. Assessment of family history may be particularly important for younger patients with OCD, as children may have more affected family members [50]. In addition, patients having a family history of OCD may struggle with psychosocial consequences, such as the meaning of a diagnosis, high levels of family accommodation or family members who are also very impaired by OCD symptoms. In addition to a family history of OCD, families of a person with OCD may have increased rates of certain disorders, such as tic disorders, body dysmorphic disorder, anxiety disorders and other grooming disorders (e.g., skin picking) [51]. Recent research suggests that certain OCD symptom dimensions may be associated with higher rates of other familial comorbidities. For example, aggressive/sexual/religious obsessions may be related to higher family rates of bipolar disorders, and symmetry/ordering/arranging symptoms may be related to higher family rates of ADHD, alcohol dependence and bulimia [52]. Gathering detailed information about family psychiatric history may aid clinicians in determining individual risk, as well as the psychosocial setting in which a patient's OCD symptoms occur.

Clinician-administered measures

Although historically the majority of clinical diagnoses have been made using an unstructured clinical interview, structured or semi-structured interviews along with psychometrically validated measures have increasingly been incorporated into practice as more clinicians move towards evidence-based assessment. Clinician-administered measures, including diagnostic interviews and other evaluations, are an important part of the systematic assessment of OCD symptoms. Distinct advantages include the ability to gain detailed information regarding specific symptoms and idiographic obsessive–compulsive triggers. Clinician interviews, in addition to patient- and family-report measures, have flexibility to ensure that patients are provided opportunities to clarify items [53]. This is particularly important for those with OCD, as symptoms can be associated with limited insight (i.e., may not be reported as a symptom on a self-report inventory). Disadvantages of these clinician-administered measures include the time required for administration, the level of training needed for clinicians, and the susceptibility of patients to demand characteristics (e.g., desire to please the clinician, desire to prove or disprove a given diagnosis). Compared with patient-report measures, the reliability of clinician-administered measures may be more variable owing to differences in interviewer characteristics (e.g., experience and detail of questions) [53]. The most commonly used clinician-administered OCD instruments (including structured diagnostic interviews, semi-structured inventories and observational assessments) are reviewed in the following sections.

Diagnostic interviews

Anxiety Disorders Interview Schedule for DSM-IV

The Anxiety Disorders Interview Schedule for DSM-IV (ADIS) is a semi-structured interview developed to establish differential diagnoses among anxiety disorders, including OCD [54]. It also assesses other commonly comorbid disorders, including mood disorders and substance-use disorders, and screens for other major diagnostic categories, such as psychotic disorders and eating disorders [55]. When administering the ADIS, clinicians ask a series of core questions related to past and present symptoms of each disorder, completing additional supplementary sections when relevant core questions are positively endorsed. Psychometric properties of the ADIS, including inter-rater reliability [54,56] and convergent and discriminant validity [56–58], are good. Advantages of the ADIS include its excellent discrimination among anxiety disorders, detailed information about each diagnosis and reliability of the OCD diagnosis. Disadvantages include decreased emphasis on nonanxiety disorders (e.g., psychosis) that may in some cases be a differential diagnosis when considering obsessive–compulsive symptoms. In addition, the ADIS may not be useful for assessment of the full breadth and depth of obsessive–compulsive symptoms, which is important for treatment planning.

Structured Clinical Interview for DSM-IV Axis I Disorders

The SCID-I [59] is a semi-structured interview based on DSV-IV criteria [1] that is used to diagnose a range of Axis I disorders. The SCID is most commonly used in research settings and is considered a gold standard measure for the general diagnosis of DSM-IV disorders in adults. In addition to demographic and other historical information such as treatment history, clinicians administer probe questions based on past and present symptoms. If initial core symptoms of a diagnosis are not met, instructions allow the clinician to omit remaining questions in the diagnostic section. There is also a shortened clinical version of the SCID that includes disorders commonly observed in clinical practice, although it excludes a number of disorders such as eating disorders and social phobia, as well as some specifiers, such as 'with poor insight', for OCD [59]. In general, the psychometric properties of the SCID include good test–retest reliability and superior diagnostic validity when compared with a standard clinical interview [59–62]. However, reliability of the OCD diagnosis is low and the SCID has been criticized for failure to yield clinically useful information regarding OCD [59,63]. Overall, advantages of the SCID include its wide use and validation, particularly in research settings, and the large number of diagnoses assessed. However, its utility for diagnosis and symptom assessment of OCD may be limited.

Other clinician-rated measures

Yale–Brown Obsessive–Compulsive Scale

The Y–BOCS is the most widely used measure of obsessive–compulsive symptom severity in both clinical and research settings [19,29]. It is a semi-structured, clinician-administered measure that assesses the severity of obsessions and compulsions over the previous week and includes information provided by the patient and family members, as well as clinical observations. The Y–BOCS contains both a symptom checklist and a severity scale. The ten severity scale items, which assess distress, frequency, interference, resistance and symptom control, yield three scores: an Obsessions Severity Score (range: 0–20), a Compulsions Severity Score (range: 0–20) and a Total Score (range: 0–40). The Y–BOCS–II included several revisions to the original Y–BOCS, including revision of some item content, scoring scale (expanding the range of responses from 0–4 to 0–5 to capture more severe illness manifestations) and integration of avoidance into the scoring system [64].

The Y–BOCS is widely used in clinical research, and is considered the 'gold standard' for assessing symptom severity [12,65]. It has good psychometric properties, including inter-rater reliability, test–retest reliability, internal consistency, convergent validity [12,66] and sensitivity to change in treatment. Preliminary investigation of the psychometric properties of the Y–BOCS-II shows that is has good inter-rater reliability, test–retest reliability, internal consistency, and construct validity [64]. Advantages of the Y–BOCS and Y–BOCS-II include reliability and validity for assessment of OCD symptoms, sensitivity to change across treatment, and detail provided about each symptom domain. In particular, these measures are useful for assessment in the context of treatment planning and reassessment of symptoms throughout treatment. Their primary disadvantage is related to the need for additional assessment of comorbidity and the related necessity of ruling out other disorders as a cause for symptoms reported on the Y–BOCS or Y–BOCS-II.

National Institute of Mental Health Global Obsessive–Compulsive Scale

The National Institute of Mental Health Global Obsessive–Compulsive Scale (NIMH GOCS) is a single-item measure of overall OCD severity assessed on a scale ranging from 1 (minimal symptoms) to 15 (very severe). Severity ratings are clustered into five main groups (1–3, 4–6, 7–9, 10–12 and 13–15) with detailed descriptions of each cluster [66]. The NIMH GOCS has shown good psychometric properties, including test–retest reliability, inter-rater reliability and convergent validity with the Y–BOCS [67,68]. The primary advantages of the NIMH GOCS are related to its brevity and simplicity, making it a potentially valuable tool for the assessment of global severity in busy clinical settings. However, owing to the nature of its global assessment of symptoms, the NIMH GOCS has limited capacity to capture breadth or depth of symptom information and is unlikely to be of use for treatment planning. In addition, it requires a high level of expertise to produce reliable ratings [68,69].

Planning for treatment of OCD

Many instruments designed to establish a diagnosis of OCD do not provide sufficient information with which to plan treatment, particularly if patients receive CBT. Information required for successful treatment planning includes great detail about individual symptoms under a variety of circumstances. In addition, measures used during treatment should be sensitive to change in treatment to aid clinicians and researchers in determining treatment response. While some of the measures described previously (e.g., Y–BOCS) are sensitive to change in treatment, sufficient information may not be yielded to optimally engage in treatment. The following measures describe constructs about which it is useful to have more information for planning treatment.

Unstructured clinical interview

As with unstructured clinical interviews for the diagnosis of OCD, there is important information to assess for treatment planning that is difficult to gather using other formats owing to lack of available measures and reduced flexibility. Information that may be particularly relevant for treatment planning in an unstructured clinical interview includes family functioning, potential treatment moderators and creating an OCD exposure hierarchy.

Family functioning

It is important to assess overall family functioning for both children and adults with OCD, as poorer family functioning is related to treatment outcome [70,71]. Furthermore, patients perceiving their families to be critical do not respond optimally to exposure-based treatment [72]. Family member accommodation of obsessive–compulsive symptoms predicts poor response to exposure-based treatment for children and adults, and is particularly important to evaluate as it is theorized to interfere with elements of treatment (e.g., refraining from rituals) [73,74].

Treatment moderators

Although research into treatment moderators has been limited by modest sample sizes in treatment studies, the investigations to date suggest some factors that may be related to exposure-based treatment outcome. Presence of comorbid disorders, decreased motivation to participate in treatment, limited insight into OCD symptoms, greater baseline symptom severity and poorer psychosocial functioning are associated with suboptimal treatment outcome [72,75–77]. Although treatment research has yet to identify tailored interventions that adequately address the needs of these patients, clinician knowledge of these factors at initial assessment may aid early identification of difficulty during treatment.

OCD exposure hierarchies

Although standardized measures exist for gathering information about obsessive–compulsive symptoms (e.g., Y–BOCS and Y–BOCS–II, see below), these measures do not typically provide enough detail about a given patient's symptoms for planning treatment with CBT. For many clinicians and treatment researchers, creating an exposure hierarchy is considered an indispensable part of assessment for exposure-based treatments and is a typical component in CBT treatment packages [78,79]. An exposure hierarchy is an individualized rank ordering of stimuli that trigger anxiety in the absence of compulsions. It is typically generated through detailed interview with the patient and family members. Exposure hierarchies contain information that is both relevant to individual symptoms and useful for creating therapeutic exposures. Despite being included as a typical component of CBT treatment packages, the exposure hierarchy is an assessment tool that is difficult to standardize, making psychometric properties difficult to test and requiring clinicians to rely heavily on clinical experience.

Clinician-administered measures

Family Accommodation Scale for Obsessive–Compulsive Disorder

The Family Accommodation Scale for Obsessive–Compulsive Disorder (FAS) is a measure designed to be administered to a family member of a patient with OCD, and it assesses the degree to which that family member accommodates obsessive–compulsive symptoms [80,81]. The first section contains a symptom checklist adapted from the Y–BOCS that is designed to identify OCD symptoms. The second section contains 13 items assessing family member accommodation of obsessive–compulsive symptoms drawing on information provided about symptoms in the first section. Responses are scored on a 0 (none) to 4 (extreme) scale based on the amount of time/energy spent accommodating the patient. The FAS has good psychometric properties, including internal consistency, inter-rater reliability and convergent and divergent validity [80]. The FAS is currently the only measure that examines the extent to which family members accommodate patients with OCD. Family accommodation is important in that it has been shown to be related to obsessive–compulsive symptom severity and impairment [73]. Patients with high levels of family accommodation have also been shown to have worse outcomes following CBT compared with those having low levels of family accommodation, and reduction in family accommodation is associated with improvements in treatment for children [74]. Although the measure has been used in both clinician-administered and family-report formats, a disadvantage is the lack of direct psychometric comparison of the two formats. Another disadvantage of this measure includes family member response bias.

Maudsley Obsessive–Compulsive Stimuli Set

The Maudsley Obsessive–Compulsive Stimuli Set (MOCSS) is a set of standardized stimuli for eliciting anxiety in patients with OCD [82]. It contains 300 photographs, with content classified as depicting neutral, normally aversive, contamination/washing, aggressive/checking, hoarding or symmetry/ordering type stimuli. Following visual presentation of each category, patients are asked to imagine refraining from engaging in a compulsion and provide a subjective rating of anxiety on 0 (none) to 8 (extreme) scale. The MOCSS has demonstrated good convergent validity with the OCI–R and Y–BOCS and divergent validity with a measure of depression and other anxiety [82]. Overall, the primary advantage of the MOCSS is that it is the first standardized measure of obsessive–compulsive symptoms in which patients are presented with anxiety-provoking stimuli (i.e., it does not rely on symptom recall). Disadvantages of the MOCSS include the inability to tailor stimuli to individual symptoms, limited psychometric data and limited testing for use in a clinical setting.

Behavioral avoidance tests

A behavioral avoidance test (BAT) is an idiosyncratic, observational measure of avoidance behavior and distress that is associated with confronting a feared object or situation. Based on the individual situation, the BAT may consist of one or more tasks in which the patient is presented with feared stimuli and asked to approach feared stimuli in successive steps while providing ratings of his/her level of distress (typically using a Subjective Units of Distress Scale [SUDS]). When used in the context of treatment, BATs are usually administered before and after treatment to assess functional limitation, severity of symptoms and to measure changes from pre- to post-treatment. The psychometric properties of the BAT are adequate for the assessment of obsessive–compulsive symptoms, and include adequate internal consistency, convergent validity with the Y–BOCS (i.e., negatively correlated with number of steps completed), divergent validity with measures of depression and obsessive–compulsive personality disorder [83].

The BAT has several distinct advantages over other measures in that it yields *in vivo* measures of fear and avoidance related to obsessions and compulsions [66,83]. It is one of few observational measures available to clinicians and researchers for the evaluation of obsessive–compulsive symptoms, and has the potential to be used as a truly objective measure of obsessive–compulsive behavior. In addition, given the idiosyncratic nature of the BAT, it may be used in a flexible manner to assess each patient's symptoms without constraint related to predetermined items on a measure. For these reasons, BATs may be useful as part of a multimethod approach to OCD assessment and during treatment planning [66,83]. However, the flexibility of BATs also contributes to difficulty standardizing administration and measuring psychometric properties. Therefore, there are limited data regarding its consistency when used across settings, clinicians or subpopulations of OCD patients. For example, for some OCD subpopulations, eliciting anxiety may be more difficult during a BAT.

Expert commentary

Overall, selection of appropriate measures for the assessment of OCD necessitates careful consideration of the strengths and weaknesses of each assessment method, individual measure and setting in which the evaluation is to take place. For example, in a primary care setting, clinicians may wish to choose one screening measure, following-up positively endorsed symptoms with a short unstandardized clinical interview. Patients still endorsing symptoms may be referred for further evaluation. Using web-based screening measures may reduce burden on patients and providers in such settings. In a mental health clinic, clinicians may choose assessment measures from several respondents (e.g., patient and family), as well as completing an interview. Based on results of studies indicating that the use of unstandardized diagnostic interviews may have a negative treatment impact [49], we suggest that clinicians and researchers take advantage of standardized diagnostic interviews, using unstandardized interview techniques to collect additional details that may aid in treatment planning. Given the current method requiring a combination of measures for best assessment of OCD, we underscore the need to validate measures that are psychometrically sound and provide maximum clinically relevant information, while minimizing administration time.

Five-year view

Recent research regarding the underlying symptom dimensions present in OCD may have important implications for the etiology, assessment and treatment of the disorder. Despite being clinically heterogeneous, factor analytic studies of obsessive–compulsive symptoms using the Y–BOCS have suggested four symptom dimensions: contamination/washing, aggressive/checking, symmetry/ordering and hoarding [84,85]. These dimensions are temporally stable and some studies have supported their use with children [85–88]. In addition, these dimensions have been associated with differential responses to both CBT and pharmacotherapy treatment [84,89]. Each symptom dimension has been associated with different patterns of neural activity [90–92]. Recent studies have also identified distinct patterns of familial transmission of mental health disorders that are related to proband OCD symptom dimensions [51,52].

This line of research has important implications for the treatment and assessment of OCD. Distinct pathogenesis and treatment response indicates the need for tailored treatment of individuals with OCD. Based on research suggesting that patients with different symptom dimensions respond differentially to treatment (e.g., hoarding), researchers have begun to develop dimension-specific treatments [93,94]. Testing both psychotherapy and pharmacotherapy approaches that target subtypes will be an important development in treatment research. However, the assessment of OCD symptom dimensions must be adapted for clinical use in order to facilitate appropriate treatment. Currently, dimensions are assessed through factor analysis of the Y–BOCS Symptom Checklist, a technique that is impractical for use in clinical settings.

Rosario-Campos *et al.* developed a dimensional version of the Y–BOCS (DY–BOCS) that measures severity of six symptom dimensions: aggression, sexual/religious, symmetry, contamination, hoarding and miscellaneous symptoms [95]. The advantage over the Y–BOCS is that otherwise ambiguous symptoms are classified according to the most relevant dimension (e.g., checking that hands are clean is classified as a contamination symptom, but a patient checking that he/she did not harm someone is classified as an aggression symptom) and the DY–BOCS yields separate severity indices for each dimension, a measure that is potentially useful in both research and for practice. The authors also developed a self-report version of the DY–BOCS. However, psychometric testing of this measure and application to clinical settings has been limited.

Although not immediately useful, assessment of symptom dimensions will likely play an important role in tailoring treatments to the needs of individual patients as treatment research begins to identify relevant treatment options for each dimension. In addition, personalized medicine places increased emphasis on the precision of information gathered about patients (e.g., genetic variations or symptom profiles) with the goal of guiding treatment [96]. As research into genetic concomitants of OCD and accompanying treatments accelerates in the next few years, the onus will be on clinicians to appropriately assess information, including symptom dimensions, in order to select the best treatment.

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Key issues

- Obsessive–compulsive disorder is characterized by obsessions (intrusive, distressing thoughts) and compulsions (rituals aimed at reducing/avoiding distress) and causes significant impairment.
- Accurate assessment of obsessive–compulsive disorder is critical owing to under-recognition of the disorder, difficulty making accurate diagnosis and the need for treatment planning.
- Primary methods of assessment include unstandardized clinical interviews, diagnostic and other standardized clinician interviews, patient- and family-report measures, and screening measures.
- Advantages of unstandardized clinical interviews include flexibility, but studies show lack of diagnostic accuracy may lead to attenuated treatment outcomes.
- Advantages of standardized diagnostic interviews include a high degree of diagnostic accuracy, while disadvantages include increased time and financial burden on clinicians and patients.
- Advantages of patient- and family-report measures include brevity, ease-of-use and first-person perspective. Disadvantages include potential for misinterpretation, limited use with patients having low education or first language other than English, and difficulty assessing heterogeneous symptoms.
- Advantages of screening/web-based measures include brevity, ease-of-use and the ability to evaluate a large number of patients and other symptoms of interest at one sitting. Disadvantages include the tendency to over-identify symptoms, lack of detail provided and only preliminary testing in clinical settings.
- In the near future, underlying symptom dimensions of patients with obsessive–compulsive disorder may be important for the type of treatment selected, and therefore important to assess. Measures assessing obsessive–compulsive symptom dimensions are currently being developed.

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