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Integrating behavioral theory with OCD assessment using the Y-BOCS/CY-BOCS symptom checklist

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ABSTRACT

The symptom checklists of the adult and child versions of the Yale-Brown Obsessive Compulsive Scale (Y-BOCS/CY-BOCS) have been used in research to identify distinct obsessive–compulsive disorder (OCD) symptom dimensions or subtypes. However, at present, the symptom checklist does not clearly correspond to the cognitive–behavioral model of OCD, which places central importance on the functional relationship between obsessions and compulsions. In the current paper, we propose a theory-based symptom checklist administration procedure designed to integrate information about symptom topography and function. Implications of this procedure for research, pharmacological treatment, and cognitive–behavioral treatment are discussed.

1. Introduction

Obsessive–compulsive disorder (OCD) has long been recognized to be a complex anxiety disorder, primarily because of the highly heterogeneous and idiosyncratic nature of obsessions and compulsions (Abramowitz et al., 2010). This variability in symptom presentation has driven research aimed at understanding whether to best conceptualize the disorder as a unitary condition or as a condition with multiple dimensions or subtypes. Various attempts have been made to identify homogeneous groups within OCD samples, but the most popular approach has been to empirically examine symptom checklists, leading to proposed subtypes based on symptom theme (e.g., "contamination," "symmetry," "unacceptable thoughts"; see McKay et al., 2004 for a review). More recently, this approach has been extended to pediatric OCD samples (Storch et al., 2008; Stewart et al., 2008).

Interest in examination of OCD at the symptom level stems from the idea that differences in symptom presentation may reflect differences in etiology (e.g., genetics, neuroanatomy), comorbidity, and treatment outcome (including cognitive–behavioral therapy and pharmacotherapy). The clinical heterogeneity of symptoms has generated debate about the use of dimension specifiers in the formal diagnosis and categorization of OCD in DSM-V (Leckman et al., 2010). Although investigation in this area has helped to establish primary hoarding as distinct from other symptom types (Rachman, Elliott, Shafran, & Radomsky, 2009), results for other symptom dimensions are inconsistent (McKay et al., 2004). Methodological differences may in part explain these inconsistencies; however, the vast majority of research has used the same measure, the symptom checklist of the adult and child versions of the Yale-Brown Obsessive Compulsive Scale (Y-BOCS and CY-BOCS, respectively; Goodman et al., 1989; Scahill et al., 1997), in similar ways to generate empirically derived subtypes.

The symptom checklist (Y-BOCS-SC/CY-BOCS-SC) is administered in a semi-structured interview format and contains a list of over 60 specific OCD symptoms rationally organized a priori into theme-based categories of obsessions and compulsions. The Y-BOCS-SC contains eight obsession categories (contamination, aggressive, sexual, hoarding, symmetry, religious, somatic, and miscellaneous) and seven compulsion categories (washing, checking, counting, ordering/arranging, hoarding, repeating, miscellaneous). The CY-BOCS-SC generally parallels the items on the Y-BOCS-SC, with some adjustment based on developmental considerations. Obsession categories on the CY-BOCS-SC include contamination, aggressive, sexual, hoarding, magical thoughts/superstitions, religious and miscellaneous. Compulsion categories include washing/cleaning, checking, repeating, counting, hoarding, excessive games/superstitious behaviors, rituals involving other persons, and miscellaneous.

In symptom dimension research, the standard methodological approach has been to quantify and empirically examine the

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symptom checklist. Methods for doing so include factor or cluster analysis of category scores calculated by (1) summing the number of current or lifetime symptoms endorsed within each symptom category to produce a single category score (e.g., Leckman et al., 1997; Mataix-Cols, Rauch, Manzo, Jenike, & Baer, 1999; Mataix-Cols, Nakatani, Micali, & Heyman, 2008; Stewart et al., 2008; Stewart et al., 2007), (2) assigning ratings, such as 1 or 0, to a category depending on the presence, absence, or primacy of symptoms (e.g., Baer, 1994; Calamari, Wiegartz, & Janeck, 1999; Holzer et al., 1994; Mataix-Cols, Marks, Greist, Kobak, & Baer, 2002; Rufer, Fricke, Moritz, Kloss, & Hand, 2006; Storch et al., 2008), or (3) calculating weighted scores for a set of symptoms by summing the number of symptoms endorsed and dividing by the total number of symptoms on that category (e.g., Summerfeldt, Kloosterman, Antony, Richter, & Swinson, 2004; Storch et al., 2007).

In adult samples, these methods have resulted in the identification of between three to seven different dimensions or subgroups, which include the themes of contamination/washing, harming/checking, hoarding, symmetry/ordering, obsessionals, sexual/religious, certainty, sexual/somatic, and contamination/hoarding (McKay et al., 2004). In pediatric samples, a similar number of symptom dimensions have been identified, with most research identifying four factors (e.g., McKay, Piacentini, Greisberg, Graae, Jaffer, & Miller, 2006; Mataix-Cols et al., 2008; Stewart et al., 2007, 2008; Storch et al., 2007). However, in pediatric samples the content of identified dimensions seems less thematically consistent (e.g., hoarding/ordering/somatic concerns; McKay et al., 2004), which may reflect the influence of developmental processes, such as less insight or awareness of cognitions (Storch et al., 2007).

Limitations of the methodology described above have been identified (McKay et al., 2004), such as the tendency to exclude miscellaneous obsessions and compulsions categories from analyses. The symptom checklists themselves have several recognized limitations. First, there is no published reliability or validity data. As such, little is known about how clinicians decided to endorse particular items and if these decision rules were similar across clinicians and studies. Second, the checklists under-represent particular symptoms, such as mental rituals, rare or less-studied symptoms (e.g., just right feelings, Coles, Frost, Heimberg, & Rheaume, 2003; sensory intolerance, Hazen et al., 2008), or symptoms particularly relevant to pediatric populations (e.g., family accommodation, reassurance seeking, Storch et al., 2007).

Importantly, existing multidimensional models are based on examination of checklist categories that are defined a priori rather than empirically, which would be difficult to do given the power needed to conduct item-level exploratory factor analysis. Examination of these a priori symptom categories using confirmatory factor analysis suggests that specific symptoms do not load well onto the categories they are supposed to measure (Summerfeldt, Richter, Antony, & Swinson, 1999). For example, when factor loadings were examined at the item-level, data suggested that overtly similar checking behaviors did not cluster together neatly into a "checking" factor but instead seemed to have heterogeneous underlying causes or motivations. Checking related to harm avoidance (e.g., checking the stove to prevent a fire) was more highly related to overtly dissimilar behaviors with a common function, such as washing to avoid contamination-related harm, than to other checking behaviors that seemed driven by concerns about commission of undesirable impulsive acts (e.g., checking to see if something embarrassing was said). The emergence of data showing that specific symptoms can be statistically related to more than one symptom dimension in both adult (Summerfeldt et al., 1999) and pediatric (McKay et al., 2006; Storch et al., 2007) samples has led researchers to suggest that inconsistent findings in the symptom dimension literature may in part be related to the format of the Y-BOCS/CY-BOCS-SC.

Of particular concern is the disconnect between the format of the Y-BOCS/CY-BOCS-SC and empirically-based models of OCD (Abromowitz et al., 2010). In the cognitive-behavioral model and treatment of OCD, central importance is placed on the functional relationship between obsessions and compulsions (Foa & Kozak, 1989; Himle & Franklin, 2009). However, the symptom checklists present obsessions and compulsions in a "de-linked" fashion (i.e., separate lists for each) and tend to conflate descriptions of symptom *topography* with symptom *function*.

According to behavioral theory, behavior can be understood in terms of topography and function (Skinner, 1953; Hanley, Iwata, & McCord, 2003). *Topography* refers to the form or structure of a behavior. In other words, a topographical account describes how a behavior looks or feels when observed or experienced ("what it is"). *Function* refers to the relationship between a behavior and contextual events or other behaviors ("what it does"), including those that occur before (antecedents) or after (consequences) the behavior in time. This relationship may be described in terms of the "purpose" of the behavior—the effect that a behavior has on the environment, including one's internal environment (e.g., thoughts, emotions, physiological state). It is important to note that behaviors that are topographically dissimilar can share a similar function. For example, a child raising her hand, saying her teacher's name, or jumping out of her seat may all function to obtain the teacher's attention. Likewise, behaviors that are topographically similar can serve different functions. For example, the function may differ according to the context in which the behavior occurs (e.g., raising a hand after a teacher asks a question in order to be called on, raising a hand during class vote in order to indicate a preference) or across individuals (e.g., one child may raise her hand only when she has a question while another may only raise her hand when she already knows the answer).

The diagnostic definition of OCD reflects the functional relationship between obsessions and compulsions rather than specific symptom topographies. In DSM-IV-TR (American Psychiatric Association, 2000), obsessions are defined as mental phenomena that *cause* anxiety or distress and compulsions as overt or covert actions that are performed in an attempt to *reduce* the anxiety or distress evoked by the obsession. This functional definition reflects theoretical models of OCD (Foa & Kozak, 1989) and supporting empirical evidence (Hodgson & Rachman, 1972; Roper & Rachman, 1976). According to cognitive behavioral theory, OCD is maintained by the negative reinforcement that occurs when compulsions reduce obsessional anxiety. This cycle prevents habituation to anxiety and reinforces the use of compulsions as an anxiety-reduction strategy.

In terms of intervention, a functional approach focuses on identifying the contingencies that maintain (i.e., reinforce) problem behavior and intervening by altering these consequences (Hanley et al., 2003). In line with this approach, exposure and response prevention (EX/RP), the empirically-supported treatment for OCD, specifically targets the functional relationship between obsessions and compulsions. Exposure exercises are used to trigger obsessional distress in the absence of compulsive behavior, thereby disrupting the negative reinforcement cycle and promoting habituation to feared stimuli (Foa & Kozak, 1989). Although EX/RP treatment manuals often provide exposure task examples based on symptom topography, topographical information is thought to be important only to the extent that it sets the context for specific exposure tasks (i.e., enables the clinician to identify stimuli to use in an exposure to evoke obsessional fears; Himle & Franklin, 2009). Therefore, treatment largely relies on the clinician's ability to design exposures that reflect idiosyncratic,

functional connections between a particular patient's obsessions and compulsions (Abramowitz, 2006).

Although the functional relationship between obsessions and compulsions is central to the diagnosis and psychosocial treatment of OCD, the Y-BOCS and CY-BOCS do not clearly describe if and how the functional relationship should be considered when the symptom checklist is completed. Therefore, the extent to which researchers and clinicians complete the symptom checklist from a topographical, functional, or blended topographical–functional perspective is unclear. Certainly, many clinicians do already assess for functional connections in order to understand symptoms and design intervention; however, a standardized procedure for doing so or for teaching others how to do so is lacking, especially in terms of symptom checklist completion. For example, it is unclear if functional relationships are reflected "on paper" or just remain "in the head" of the clinician. By extension, what is also unclear is the extent to which existing checklist data, upon which symptom dimension research is largely based, is impacted by this lack of standardization.

In terms of measuring OCD symptom dimensions, the Y-BOCS/CY-BOCS symptom checklists are not the only measures available (see Benito & Storch, 2011 for a review of OCD assessment instruments). Two recently developed measures assess OCD severity across separate symptom dimensions: the Dimensional Yale-Brown Obsessive Compulsive Scale (DY-BOCS; Rosario-Camps et al., 2006), which includes self-report and clinician-rated sections, and the Dimensional Obsessive–Compulsive Scale (DOCS; Abramowitz et al., 2010), which is self-report only. Compared to the Y-BOCS/CY-BOCS, these measures more carefully consider the issue of function by clustering together symptoms that are functionally similar and providing guidelines regarding classification of symptoms according to function (e.g., differentiating between checking associated with contamination vs. aggression). Although these measures represent a more functional approach to OCD assessment, they are still limited in terms of capturing idiographic patterns in symptom function relationships (i.e., (a) topographically dissimilar symptoms that share a common function or (b) topographically similar symptoms that have multiple functions). Assessment of these patterns remains important in planning appropriate exposures for individual patients. Furthermore, the symptom dimensions listed on these measures are themselves derived from past research using the Y-BOCS/CY-BOCS symptom checklists (i.e., empirical support for the symptom dimensions included in these measures is based on checklist data), which, as discussed previously, lacks standardization.

Given the field's continued reliance on the symptom checklists for treatment planning and research on OCD symptom dimensions, how can we use the existing Y-BOCS/CY-BOCS symptom checklists more uniformly and to better inform clinical practice and training? Clarifying the degree to which topographical and functional assessment play a role in checklist administration could be one helpful step. In the current paper, we propose a "building block" approach to checklist administration that systematically incorporates information from both perspectives. Level 1 represents a more traditional approach to checklist administration and is focused on gathering topographical information. Level 2 focuses on adding information about function and organizing symptoms into function-based categories.

To illustrate this approach, we describe the administration procedures for each level of assessment. Clinical and procedural examples are drawn from our experiences as clinicians and trainee supervisors. Issues and questions that arise during completion of the symptom checklist at each level are highlighted, as well as issues that may be differentially addressed depending on developmental considerations. Finally, a brief case example using these procedures is provided. It is important to note that the current procedures are meant to be an integral component of a comprehensive psychosocial and clinical assessment (Benito & Storch, 2011). Clinicians implementing these procedures are assumed to be familiar with the fundamentals of OCD assessment and diagnosis (e.g., see Abramowitz, McKay, & Taylor, 2008; Franklin & Foa, 2008; Steketee & Pigott, 2006).

2. Building block approach to symptom checklist administration

2.1. Level 1: topography

The goal of Level 1 is to capture information about symptom topography. In other words, the clinician aims to answer the question, "What are the symptoms?" Procedurally, items are administered sequentially (unless specific symptoms were identified previously, in which case the clinician may instead choose to start with known symptoms before inquiring about other areas). As such, the goal is to determine the presence or absence of each symptom listed on the checklist.

The obsessions and compulsions checklists are completed separately. Obsessions are typically assessed before compulsions; however, compulsions may be assessed first in cases where obsessions are difficult to readily identify, such as in a very young child whose parents may be the primary source of information. If compulsions are described during the obsession portion (or vice versa), the clinician labels it as such and explains that those types of behaviors will be discussed later in the evaluation. Individual items are checked as they are administered if they seem to describe any aspect of the patient's symptoms.

During this inquiry, information often emerges about specific stimuli associated with symptom content (e.g., concern with only a specific contaminant such as "gasoline") or likelihood of occurrence (e.g., checks locks at home but not locks on car; checks mostly when alone, etc.). Although this information does not necessarily change the item that is endorsed on the checklist (e.g., clinician would endorse "Excessive concern with environmental contaminants" whether it is gasoline or radiation), we recommend recording this information as it is beneficial in completing Level 2. It is also sometimes the case that one checklist item has several topographically distinct variations. For example, when asking about "Rituals involving other persons" on the CY-BOCS-SC, a parent may say they provide reassurance, "test" food for the child, and put toys "in order" at the child's request. Likewise, on the Y-BOCS-SC an adult may describe several thematically different "violent or horrific images." Again, although one item is to be endorsed, all variants of the item should be recorded.

Oftentimes, one identified symptom may encompass multiple checklist items or bridge different symptom categories on the checklist. For example, someone may describe a multi-themed obsession, such as a fear that God will give their loved ones cancer if they do not repeat actions three times. In this case, it is helpful to endorse all items that seem relevant to the symptom (e.g., on the CY-BOCS-SC, "Fear of offending religious objects," "Concern with certain illnesses," "Lucky/unlucky numbers") so that all topographical information is captured. Noting the connection between these items by drawing lines to indicate linkage or taking additional notes is also important in terms of functional conceptualization at Level 2, where decisions will be made about "core" obsession content. As another example, someone may describe a multi-component compulsion, such as needing to both check the expiration date on a food container and wait for someone else to try the food first before eating. Similarly, items across multiple categories would be endorsed (e.g., items in checking, rituals involving other persons) and connections noted.

2.2. Level 2: function

The goal of Level 2 is to expand upon information gathered at Level 1 by determining functional relationships between obsessions and compulsions (i.e., "How are the obsessions and compulsions related to each other?").

Procedurally, we recommend structuring Level 2 assessment by first listing all known obsessions and compulsions identified at Level 1 in separate columns. The goal is to then create a visual diagram of functional relationships and to identify core symptom dimensions (an example diagram is presented as part of the case description below).

The line of inquiry used to make decisions about functional relationships may depend on what is already known to the clinician at Level 1. For example, in children it is often the case that parents easily identify observable compulsive behavior but have little knowledge of the preceding obsessional content, thus requiring questions that draw out information about obsessions from the child. On the other hand, someone may readily identify obsessional fears but not all associated compulsive behavior (perhaps because of limited awareness or insight into rituals or patterns of avoidance) and therefore need help reporting all relevant information.

A list of possible questions that can be used to identify functional relationships based on Level 1 information is provided in Table 1 (patient-focused questions) and 2 (parent-focused questions). It is important to note that new information about symptom topography may emerge during this line of questioning, which should be added to Level 1 data and to the appropriate columns on the Level 2 diagram. For example, when asked, "How else do you avoid contamination?" a respondent who only endorsed handwashing may identify other compulsive behaviors compulsive, such as putting hands in sleeves when touching doorknobs or waiting for someone else to open the door first, which would result in endorsement of an additional checklist item (i.e., "Other measures to prevent or remove contact with contaminants").

During Level 2 assessment, care should be taken to not make assumptions about functional relationships based on symptom topography, as this could impact both the data collected and subsequent development of exposures. As described previously, topographically similar compulsions can have different functions (e.g., one person may engage in ritualized handwashing to remove germs while another does so until feeling "complete" or a sense of "evenness" across both hands; Ecker & Gönner, 2008). Although EX/RP would involve refraining from ritualized handwashing for both patients, exposures would involve very different content and focus (e.g., the first might touch a contaminant, not wash hands, and think about germs while the second might start washing hands and stop before feeling complete or even). In a similar vein, different compulsion topographies may be associated with the same obsessional fear. For example, someone may check the trash, make lists of all the day's activities, and avoid touching knives all for fear that they may have committed murder. In terms of EX/RP, this may lead to exposure that involves focus on a single fear while requiring the patient to refrain from several rituals.

After functional relationships between specific obsessions and compulsions are identified, the second step of Level 2 is to identify "core obsession themes," in other words, to determine if topographically different obsessions share functional similarities. Research suggests two core dimensions in OCD that we propose using for the current system: harm avoidance and incompleteness (Ecker & Gönner, 2008; Pietrefesa & Coles, 2008, 2009; Summerfeldt, 2004). Although these core dimensions may not be exhaustive (e.g., disgust, guilt; Ecker & Gönner), the use of these two dimensions enables finite categorization of OCD symptom function for initial research and clinical purposes. For example, preliminary research suggests that each of these dimensions may carry implications for behavioral (Summerfeldt) and pharmacological treatment (Jenike, Baer, Minichiello, Rauch, & Buttolph, 1997).

To complete this step, each specific obsession is linked to either the category of harm avoidance or incompleteness based upon the core functional theme of the symptom (note that these are considered dichotomous categories, such that one specific obsession can only be linked to one core theme). *Harm avoidance* refers to symptoms that function to avoid harm to oneself or others. Obsession content involves feared consequences, catastrophic interpretations, sensitivity to threat, and/or an inflated sense of responsibility for preventing harm. Compulsions associated with harm avoidance function to reduce the probability that a feared consequence/harm will occur. Feared consequences are typically specific and easily articulated (e.g., "I will get sick"), although young children may describe harm in more vague terms (e.g., "Something bad will happen"). *Incompleteness* refers to symptoms that are not associated with a specific threat but rather with "an inner sense of imperfection, connected with the perception that actions or intentions have been incompletely achieved" (Summerfeldt, 2004, p. 1156). Roughly synonymous terms in the literature include "not just right experiences" (Leckman, Walker, Goodman, Pauls, & Cohen, 1994), "feeling of knowing" (Rapoport, 1991), and "sensory phenomena" (Miguel et al. 2000). Obsession content is often difficult for patients to verbalize, but typically involves a drive or sensory urge to repeat or continue a ritual until the action or perception feels "complete," "right," or "perfect." Distress is often described as the only feared consequence of ritual prevention. Associated compulsions function to achieve a sensation of completion or perfectionism.

Table 1
Examples of patient-focused questions used to identify functional relationships between obsessions and compulsions.

Obsession is known (*trying to identify associated compulsion*(*s*)):
You said that you worry about [stimulus]. When you do/see/touch [stimulus], what do you worry could happen?
When you have [obsession], what makes it better/go away/reduces your anxiety?
Are there things *you* do?
Are there things you think or tell yourself to feel better?
Are there things you ask or want *other people* to do?
Are there things you avoid when you are worried about [obsession]? *How* do you avoid them?
Are there things you try to not do when you are worried about [obsession]?
Are there things you do to make things "just right" or "perfect"?
Is there anything you feel that you must do in a "set way"?
Compulsion is known (*trying to identify associated obsession*(*s*)):
Why do you [do compulsion]?
If you didn't [do compulsion], what do you worry could happen?
If don't identify specific feared consequence: Do you feel like you will just keep feeling uncomfortable, like something is "not just right" or "incomplete"?
What kinds of things/places/activities make you feel like you need to do [compulsion]?
Could something bad happen when you are around/doing those things?
Does [compulsion] keep you safe from something?
Does [compulsion] make something better?
Does [compulsion] stop something bad from happening?
Does [compulsion] change something in your body or in your brain?
Before you do [compulsion], what does your brain tell you?
What do you feel in your body?
Is it hard to put the feeling into words? *If yes*: Does it feel like something is "not just right"? What does that feel like to you?
How do you know when [compulsion] is "done"?

3. Case example

Andy is an 8-year-old male recently diagnosed with OCD. In an unstructured interview prior to the CYBOCS –SC administration, Andy's parents reported two problem areas:

1) Handwashing: Andy seems to "get stuck" while engaged in handwashing. Handwashing varies in duration but tends to be lengthy; if Andy is asked to stop or disrupted in some way before finishing on his own, he becomes visibly upset and may escalate to a full tantrum.
2) Chemicals: Andy said he feels nervous around "chemicals," which he identified as household cleaners. His parents stopped using cleaners in front of him because Andy tends to ask repetitive questions about the safety of the cleaners or look to see if the word "toxic" is printed on the bottle. He avoids walking close to the cabinet in the kitchen where cleaners are stored, but his parents have occasionally seen him walk past the cabinet several times in a row while looking at it carefully. When asked what he is doing, Andy has said that he wants to make sure that the cabinet is closed shut.

Level 1: Given Andy's young age and the primary identification of compulsions in the unstructured interview, the clinician decides to administer the compulsions checklist first. In addition to checking off relevant items, the clinician records information about specific stimuli or behaviors associated with each item (noted parenthetically here). The only item endorsed for handwashing is "Excessive or ritualized handwashing." Items endorsed for chemicals include: "Other measures to prevent or remove contact with contaminants (avoids walking near kitchen cabinet)," "Checking, other (word "toxic" on bottle)," "Checking locks, toys, etc. (cabinet to make sure it's shut)," "Rituals involving other persons (reassurance seeking regarding safety of cleaners)." The only item endorsed by Andy and his parents on the obsessions checklist is "Excessive concern with household items (cleaners)."

Level 2: The clinician first inquires about the function of compulsive handwashing using questions listed in Tables 1 and 2. Andy and his parents do not identify a specific feared consequence; Andy clearly states that he is not worried about germs or contaminants on his hands. His parents note that the frequency of handwashing is appropriate, but when Andy is interrupted or asked to stop he complains of "not being finished." When Andy is asked how he knows he is "finished," he describes a "just right" sensation. Therefore, the clinician endorses the item "Need to do things until it feels just right" (on compulsions checklist) and notes that it is connected to handwashing.

During inquiry about the function of "chemical" compulsions, Andy reveals that he is afraid that he may want to touch and then intentionally "spread chemicals" to his parents to make them ill. To capture this newly revealed information, the clinician endorses additional obsession items: "Concerned will get others ill by spreading contaminant (cleaner)" and "Fear might harm others (intentionally touch parents with chemicals)." The clinician also probes for other compulsive behavior that may have been overlooked at Level 1 by asking if Andy does anything else to prevent this feared consequence. Andy says that he sometimes watches his parents to make sure they are "still breathing," so the item "Checking that did not/will not harm others (makes sure parents are still breathing)" is also endorsed.

Level 2 *diagram.* A completed Level 2 diagram for Andy's case is presented in Fig. 1. Note that in this example patient, symptoms of both core dimensions are present. In these cases, it may be helpful to identify the primary symptom dimension for research or treatment planning purposes. For example, this example suggests that symptoms primarily function to avoid harm due to the greater number of symptoms associated with this functional category.

Table 2
Examples of parent-focused questions used to identify functional relationships between obsessions and compulsions.

Obsession is known (*trying to identify associated compulsion*(*s*)):
When your child is worried about [obsession], what does he/she do?
When your child is around things that trigger [obsession], what does he/she do?
Is there anything your child wants other people to do when he/she [has obsession]?
What kinds of things does your child do in a "set way"?
What kinds of things does your child do to make something feel "just right"?
Compulsion is known (*trying to identify associated obsession*(*s*)):
Has your child ever told you/have you asked *why* he/she does compulsion?
If child has not told parent:
Does it seem like your child knows what he/she is afraid of but doesn't want to say it out loud? For example say things like, "I don't want to tell you"?
Does your child seem to have a hard time putting it into words? For example, say things like "I just have to" or "it doesn't feel right"?
If you try to disrupt or stop your child's compulsions, what does he/she say or do?
Are there certain things that seem to increase the compulsion?
What do you think bothers your child about those things?
Does he/she think that something bad could happen? What?
Does your child seem to need to do [compulsion] in a "set way" until it feels "just right"?
Do you have a way of knowing when [compulsion] is "done"? How can you tell?

4. Barriers to function-based assessment

Although the Level 2, function-driven inquiry described above would ideally lead to clear understanding of functional relationships between OCD symptoms, there are several barriers that may complicate assessment. First, the nature of OCD symptoms themselves may hinder accurate reporting, such as issues of pathological

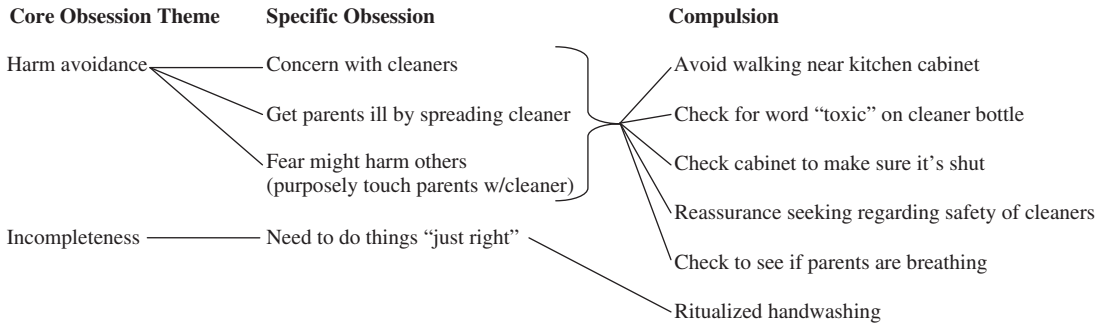

Fig. 1. Example of a Level 2 diagram representing functional relationships between obsessions and compulsions.

doubt/uncertainty that prevents definitive responding or thought-action fusion (e.g., "If I talk about my child getting hurt, then it will really happen"). Second, responding may be impacted by embarrassment or willingness to disclose, especially since the symptom checklist is often administered before treatment begins (i.e., before psychoeducation is presented and therapeutic rapport/alliance established). Third, cognitive or developmental limitations may impact insight into functional patterns or ability to articulate covert processes clearly. Fourth, in the case of children, parents may influence both the questions the clinician feels comfortable asking (e.g., concerns about child hearing taboo information) and the information the child feels comfortable sharing (e.g., concerns about parent hearing about parent-related fears or "getting in trouble" for describing taboo content). Fifth, co-occurring conditions may cause ambiguity when completing the checklist, especially in the context of a first assessment. For example, many children describe fears of harm coming to themselves or their parents, which can make it difficult to discriminate between symptoms of OCD, Generalized Anxiety Disorder, and Separation Anxiety Disorder (Comer, Kendall, Franklin, Hudson, & Pimentel, 2004). Although these issues are not specific to function-based assessment, they can impact the accuracy of Level 2 classification and subsequent treatment decisions. In treatment settings, evaluation of functional relationships should be an ongoing process.

5. Conclusions

The Y-BOCS/CY-BOCS symptom checklist administration procedure described in the current paper is designed to provide clinicians with a structured method for integrating theory into the assessment of OCD symptoms. Although this approach is derived from our clinical experience and has yet to be empirically examined, our hope is that this methodology will be used to gather data from which to test and refine hypotheses about functionally defined symptom clusters in OCD. Such work is in line with ongoing research efforts aimed at better understanding OCD symptom dimensions from a functional perspective (Abramowitz et al., 2010; Summerfeldt et al., 2001). Though this approach is similar to other assessment procedures (Abramowitz et al., 2010, Summerfeldt et al., 2001) in terms of its functional "spirit," the premise upon which categories are derived or endorsed is different from existing measurement approaches: symptom categories are created based on functional rather than topographical information about symptoms.

Although the symptom checklist is used for various purposes, we believe that the current "building block method" of administration has broad applicability. In EX/RP, the symptom checklist is typically used to understand symptoms for the purpose of designing effective exposures. To this end, topographical information (Level 1) can be used to determine what exposures should "look like" in terms of specific stimuli that will evoke obsessional fears, while functional information (Level 2) helps dictate what "happens" during the exposure in terms of the fears or feelings that are targeted and the associated rituals that need to be prevented to ensure habituation.

In medication treatment, the symptom checklist has been used to identify symptom themes based on an interest in matching theme to a particular pharmacological agent (Mataix-Cols et al., 1999; Stein, Andersen, & Overo, 2007). However, if medication providers focus only on symptom topography, important information about symptom function may be missed. For example, someone who engages in ritualistic tapping behaviors may be misclassified if the functional reason for tapping is not assessed at Level 2: tapping could be associated with "tic-like" incompleteness or driven by harm avoidance, each of which could have different pharmacotherapy implications. Better understanding of function may also help pharmacotherapy researchers identify uniform function-based symptom categories from which to consider medication response/matching.

Finally, as described previously, research has historically quantified the symptom checklist in an effort to identify latent symptom dimensions of OCD. The goal of these efforts has been to improve our understanding of OCD genetics, etiology, neuroanatomy, and treatment outcome. However, without clear, standardized procedures guiding the completion of the symptom checklist, the extent to which topography and function have been considered in research is unclear. The current symptom checklist administration procedure may help tease apart these perspectives, as each level of assessment may provide answers to different types of research questions. For example, is there something in common among those with shared core obsession fears in terms of genetics or neuroanatomy (Level 2)? Among those who have fears that are topographically different but elicited by similar stimuli (Level 1)? Why is it that functionally similar obsessions sometimes look topographically different across people (Levels 1 and 2)? In the current protocol, we suggest using two function-based "super categories" (incompleteness and harm avoidance). However, given the limited amount of research focused on "core functional dimensions" in OCD, we consider this approach subject to data based revisions in the future (e.g., need for additional core functional dimensions). It is our hope that researchers will use these initial categories, or other categories derived from a functional perspective, to reevaluate research questions about neurological substrates, neuropsychological deficits, genetics, medication response, temporal stability, and behavioral treatment outcome.

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