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Research paper

The relationship between cognitions and symptoms in obsessive-compulsive disorder

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ABSTRACT

Background: The cognitive theory of obsessive-compulsive disorder (OCD) ascertains that catastrophic (mis) interpretations of normally occurring intrusive thoughts are related to the maintenance of OCD. Nonetheless, findings supporting the relationship between cognitive biases and OCD symptoms are largely inconsistent. In the present study we examined the relationship between OCD cognitions and symptoms among 382 OCD patients participating in the longitudinal Netherlands Obsessive Compulsive Disorder Association (NOCDA) study.

Methods: OCD cognitions and OC, anxiety and depressive symptoms were assessed using self-report questionnaires at baseline and at two-year follow-up. Baseline multiple regression analyses assessed the specificity of OC cognitions to OCD symptoms. Cross-lagged analyses examined whether cognitions predict OCD symptoms at two-year follow up.

Results: Baseline analyses demonstrated significant relationships between comorbid anxiety, depressive severity and OC cognitions, adjusted for OCD symptoms (β = .283, p < .001 and β = .246, p < .001, respectively). OCD severity adjusted for comorbid symptoms was unrelated to cognitions at baseline (β = .040, p = n.s). Unique associations were found between cognitions and two OCD symptom subtypes (Impulses: β = .215, p < .001; Rumination/doubting: β = .205, p < .001). Longitudinal analyses yielded non-significant associations between OCD cognitions and symptom severity. Prospective analyses of cognitions and OCD symptom subtypes yielded significant effects for both bidirectional and unidirectional associations (β = .11–.16, p < .05).

Limitations: Given the naturalistic design of the study, we did not assess therapeutic interventions between baseline and follow-up.

Conclusions: Results only partially concord with the predictions of the cognitive theory of OCD. Future studies should focus on mechanisms alternative to cognitions when investigating the course of OCD.

1. Introduction

In the past decades, great interest emerged in the cognitive theory of obsessive-compulsive disorder (OCD), which suggests that misinterpretation of the significance of normal intrusions is the core problem in the etiology and maintenance of OCD (Salkovskis, 1985). Patients with OCD are assumed to interpret such intrusions as informative and important, as well as dangerous or predicting harm. These misinterpretations are hypothesized to be anxiety provoking and result in the performance of compulsions, which temporarily reduce the anxiety, and therefore preserve the symptoms through negative reinforcement. An international group of OCD experts have identified several OC cognitions, which underlie the vulnerability to develop such negative misinterpretations in response to intrusions (Steketee et al., 2003). The obsessive beliefs questionnaire-44 (OBQ-44, Steketee et al., 2005) measures six belief domains hypothesized to characterize OCD patients: inflated responsibility and overestimation of threat, which pertain the belief that harmful things can happen if one is not careful; perfectionism and the need for certainty, which refer to the belief that one should be absolutely certain about everything; importance and control of thoughts, which depict the belief that thoughts are meaningful and should be controlled.

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Numerous studies have investigated the specific association between the OBQ score and OCD symptoms. For example, several studies found specific associations between OC cognitions and OCD symptoms, while controlling for anxiety or depressive symptoms (Janeck et al., 2003; Morillo et al., 2007; Sica et al., 2004; Wheaton et al., 2010; Wu and Carter, 2008). Support for the cognitive model of OCD was also provided by experimental studies using laboratory paradigms, which suggested that cognitive biases are related to the pathogenesis of obsessions (See Calkins et al., 2013 for a review). These studies manipulated OC beliefs such as inflated responsibility and demonstrated its effect on compulsive behaviors (e.g. Reeves et al., 2010).

However, the association between OC cognitions and OCD is not unambiguous, as researchers recently challenged the notion that dysfunctional cognitions are etiologically linked to OCD (Anholt and Kalanthroff, 2013; Gillan and Robbins, 2014), or specifically associated with OCD symptoms (Belloch et al., 2010; Tolin et al., 2006; Viar et al., 2011). First, several studies detected OC related beliefs in various other clinical populations. For example, Anholt and colleagues (Anholt et al., 2004) demonstrated that overestimation of threat was the only OC cognition in which OCD patients scored higher than pathological gamblers. In addition, a study that compared OC cognitions between medical clinic patients and OCD patients demonstrated a significantly increased OBQ score among the medical patient population (Baptista et al., 2011). Some researchers speculated that although accumulating findings suggest that OCD cognitions are transdiagnostic in nature, they hold a crucial role in the cognitive-behavioral model of OCD (Calkins et al., 2013). Nonetheless, two large clinical studies identified that about half of OCD patients did not endorse dysfunctional cognitions (i.e. the low belief group; Calamari et al., 2006; Taylor et al., 2006). Altogether, these findings cast doubt on the relevance of OC cognitions to OCD. An alternative theory would suggest that rather than a goal directed behavior that is led by the OCD beliefs system, compulsions in OCD are derived from excessive habit formation and inhibitory deficits (Anholt and Kalanthroff, 2013; Gillan and Robbins, 2014). In line with cognitive dissonance accounts, this theory proposes that OC cognitions may be post-hoc rationalizations to the compulsive behavior, rather than its instigator.

Several researchers speculated that the heterogeneous nature of OCD underlies the inconsistent findings with respect to the role of OC cognitions in OCD (Wheaton et al., 2010). This was based on findings that were suggestive of several replicable OCD subtypes: washing, doubting/obsessing, checking, ordering and hoarding (e.g. Leckman et al., 1997; McKay et al., 2004). According to the congruence hypothesis postulated by Tolin and colleagues (Tolin et al., 2006), certain symptom subtypes are expected to be associated with specific domains of obsessive cognitions. However, studies examining associations between cognitions and OC symptom subtypes have also yielded inconsistent results (Fergus and Carmin, 2014; Julien et al., 2008; Wheaton et al., 2010).

Studies up to date have largely used the OBQ to assess cognitions in OCD. While the OBQ is a broad and empirically validated measure of OC cognitions, it has a potential shortcoming for the assessment of specificity, since it is a nomothetic measure representing general beliefs common to several psychopathologies (e.g., Anholt et al., 2004). Perhaps using an idiographic instrument which relies on patients' idiosyncratic "hot" obsessional content may facilitate the understanding of the specific association between cognitive biases and symptoms in OCD. In addition, the OBQ demonstrated little sensitivity to treatment change among OCD patients, which is indicative of its limited clinical utility (Anholt et al., 2010). Furthermore studies largely investigated the association between OC cognitions and symptoms using cross-sectional designs (Novara et al., 2011). Consequently, it cannot address the hypothesis purporting that obsessive cognitions predict future OC symptoms, which is paramount to the cognitive model of OCD (Abramowitz et al., 2007).

The paucity of studies that investigated the time-lagged association between OC cognitions and symptoms revealed mixed findings. In a five-year follow-up study conducted among students, Novara et al. (2011) reported that OC cognitions as measured by the OBQ predicted OCD symptoms only at baseline. On the other hand, Abramowitz and colleagues found that in a sample of future parents, prenatal OC cognitions prospectively predicted the development of OC symptoms at post-partum, after controlling for pre-existing OCD symptoms (Abramowitz et al., 2006). However, the prospective association between OC cognitions and symptoms was yet to be examined in a large clinical sample of OCD patients. Although analogue samples are relevant to the understanding of the OCD phenomena (e.g. Abramowitz et al., 2014), they have limited ecological validity, since participants would usually endorse symptoms in a minimal to non-existent severity (e.g. Abramowitz et al., 2007). In consideration of the findings corroborating the significance of OCD severity to the course and outcome of the disorder (Sharma et al., 2014), longitudinal studies investigating the relationship of cognitions and symptoms in OCD among clinical samples are needed.

In light of the above-mentioned gap in the literature, we aimed to conduct a systematic investigation of the associations between OC cognitions and symptoms, in a large clinical sample of OCD patients. We report data from the Netherlands Obsessive Compulsive Disorder Association (NOCDA) study, a prospective observational study of a large clinical sample of OCD patients (Schuurmans et al., 2012). One of the main objectives of the NOCDA study is to examine the determinants that are associated with the outcome of OCD. This study was designed to test the contribution of the cognitive biases that characterize OCD to the course of OCD as measured by two time points: baseline and two-year follow-up. Specifically we sought to test the hypothesis postulated by OCD cognitive theorists according to which OC cognitions maintain OCD symptoms (Rachman, 1997; Salkovskis et al., 1999). Due to limited and inconsistent literature on the cross-sectional and longitudinal relationship between cognitions and symptoms in OCD, we addressed three subjects pertaining to the cognitive model of OCD: 1) the specificity of the relationship between OC cognitions and OCD symptoms; 2) the directionality of the relationship between cognitions and symptoms and 3) the contribution of cognitions to the maintenance of symptoms over time. Given that the OBQ describes generally held beliefs not necessarily specific to OCD, we assessed the appraisals of the patients' idiosyncratic obsessions, as they may better encompass the cognitive bias suggested to be unique to OCD (Steketee et al., 2005). We hypothesized that OC cognitions would be significantly associated with OCD, anxiety and depressive symptoms, but with stronger unique associations with OCD symptoms. In line with the cognitive theory of OCD, we expected higher ratings of OC cognitions would predict OCD symptoms at two year follow up.

2. Methods

2.1. Participants and procedures

Data were drawn from the NOCDA study, a large multicenter longitudinal study. The participants were 419 patients with a life-time diagnosis of OCD as determined by the Structured Clinical Interview for DSM-IV Disorders (First et al., 1999), aged 18 years and over and referred to one of the participating second-line mental health care centers. Comprehensive measurements and face to face interviews were performed at baseline and after two, four and six year follow-up by a trained research staff at one of the participating mental health care centers. Detailed sample characteristics and methodology of NOCDA are described elsewhere (Schuurmans et al., 2012).

For the purpose of the current study, only participants who fulfilled a current OCD diagnosis at baseline were included (N = 382). Since NOCDA is a naturalistic study, exclusion criteria were limited to an inadequate understanding of the Dutch language. The longitudinal association between OC cognitions and symptoms was assessed at two