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Dysfunctional belief-based subgroups and inferential confusion in obsessive–compulsive disorder

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ABSTRACT

Cognitive-behavioural models emphasize the mediating role of dysfunctional beliefs in obsessive–compulsive disorder (OCD). However, recent studies indicated that beliefs related to responsibility and threat-estimation, Importance and Control of Thoughts, and perfectionism and intolerance of uncertainty were not elevated in a substantial proportion of patients suffering from OCD. This study attempts to replicate these findings, and, in addition, explores the role of a cognitive process characteristic of OCD, i.e., inferential confusion. Participants suffering from OCD (n = 174), completed cognitive- and symptom measures. Cluster-analysis revealed a 2- and a 6-cluster solution, both which contained substantial low belief subgroups. The Perfectionism and Certainty beliefs cluster in the 6-cluster solution was distinct from the other high beliefs clusters, which is in line with the recently proposed distinction between harm related versus 'just right' related OC symptoms. Finally, the assessment of cognitive processes seems to have complimentary value in addition to assessing belief content, and therefore could further our understanding of OCD within a cognitive framework.

1. Introduction

Cognitive-behavioural models, which are currently the most prominent psychological theories of obsessive–compulsive disorder (OCD), highlight the importance of dysfunctional beliefs as potential mechanism of this disorder (cf. Frost & Steketee, 2002; Salkovskis, 1985). In order to assess dysfunctional beliefs related to OCD, the Obsessive Beliefs Questionnaire (OBQ-44) was developed which identifies three dimensions of OCD related beliefs; (a) inflated personal responsibility and the tendency to overestimate threat (Responsibility/Threat estimation), (b) perfectionism and intolerance of uncertainty (Perfectionism/Certainty), and (c) over-importance and over-control of thoughts (Importance/Control of thoughts) (Obsessive Compulsive Cognitions Working Group (OCCWG), 2005). Furthermore, specific relationships between these belief dimensions and OCD symptom dimensions were reported: associations were found between Responsibility/Threat estimation and rumination, Perfectionism/Certainty and checking and precision, and between Importance/Control of thoughts and impulses (Julien, O'Connor, Aardema, & Todorov, 2006). However, recent studies reported that large subgroups of OCD patients (respectively, 56% and 51%) did not show elevated scores on dysfunctional beliefs as measured by the OBQ-44, whereas scores on contamination, checking, and grooming were similar to those of other patients (Calamari et al., 2006; Taylor et al., 2006). In addition to the 2-cluster model (high versus low beliefs), support for a 5-cluster model was found (Calamari et al., 2006). Besides a high- and a low beliefs group, this model consisted of three subgroups with relatively elevated scores on the OBQ-44 subscales. Furthermore, specific relationships were reported between belief clusters and symptom subtypes, e.g., contamination was underrepresented in the high beliefs cluster and was overrepresented in the Importance/Control of thoughts cluster and the low beliefs cluster, whereas contamination with harming thoughts was associated with the high beliefs cluster, and was underrepresented in the Perfectionism/Certainty- and low beliefs clusters (Calamari et al., 2006).

Since OCD is a very heterogeneous disorder, the investigation of cognitive processes in OCD, which are more concerned with the form and context of the obsession rather than its (ab)normal content, could further our understanding of the cognitive mechanisms behind OCD (subtypes). Inferential confusion, the tendency to negate reality on the basis of subjective possibilities (Aardema & O'Connor, 2003), is hypothesized to be a characteristic reasoning process associated with OCD. Patients seem to come to a remote possibility ("Maybe my hands are dirty") without an actual

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indication (no signs of dirt or aversive smell) or even in the face of contradictory evidence (hands have just been washed with soap). Questionnaire research in an OCD patient sample showed that inferential confusion relates to OCD independently of dysfunctional beliefs and mood states (Aardema, O'Connor, Emmelkamp, Marchand, & Todorov, 2005).

In order to further our understanding of OCD subtypes, the current study attempts to replicate Taylor et al.'s (2006) and Calamari et al.'s (2006) findings, and in addition explores the complementary value of investigating a cognitive reasoning process 'inferential confusion'. It was hypothesized that (a) a substantial subgroup would score low on the OBQ; and (b) participants with low OBQ-scores would not necessarily show low scores on inferential confusion.

2. Method

2.1. Participants

The sample consisted of 174 French-speaking participants suffering from OCD according to DSM-IV-TR (American Psychiatric Association, 2000), who participated in clinical studies in Montreal, Canada (n = 174, 51.1% female; mean age = 38.8, SD = 11.5). Inclusion criteria were age between 18 and 65 years old, and a primary diagnosis of OCD. Exclusion criteria were evidence of current substance abuse, evidence of current or past schizophrenia, bipolar disorder or organic mental disorder. Diagnoses were established using the Anxiety Disorders Interview Schedule for DSM-IV (ADIS-IV) (Brown, DiNardo, & Barlow, 1994), and a clinical interview by an experienced psychiatrist using DSM-IV criteria. Comorbidity data was available for 127 participants; 70 reported no comorbid disorders. Reported comorbid disorders were, major depressive disorder (18), panic disorder (12), social phobia (13), general anxiety disorder (8), and simple phobia (6). Treatment history was available of 120 participants; 79 participants had never received treatment in the past, 27 had undergone psychotherapy, 9 had used medication, 4 had received psychotherapy and medication, and 1 participant had used medication and had received electroconvulsive therapy. Civil status was available for 102 participants; 30.5% single, 13.2% married, 8.6% cohabitating, 2.9% widowed, and 4.0% was divorced. For this study participants' pretreatment questionnaires scores served as the data source.

2.2. Measures

2.2.1. Obsessional Beliefs Questionnaire (OBQ-44; OCCWG, 2005)

The OBQ-44 consists of 44 belief statements considered characteristic of obsessive thinking (e.g., "Having bad thoughts means I am weird or abnormal"). The OBQ-44 has three factor analytically derived subscales: (a) inflated personal responsibility and the tendency to overestimate threat (Responsibility/Threat estimation), (b) perfectionism and intolerance of uncertainty (Perfectionism/Certainty), and (c) over-importance and over-control of thoughts (Importance/Control of thoughts). Items are rated on a 7-point rating scale, ranging from 1 (disagree very much) to 7 (agree very much). Psychometric evaluation of the French version of the OBQ-44 showed excellent internal consistency (α = .94) (Julien et al., 2008). Partial support was found for the convergent and divergent validity: the OBQ-44 subscales correlated more strongly with the Padua Inventory-Revised (PI-R) than with the Beck Anxiety Inventory (BAI) and Beck Depression Inventory (BDI), which is in line with findings of the English version of the OBQ-44 (OCCWG, 2005). However, the French OBQ-44 did not correlate more strongly with the Yale Brown Obsessive–Compulsive Scale (Y-BOCS), than with the BAI and BDI. This might be related to the type of instrument; the PI-R, BDI, and BAI are all questionnaires, whereas the Y-BOCS is a clinician rated interview.

2.2.2. Inferential Confusion Questionnaire (ICQ; Aardema, O'Connor, Emmelkamp, Marchand, & Todorov, 2005)

The ICQ assesses the tendency to negate reality and sense based information on the basis of subjective possibilities (e.g., "I am sometimes more convinced about what might be there than by what I actually see"). The questionnaire consists of 15 items which are rated on a 5-point scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The ICQ showed an excellent internal reliability (α = .90), and discriminated between obsessive–compulsive-, anxious, and non-clinical samples. Furthermore, analyses showed that the ICQ contributes independently to the prediction of obsessive–compulsive symptoms while controlling for other cognitive domains and negative mood states (Aardema, O'Connor, Emmelkamp, Marchand, & Todorov, 2005).

2.2.3. OCD symptom severity

The clinical semi-structured interview version of the *Yale Brown Obsessive–Compulsive Scale* (Y-BOCS; Goodman, Price, Rasmussen, Mazure, & Delgado, et al. (1989), Goodman, Price, Rasmussen, Mazure, & Fleischmann, et al. (1989) was administered to assess severity of OCD symptoms. The Y-BOCS consists of 10 items (5 items related to obsessions, 5 items related to compulsions) concerning the amount of time spent on obsessions/compulsions, experienced impairment and distress, and level of resistance and control over obsessions/compulsions. The items are rated on a 5-point scale (0 = no symptom, 4 = extreme symptoms). The French version of the Y-BOCS (Mollard, Cottraux, & Bouvard, 1989) shows excellent internal consistency, and convergent and discriminant validity are satisfactory (Bouvard et al., 1992).

Furthermore, participants completed the *Padua Inventory-Revised* (PI-R; Burns, Keortge, Formea, & Sternberger, 1996; French translation by Freeston, Ladouceur, and Retarte et al. (1994)). This questionnaire consists of 39 items which are rated on a 5-point scale (0 = not at all typical to 5 = very typical). The PI-R has 5 subscales representing OC symptom dimensions; (a) obsessional thoughts about harm to self or others, (b) contamination obsessions and washing compulsions, (c) checking compulsions, (d) dressing and grooming compulsions, and (e) obsessional impulses to harm self or others.

2.2.4. General anxiety and depression

Participants completed the *Beck Anxiety Inventory* (BAI) (Beck, Epstein, Brown, & Steer, 1988; French version: Freeston, Ladouceur, & Thibodeau et al., 1994) and the *Beck Depression Inventory* (BDI) (Beck, Steer, & Garbin, 1988; French version: Bourque & Beaudette, 1982) to establish anxiety and depressive symptomatology. Both measures showed good psychometric properties in French (Bourque & Beaudette, 1982; Freeston, Ladouceur, Thibodeau et al., 1994) (see Table 1 for means, SD, and α).

2.3. Statistical analyses

In order to test whether our sample consisted of different OC-belief related subtypes, a hierarchical cluster-analysis was conducted on the participants' scores on the OBQ-44 subscales using Ward's method applied to squared Euclidian distances. This method is based on within-cluster variability and is found to be superior for practical purposes (Romesburg, 1984; Toninandel & Overall, 2004). To determine the number of clusters, we inspected the agglomeration schedule and the dendrogram using Ward's criterion of large increases in within-cluster variability. In addition, we used Calinski and Harabasz's (1974) formal stopping rule (pseudo F-statistic), which is based on the between and within-