



Metacognitions in obsessive-compulsive disorder: A psychometric study of the Metacognitions Questionnaire-30



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ABSTRACT

Background: The Metacognitions Questionnaire-30 (MCQ-30) was developed to measure individual differences in metacognitive beliefs and processes, which are central to the metacognitive model of emotional disorders. Although previous research has supported the role of metacognitive beliefs and processes in obsessive-compulsive disorder (OCD), no studies have examined the psychometric properties and factor structure of the MCQ-30 in OCD patients. The present study overcomes this limitation by exploring the factor structure and convergent validity of the MCQ-30 in a sample of OCD patients before and after psychological treatment.

Method: The MCQ-30 and the Yale-Brown Obsessive-Compulsive Scale (Y-BOCS) were administered to 352 OCD patients at pre-treatment and to 213 of these OCD patients at post-treatment. The factorial structure and convergent validity of the MCQ-30 were assessed using factor analyses and structural equation modelling.

Results: Confirmatory and exploratory factor analyses supported the originally hypothesized five-factor structure of the MCQ-30. At both time points, structural equation modelling indicated that dimensions of metacognition were significantly associated with obsessive-compulsive symptoms.

Conclusions: The MCQ-30 appears to be a valid and reliable instrument for measuring metacognitive beliefs and processes in OCD.

1. Introduction

There has been increasing interest in the role of metacognition in obsessive-compulsive disorder (OCD). Metacognition refers to beliefs or knowledge about cognitive processes and strategies that are used to monitor and regulate cognition (Flavell, 1979). Until the advent of the Self-Regulatory Executive Functioning (s-REF) model (Wells & Matthews, 1994, 1996), minimal attention had been paid to the role of metacognition in psychological disorders. The S-REF model is the foundation for several disorder specific metacognitive models, including OCD. The central premise of the S-REF model is that maladaptive metacognitive beliefs determine if an individual responds to negative thoughts and/or feelings with the Cognitive Attentional Syndrome

(CAS). The CAS consists of perseverative thinking, threat monitoring, and counterproductive coping strategies. Applying the CAS to OCD, perseveration is typically characterized by worry about the meaning and significance of obsessions. Threat monitoring often involves checking for signs of both internal threat (e.g. monitoring one's mind for intrusive images) and external threat (e.g. scanning the environment for contaminants), whereas counterproductive coping responses involve the broad range of overt and covert rituals (e.g. mental distraction, reassurance seeking, avoidance of situations, checking, overanalysing).

There are multiple metacognitive belief domains which activate and guide the CAS in OCD. These can be divided into general dysfunctional metacognitive beliefs, which are relevant to all disorders, and OCD

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specific metacognitive beliefs. General dysfunctional metacognitive beliefs consist of positive and negative beliefs, where positive beliefs concern the perceived benefits of perseverative thinking and threat monitoring (e.g. “Worrying if the door is locked keeps me safe” or “Monitoring my mind for intrusive thoughts keeps me prepared”). Negative beliefs concern the uncontrollability and dangerousness of worry and rumination (e.g. “I have no control over my worrying”). Both sets of beliefs perpetuate psychological disorders as they lead to persistent worry, rumination and threat monitoring, and impair cognitive self-regulation.

The OCD specific metacognitive beliefs as specified in the metacognitive model of OCD (Wells, 1997, 2000) are metacognitive thought fusion beliefs which concern the danger, meaning, and importance of intrusions. There are three types; thought-action fusion (TAF), thought-event fusion (TEF), and thought-object fusion (TOF). TAF is the belief that the occurrence of an obsession can lead to commission of action (e.g. “Thinking of hurting someone will make me do it”). TEF is the belief that thoughts can cause or have caused events (e.g. “If I think about an unpleasant event, it will make it more likely to happen”), and TOF involves the belief that thoughts, memories, images, or feelings can be transferred into objects (e.g. “My negative thoughts can be passed into my books”). The metacognitive model also specifies that metacognitive knowledge determines the use of overt and covert rituals. Such metacognitive knowledge concerns beliefs about the usefulness of rituals in regulating cognition, e.g. “Rituals control my worrying and give me peace of mind”.

Previous research has supported the role of both general dysfunctional metacognitive beliefs (e.g. Solem, Håland, Vogel, Hansen, & Wells, 2009) and metacognitive beliefs specific to OCD (e.g. Grøtte et al., 2015; Myers, Fisher, & Wells, 2009) in the maintenance of the disorder. The current study will focus on the general dysfunctional metacognitive beliefs and the measurement of these in OCD.

Support for the link between general metacognitive beliefs and obsessive-compulsive symptoms have emerged from a wide range of studies. Metacognitive beliefs have been found to be elevated in OCD patients as compared to healthy subjects (Hermans et al., 2008; Moritz, Peters, Laro, & Lincoln, 2010), and correlational studies have found a significantly positive relationship between metacognitions and obsessive-compulsive symptoms (e.g. Cho, Jahng, & Chai, 2012; Tosun & Irak, 2008; Wells & Cartwright-Hatton, 2004). In several cross-sectional studies, general metacognitive beliefs accounted for greater variance in OCD symptoms compared to beliefs within the cognitive domain, including inflated responsibility (e.g. Gwilliam, Wells, & Cartwright-Hatton, 2004; Sassaroli et al., 2015), intolerance of uncertainty (Myers, Fisher, & Wells, 2008), and perfectionism (e.g. Solem et al., 2009). In a prospective cohort study, Sica, Steketee, Ghisi, Chiri, and Franceschini (2007) found general metacognitive beliefs to predict obsessive-compulsive symptoms in a non-clinical sample four months later. Further support for the causal role of metacognition in OCD comes from experimental manipulations of metacognitive beliefs (e.g. Fisher & Wells, 2005; Myers & Wells, 2013), and that changes in metacognitive beliefs determine if patients recover when treated with psychological approaches (Solem et al., 2009). Overall, most of the research has been conducted on non-clinical samples, which may mean that the generalizability of the results to clinical samples is limited, although the studies which have been conducted on OCD patients (Hermans et al., 2008; Moritz et al., 2010; Sassaroli et al., 2015; Solem et al., 2009) are supportive of the predictions made by the metacognitive model.

An important foundation of research is the use of measurement tools that are psychometrically sound. The first multidimensional self-report measure of general metacognitive beliefs was the Metacognitions Questionnaire (MCQ; Cartwright-Hatton & Wells, 1997). The MCQ had 65 items, divided into five subscales: (1) *positive beliefs about worry*, which measures the extent to which people think worrying is helpful; (2) *negative beliefs about worry*, which measures

beliefs about the mental and physical dangers of worrying, plus beliefs about the uncontrollability of worry; (3) *cognitive confidence*, which measures low confidence in one's own attention and memory; (4) *beliefs about the need to control thoughts*, which measures negative beliefs concerning the consequences of not controlling thoughts; and (5) *cognitive self-consciousness*, which measures the tendency to focus attention on thought processes. Although the MCQ was a valid and reliable questionnaire (Cartwright-Hatton & Wells, 1997), a shorter version consisting of 30 items was developed to enhance its use in routine clinical practice and to reduce the burden on participants. The Metacognitions Questionnaire-30 (MCQ-30) had the same five subscales as the original version and appeared to be psychometrically robust (Wells & Cartwright-Hatton, 2004). The five-factor structure of the MCQ-30 has been replicated in UK samples (Cook, Salmon, Dunn, & Fisher, 2014; Spada, Mohiyeddini, & Wells, 2008) and in several translated versions, including Spanish (Martín et al., 2014; Ramos-Cejudo, Salguero, & Cano-Vindel, 2013), Korean (Cho et al., 2012), and Turkish (Tosun & Irak, 2008; Yilmaz, Gençöz, & Wells, 2008) versions. Furthermore, as predicted by the S-REF model of emotional disorders (Wells & Matthews, 1994, 1996), the MCQ-30 has demonstrated concurrent validity with measures of anxiety, depression, and OCD (e.g. Cho et al., 2012; Solem, Thunes, Hjemdal, Hagen, & Wells, 2015; Spada et al., 2008). Regarding gender and age differences in MCQ-30 scores, the results have been inconsistent, with some studies reporting significant effects of gender and age on the factors (e.g. Spada et al., 2008; Tosun & Irak, 2008), whereas others do not (e.g. Wells & Cartwright-Hatton, 2004).

Examination of a scale's psychometric properties in non-clinical and clinical samples is integral to construct validity, since the target construct may have different properties in different samples and items may have different response distributions across samples (Clark & Watson, 1995). So far, only three studies have investigated the factor structure and psychometric properties of the MCQ-30 using clinical samples. Cook et al. (2014) used a UK sample of cancer patients. Fisher, Cook, and Noble (2016) investigated a UK sample of epilepsy patients, while Martín et al. (2014) used a mixed Spanish sample of patients with anxiety, depression, or eating disorders. All clinical studies replicated the five-factor structure.

Evidently, the MCQ-30 has been widely evaluated, and many studies have found associations between OCD symptoms and general metacognitive beliefs and processes. However, no studies have examined the psychometric properties and factor structure of the MCQ-30 in individuals diagnosed with OCD. The present study aims to overcome this limitation by exploring the factor structure and convergent validity of the MCQ-30 in a sample of OCD patients before and after psychological treatment. Model fit and convergent validity can vary across time (e.g. Cook et al., 2014) due to a broad array of factors, including receipt of psychological treatment. We therefore chose to examine the factor structure and convergent validity of the MCQ-30 using both pre- and post-treatment data. Firstly, we hypothesized that the five-factor structure would be replicated. Secondly, we wanted to explore whether previously observed associations between dimensions of metacognition and obsessive-compulsive symptoms could be replicated in a clinical OCD sample. Across the seven studies that used the five MCQ-30 subscales as predictors in regression analyses with OCD symptoms as the dependent variable (Cartwright-Hatton & Wells, 1997; Cho et al., 2012; Irak & Tosun, 2008; Sica et al., 2007; Solem et al., 2009; Wells & Papageorgiou, 1998; Yilmaz et al., 2008), the most consistent predictor is *negative beliefs about worry* (significant in 6 out of 7 studies). With respect to the other subscales, *positive beliefs about worry* was a significant predictor in five studies, *beliefs about the need to control thoughts* was significant in four studies. *Cognitive self-consciousness* was a significant predictor in two studies, whereas *cognitive confidence* was significant only in the study by Cartwright-Hatton and Wells (1997). On the basis of these previous results, we predicted that *negative beliefs about worry* would emerge

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