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Beliefs about control and the persistence of cleaning behaviour: An experimental analysis

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ABSTRACT

Background and objectives: Low perceived control (PC) and overestimations of controllability have each been related to obsessive compulsive (OC) symptoms and behaviour. OC beliefs and symptoms are also associated with a discrepancy between low perceived control (PC) and a high desire for control (DC). The present study sought to examine the influence of components of PC, low control-related self-efficacy (CSE) and high predicted controllability (PRC), on the persistence of cleaning behaviour and DC ratings.
Methods: A cleaning task was used to observe cleaning time (in seconds) in undergraduate participants ($n = 174$) under two conditions of each of PRC (high versus low), and CSE (high versus low). DC ratings were taken prior to the cleaning task.
Results: It was demonstrated that PRC and CSE manipulations had differential effects on cleaning times and DC ratings, where significantly longer cleaning times were observed in the high (versus low) PRC condition, and in association with higher DC ratings reported in the low (versus high) CSE condition. However, regression analyses demonstrated that DC, PRC and CSE each accounted for significant variance in observed cleaning times.
Limitations: Teasing apart predictability from controllability is a methodological challenge in the manipulation of perceived control.
Conclusions: Findings highlight the importance of considering components of PC along with DC in OC-phenomenology; these will be discussed in the context of current cognitive theories of and treatments for OCD.

Research on perceived control (PC) and anxiety has demonstrated that low PC is an important factor in the aetiology and maintenance of anxiety disorders in general (Chorpita & Barlow, 1998), as well as in association with specific conditions (Brown, White, Forsyth, & Barlow, 2004; Cloitre, Heimberg, Liebowitz, & Gitow, 1992; Hofmann, 2005; White, Brown, Somers, & Barlow, 2006; Zvolensky, Lejuez, & Eifert, 2000). For example, low PC has been implicated in the maintenance of symptom severity in social phobia (e.g., Hofmann, 2005), panic disorder (e.g., White et al., 2006), pathological gambling (Goodie, 2005), as well as obsessive–compulsive disorder (OCD; Moulding & Kyrios, 2006). In OCD, low PC is thought to contribute to the urge to engage in repetitive behaviour specifically when it co-occurs with a high desire for control (DC; Moulding, Doron, Kyrios, & Nedeljkovic, 2008; Moulding & Kyrios, 2006, 2007), such that compulsive behaviour is motivated by a desire to (re)establish a sense of control over anxiety-related outcomes (Reuven-Magril, Dar, & Liberman, 2008). While common characterizations of OCD have often included notions of control or controllability of emotions, behaviour, events and/or objects, theoretical models and empirical explorations of control in OCD have generally been limited to the control of thoughts (Obsessive Compulsive Cognitions Working Group [OCCWG], 2005; Purdon & Clark, 2002; Tolin, Woods, & Abramowitz, 2003). The present study therefore sought to examine and clarify the function of perceived control beliefs and desire for control in association with OC-phenomenology.

Current cognitive models of OCD (e.g., Rachman, 1997, 1998, 2002; Salkovskis, 1985, 1999) suggest that individuals with OCD become anxious due to the misappraisal of normal intrusive thoughts as overly significant, and engage in compulsive behaviour in direct response to those misappraisals, thus relieving anxiety by decreasing the perceived likelihood of future negative outcomes. Compulsive behaviour is thought to strengthen the frequency and intensity of intrusive thoughts by supporting, if not reinforcing the misappraisals, which in turn will lead to increased compulsive behaviour. Three belief domains have been found to be related to

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the misappraisal of intrusive thoughts in OCD: (1) inflated responsibility and threat estimation, (2) perfectionism and intolerance of uncertainty, and (3) importance and control of thoughts, and are assessed via the Obsessive Beliefs Questionnaire-44 (OBQ-44 – OCCWG, 2005). A significant proportion of individuals with OCD however appear not to report high levels of the aforementioned belief domains on the OBQ-44 (Calamari et al., 2006; Taylor et al., 2006), which suggests that for some individuals, other belief domains may be particularly relevant to the misappraisal of intrusive thoughts in OCD. Investigations of control-related beliefs (Moulding et al., 2008; Moulding & Kyrios, 2007; Moulding, Kyrios, Doron, & Nedeljkovic, 2009) demonstrate that beliefs about control may be a viable addition to explain a greater amount of shared variance than is accounted for by existing belief domains.

There are two general approaches to the scientific study of control. First, it is thought that the subjective experience of control (i.e., PC) is of greater importance to mental and physical health outcomes than any objective fact of controllability (Lazarus & Folkman, 1984; Skinner, 1996). However, PC is considered a difficult concept to investigate methodologically most likely because it presents a significant challenge in definition (Skinner, 1996). In OCD research, PC is thought to involve such constructs as self-efficacy (Moulding & Kyrios, 2006) and overestimations of control (Reuven-Magril et al., 2008). Second, it is thought that people vary in the degree to which they desire to seek and maintain a sense of control and often behave ways that promote this likelihood, even when it is potentially maladaptive (Deci & Ryan, 2000; Zuckerman, Knee, Kieffler, Rawthorne, & Bruce, 1996). Research on PC, DC and OCD has revealed that a "control mismatch" (i.e., high DC/low PC) is related to OC-symptoms, beliefs, and behaviour, wherein the discrepancy between the control appraisals is thought to be an important factor in maintaining the urge to engage in repeated behaviour (Moulding et al., 2008, 2009; Moulding & Kyrios, 2007). The present research is concerned with clarifying the role of PC in OC phenomenology in the context of the "control mismatch" of PC and DC.

The relationship between control-related self-efficacy (CSE) appraisals and OC-beliefs and symptoms in both non-clinical and clinical samples has been examined by Moulding and Kyrios (2007) and Moulding et al. (2008). Participants read hypothetical scenarios of an OC-relevant event (a dripping tap) in which both level of threat (high/low) and responsibility (high/low) were manipulated, and were asked to assess their level of PC and DC, as well as responsibility, threat, affect and (desire to take) action. In both studies, results indicated that DC was found to increase with threat and responsibility, and that together high DC and low PC were associated with OC-phenomenology (e.g., negative affect, the propensity to act in relation to threat) over and above such cognitions as inflated responsibility. Levels of PC and sense of control appraisals were consistently low in the high OC (2007) and OCD (2008) groups. This result suggests that a (low) sense of CSE, when combined with an increasing desire for control, may result in increased OC symptoms (Moulding & Kyrios, 2007). The findings suggest that in spite of the association of low PC with responsibility and threat beliefs found in earlier OCD research (Moulding & Kyrios, 2007), responsibility, threat, and control cognitions appear to be distinct from each other and may not vary together in a phenomenological manner. A low sense of control may thus be characteristic of individuals with OCD, and possibly comprised of CSE cognitions differentiable from other OC-beliefs.

Reuven-Magril et al. (2008) investigated the relationship between OC symptoms and the overestimation of control. Using an illusion-of-control paradigm, participants were presented with preprogrammed visual stimuli, and were told that they could shorten the presentation time of each item by pressing the right combination of keys (i.e., that the stimuli was controllable). False positive feedback on participants' control attempts (to enhance the overestimation of control) was given through gradual decreases of stimulus presentation time; ratings of control estimations were taken at three time points during the task. Results revealed that individuals with high OC tendencies were associated with higher estimations of control, increased behavioural attempts to control, as well as a more restricted range of control behaviours. This finding suggests that predictions of controllability (PRC) are involved in increasing the urge to engage in compulsive behaviour, and allows for the speculation that overestimations of control may be involved in heightening PC following repetitive behaviour. Manipulating PRC beliefs permits further testing of the influence of overestimations of control on OC-type behaviour, and targets the notion of predictability that is inherent in the construct of the overestimation of control.

In light of the burgeoning interest in the relationship between control beliefs and OCD, and despite a growing number of psychometric findings, there is a general paucity of experimental research examining the influence or effects of perceived control-related beliefs on OC-type behaviour. This first aim of the study was to examine the influence of manipulations of OC-specific control-related cognitions, PRC and CSE, on cleaning time and desire for control (DC) ratings. It was predicted that higher cleaning times and higher DC ratings would be observed in the high PRC/low CSE condition. The second aim of the study was to examine the influence of control-related cognitions and DC on cleaning time. It was hypothesized that manipulations of PRC and CSE would each be positively associated with cleaning time, and that these relationships would be moderated by DC. That is, DC ratings were speculated to influence the strength of the relationship between PRC/CSE manipulations and cleaning times.

1. Method

1.1. Participants

One hundred and seventy-four volunteer undergraduate students from the Department of Psychology at Concordia University in Montréal, Canada, participated in this study. Participants' mean age was 24.01 ($SD = 14.32$) years, and 76.6% of participants were female. Participants were compensated for their time with either course credit or entry in a draw for a cash prize. Participants' scores on relevant self-report symptom measures (see below) are displayed in Table 1.

1.2. Measures

Beck Anxiety Inventory (BAI; Beck & Steer, 1990) and **Beck Depression Inventory-II** (Beck, Steer, & Brown, 1996). The BAI and BDI-II are widely used and well-validated 21-item self-report instruments for the assessment of state anxiety and depression, respectively. The BAI exhibits good internal consistency (Creamer, Foran, & Bell, 1995; Fydich, Dowdall, & Chambless, 1992), modest test–retest reliability (Creamer et al., 1995; Fydich et al., 1992), and excellent divergent validity in comparison with other measures of anxiety (Creamer et al., 1995; Fydich et al., 1992). The internal consistency within the current sample was excellent ($\alpha = .90$). The BDI-II demonstrates high internal consistency and good test–retest reliability, as well as good convergent and divergent validity (Beck et al., 1996; Steer & Clark, 1997). The internal consistency within the current sample was excellent ($\alpha = .92$).

Obsessive Beliefs Questionnaire-44 (OBQ-44; OCCWG, 2005). This 44-item scale is a revision of the OBQ-87, and is designed to assess beliefs and appraisals related to obsessional thinking. The OBQ-44 shows excellent internal consistency, and in an obsessive compulsive (OC) sample, the OBQ-44 correlated strongly with