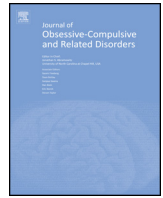




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# Cognitive restructuring and detached mindfulness: Comparative impact on a compulsive checking task



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## ABSTRACT

**Background and Objectives:** Repeated checking leads to a shift from perceptual to semantic level of information processing, increasing an individual's doubt in their memory. Cognitive restructuring (CR) targeting content of OCD cognitions has demonstrated efficacy in the treatment of OCD. Detached mindfulness (DM) is a novel metacognitive intervention that aims to suspend conceptual processing, thereby providing individuals with more objective meta-awareness, helping them to disengage from biased thinking. The present study compared the effects of DM and CR in reducing the doubt-inducing effect of compulsive checking on memory and checking behaviours.

**Methods:** Sixty-five undergraduates were randomly assigned into CR, DM and control groups. Participants completed a repeated checking task found previously to produce OCD-like effects of memory distrust and an increased urge to check. Following this, participants received either a brief CT or brief DM intervention, or an unrelated control task. Participants were provided with an opportunity to check their final responses.

**Results:** Compared to the control group, DM and CR interventions were comparable and significantly more effective in reducing rechecking, while DM had additional benefits in ameliorating effects of reduced memory distrust.

**Limitations:** Results were based on non-clinical participants, and utilised low intensity CR and DM interventions.

**Conclusions:** Results provide initial support for the use of CR and DM in reducing the effect of repeated checking.

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## 1. Introduction

Obsessive-compulsive disorder (OCD) is a debilitating mental disorder that affects between 2% and 3% of adults and causes significant impairment in multiple areas of functioning, resulting in a poorer quality of life (Slade, Johnston, Browne, Andrews, & Whiteford, 2009; Olatunji, Cisler, & Tolin, 2007). The most common compulsion in OCD is repeated checking (Leckman et al., 1997).

Increasing research interest (Boschen, 2008) has been accompanied by progress in identifying effective treatments for OCD (Olatunji, Davis, Powers, & Smith, 2013), even in patients with severe, treatment resistant forms of the disorder (Boschen, Drummond, & Pillay, 2008; Boschen & Drummond, 2012). Despite this up to 50% of patients do not respond, drop out, or refuse such interventions (Foa et al., 2005), and there is considerable difficulty in predicting who will respond to treatment (e.g., Boschen, Drummond, Pillay, & Morton, 2010). Moreover, even after treatment, 75% of patients still

show residual symptoms (Fisher & Wells, 2005). Given this, further investigation of the current treatments and alternative interventions is necessary.

Meta-analytic reviews consistently show that cognitive-behavioural therapy (CBT) is an effective treatment for OCD (Mancebo, Eisen, Sibrava, Dyck, & Rasmussen, 2011; Olatunji et al., 2013). Rosa-Alcázar, Sánchez-Meca, Gómez-Conesa, and Marín-Martínez (2008), in their meta-analytic review of 24 studies comparing behavioural and cognitive approaches of OCD, found that cognitive restructuring (CR) techniques on their own had a comparable treatment effect to a more comprehensive CBT intervention. The objective of CR in the treatment of compulsive checking involves assisting individuals in evaluating and modifying appraisals of intrusive thoughts (e.g., "If I have had the thought that I have left the stove on, then this must be an indication of a realistic danger.").

CR and other cognitive interventions for patients with OCD are based on Salkovskis' cognitive model of OCD (Salkovskis, 1985, 1999), further revised by Rachman (2002, 2003). According to this model OCD symptoms develop and are maintained through the way in which an individual interprets and responds to intrusive thoughts.

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Rachman (2002) proposed four cognitive disturbances involved in OCD checking signifying the primary targets of cognitive interventions for compulsive checking. These include: (a) perceived responsibility for harmful outcome (b) perceived probability of harmful outcome (c) estimated seriousness of harmful outcome and (d) reduced confidence in one's memory for the relevant activity.

Limitations in treatment outcomes have led to interest in development of alternative strategies for use in treatment of OCD. Detached mindfulness (DM) was developed by Wells (2009) as one of the main therapeutic strategies employed in metacognitive therapy. According to this approach, emotional disturbance develops as a result of disturbed metacognitions that lead to cognitive biases associated with particular pattern of responding that maintains emotion and strengthens negative ideas. DM provides an individual with an alternative way of responding to obsessive thoughts. The intervention aims to suspend conceptual processing, thereby providing individuals with objective meta-awareness of a biased thought, separating any further conscious experience or action from the particular thought. This specific mechanism is important as repeated checking, according to van den Hout and Kindt (2003), results from inhibited perceptual processing. DM differs from CR as it targets metacognitions that give rise to irrational thoughts rather than the content of the actual thought traditionally challenged by CR (Wells, 2009). DM also contrasts typical mindfulness interventions as it does not involve meditation, spiritual underpinnings, extensive practice, or any type of body-focused exercises, and therefore can be delivered quicker.

Despite the clear theoretical rationale, research on DM has been limited. Short-term and long-term effects of DM on other mental disorders such as depression (Wells et al. 2009) or clinical worry (Sugiura, 2004) have been identified, but very few studies have investigated DM in association with repeated checking. Fisher and Wells (2008) reported on the use of DM in the treatment of four patients with OCD. A multiple baseline design revealed that each participant showed clinically significant change on a range of standardized outcome measures, indicating improvement of symptoms at post-treatment and at six-month follow-up. Findings have been replicated in a single case study with an OCD patient (A. Firoozabadi, personal communication, February 3, 2013).

Simons, Schneider, and Herpertz-Dahlman (2006) compared exposure with response prevention alongside combined metacognitive treatment (including DM) in a treatment of ten patients with paediatric OCD. Both treatments produced comparable and significant reductions in the severity of OCD symptoms. These effects were observed immediately after the treatment and two years after commencement of the therapy. However, apart from the small sample size, the major limitations of most of these studies was that although the strategies of DM were employed as a primary technique in reducing OCD symptoms, therapeutic processes also involved other behavioural and (meta)cognitive interventions, limiting the evaluation of the full experimental effects of the DM and CR in isolation.

To better understand the mechanisms of change in the treatment of compulsive checking, it is important to understand the emergence and persistence of doubt after checking. Some early research proposed that perseverance of checking may be explained by a general memory deficit model, suggesting that a compulsive urge to check is a result of impaired memory (e.g., Tallis, 1993). However, these findings are inconsistent with some studies showing evidence for normal or even enhanced memory for threat relevant stimuli (Radomsky & Rachman, 1999; Radomsky, Rachman, & Hammond, 2001). It is unclear whether compulsive checkers may have problems with memory accuracy (Cuttler & Graf, 2009), however an increasing amount of research indicates that differences in meta-memory variables may play a more central role in explaining patients' repetitive checking

(Moritz, Kloss, von Eckstaedt, & Jelinek, 2009; Radomsky et al., 2001; Tolin et al., 2001; Rachman, 2002). According to this model, compulsive checking may not result from problems associated with memory itself but rather the beliefs about memory (i.e., meta-cognitions). This also indicates that meta-cognitive types of interventions, such as DM which attempt to increase cognitive meta-awareness could be potentially helpful interventions for compulsive checking.

Van den Hout and Kindt (2003) developed an experimental paradigm to investigate the role of meta-memory variables in explaining patients' repetitive checking. Using a computerised simulated 3D stove-top checking task, an experimental group of students was asked to repeatedly manipulate and check a virtual stove over 20 trials. The control group performed repeated but irrelevant checking of virtual lights. Before and after series of checking trials, both groups performed stove checking trial and then completed measures assessing their memory accuracy and meta-memory variables (e.g., memory confidence, outcome confidence, vividness, and detail) of the last check.

Results of Van den Hout and Kindt (2003) study showed significant reduction in all of the meta-variables (but not memory accuracy) from pre-test to post-test, in the experimental but not the control group. The authors hypothesised that repeated checking increased familiarity for the checked stimuli thereby inhibiting bottom-up processing of basic perceptual features of an event. The detail and the vividness of the last checking event are reduced, which lessens individual's confidence in the memory of the most recent check. Paradoxically, repetitive checking increases doubt and reduces certainty in checking outcome, triggering the urge to recheck.

The effect of reduced memory distrust after repeated checking has since been replicated in other studies using real stove tops (Coles, Radomsky, & Horng, 2006), a mental checking task (Radomsky & Alcado, 2010), and in a clinical OCD sample (Boschen & Vuksanovic, 2007). Similar results have also been seen in repeated cleaning tasks (Fowle & Boschen, 2011).

Using a modified version of Van den Hout and Kindt (2003) 3D checking task, Boschen, Wilson and Farrell (2011) showed evidence that reduced memory confidence from repeated checking can be successfully attenuated. Their sample of 65 undergraduate students was randomly assigned to three groups. The stove-top condition and lights control condition followed the same procedure as in the original van den Hout and Kindt study and engaged in relevant checking of stoves and irrelevant checking of lights, respectively, over 20 trials. Under the perceptual change condition the novelty and distinctiveness of the repeatedly checked stimuli were manipulated after every fifth trial over 20 checking trials. All experimental groups except the perceptual change condition showed significant memory confidence reductions, implying detrimental effects of memory distrust after repeated checking can be reduced with the use of novel and distinct stimuli.

Although Boschen et al. (2011) tried to reduce the effect of memory distrust during repeated checking, no research has investigated whether it is possible to attenuate this effect with an intervention delivered after 20 trials. In addition, no research has examined the use of active methods for reducing the doubt from repeated checking, as opposed to participant-passive stimulus change as used by Boschen et al. (2011). A DM intervention may work to reduce memory distrust associated with compulsive checking but experimental investigations of DM effects on decreased memory confidence have not yet been conducted. Nor has there been any direct comparison between DM and CR.

The current study compares the ability of brief CR and DM interventions to reduce the detrimental effects of checking on memory confidence. A number of a priori hypotheses were formulated. Hypothesis 1 refers to the effects of repeated checking

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