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Examining the effects of thought records and behavioral experiments in instigating belief change

F. McManus [a,b,*], K. Van Doorn [c,1], J. Yiend [d,2]

[a] Oxford Cognitive Therapy Centre, Warneford Hospital, Oxford OX3 7JX, UK
[b] Oxford University, Department of Psychiatry, Warneford Hospital, Oxford OX3 7JX, UK
[c] Clinical Psychology, Oxfordshire & Buckinghamshire Mental Health NHS Foundation Trust, Warneford Hospital, Oxford OX3 7JX, UK
[d] Division of Psychological Medicine and Psychiatry, Institute of Psychiatry, PO 63, De Crespigny Park, London SE5 8AF, UK

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ABSTRACT

Objective: While the efficacy and effectiveness of CBT protocols are well established, much less is known about the comparative contribution of the various techniques within CBT. The present study examined the relative efficacy, in comparison to a control condition, of two central techniques in CBT: thought records (TRs) and behavioral experiments (BEs).
Method: A mixed within and between participants design was used to compare the efficacy of a single session TR and a single session BE intervention with a control intervention, in a non-clinical sample. Ninety one participants were randomly allocated to one of the three conditions.
Results: The overall pattern of results suggests that both TR and BE had a beneficial therapeutic impact in comparison to the control condition on beliefs, anxiety, behavior and a standardized measure of symptoms. There was evidence of a small advantage of the BE over the TR intervention in that the target belief changed earlier and change generalized to beliefs about others as well as the self.
Conclusions: The findings confirm the utility of both TR and BE interventions and point to BEs as more useful in effecting belief change in that the change in the BE condition occurred sooner and generalized further.

1. Introduction

Although Cognitive behavior therapy (CBT) has demonstrated efficacy as a treatment package (Roth & Fonagy, 2004), however little is known about the efficacy of individual components of CBT. Most CBT efficacy research focuses on the effect of multi-component protocols (e.g., Westbrook & Kirk, 2005) and while this approach reflects clinical practice, it cannot identify the critical ingredients responsible for the efficacy or compare the efficacy of the different components. There are a limited number of studies that attempt to identify the active ingredients of CBT (Longmore & Worrell, 2007), particularly in areas other than the treatment of depression (Dobson & Khatri, 2000). It is important to evaluate the efficacy of individual treatment components independently of the overall treatment program for three reasons. First, while CBT has proven to be effective, there remains room for improvement – all trials of CBT have found that a significant proportion of treated patients remain symptomatic and/or fail to reach an optimal level of functioning. Hence, evaluating individual components may help to show how to improve efficacy. Second, recent research suggests that therapists may be particularly poor at implementing components of CBT that require exposure to feared situations and thus produce a temporary increase in patients' distress (Becker, Zayfert, & Anderson, 2004; Schulte & Eifert, 2002; Waller, 2009). This suggests that the choice of technique or intervention may be determined by therapists' preferences rather than the intervention's demonstrated efficacy. The third reason for evaluating efficacy of individual treatment components is to enhance the cost-effectiveness of CBT protocols by eliminating any less effective or unnecessary procedures. New cost effective procedures are being developed reducing the need for face to face intervention (e.g., Andersson & Cuijpers, 2008; Lester, Mathews, Davison, Burgess, & Yiend, 2011; Mathews, Ridgeway, Cook, & Yiend, 2007; Warmerdam, Smit, van Straten, Riper, & Cuijpers, 2010). In this context it is important that intensive face to face techniques

* Corresponding author. Oxford University, Department of Psychiatry, Warneford Hospital, Oxford OX3 7JX, UK. Tel.: +44 1865 613 145; fax: +44 1865 226 331.
E-mail addresses: freda.mcmanus@psych.ox.ac.uk (F. McManus), karlijn.van-doorn@hmc.ox.ac.uk (K. Van Doorn), jenny.yiend@kcl.ac.uk (J. Yiend).
[1] Tel.: +44 1865 226 333.
[2] Tel.: +44 2078 485 119; fax: +44 (0) 2078 481 000.

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continue to develop their efficacy and demonstrate their mechanisms of action. Evaluations of individual treatment components will help to do this by identifying the most effective elements of existing procedures.

The aim of the present study was to evaluate the relative efficacy of two commonly used CBT components, namely completing thought records (TRs) and carrying out behavioral experiments (BEs). The completion of a TR involves exploring the identified belief, questioning the patient's evidence in support of this belief, using Socratic questioning to identify evidence that does not support the belief and finally, specifying an alternative more balanced belief that incorporates both the evidence that does and does not support the original belief. The information generated during the TR is detailed on a written record (see Greenberger & Padesky, 1995 for a fuller description and examples of a seven-column thought record). In contrast, BEs are planned, experiential activities designed to test the validity of an identified belief. To structure the BE, the therapist and patient collaboratively complete a BE record sheet identifying the patient's specific prediction and designing an experiment to test that prediction (see Bennett-Levy et al., 2004 for further information and examples). After carrying out the experiment, they record the outcome of the experiment and review the implications for the belief being tested. BEs differ from exposure in that the theoretical model on which exposure interventions are based is a behavioral one that suggests that their therapeutic efficacy is achieved via the habituation of anxiety, whereas BEs are established within a cognitive rationale and attempt to achieve symptom change via cognitive change (belief disconfirmation) arising as a result of the BE (see McMillan & Lee, 2010 for a review of the comparative efficacy of BEs vs exposure).

TRs can be said to be the core technique in CBT as originally conceived by Beck (1976) and Beck, Rush, Shaw, and Emery (1979) and have been a central component of the CBT protocols used in the randomized controlled trials demonstrating the efficacy of CBT (Elkin et al., 1989). However, although exposure is a well established CBT treatment procedure, it is only in recent years that BEs have been incorporated into CBT protocols. The efficacy of BEs as a component of CBT protocols has been demonstrated (McManus et al., 2009; Salkovskis, Hackmann, Wells, Gelder, & Clark, 2007; Wells et al., 1995) and it has been suggested that they may be a particularly powerful means of achieving belief change and symptom relief: "*Behavioral experimentation is widely regarded as the single most powerful way of changing cognitions*" (Waller, 2009, p. 602); "*behavioral strategies offer the most powerful means to cognitive change in cognitive therapy*" (Wells, 1997, p. 78). Furthermore the merit of verbal strategies alone has been questioned: "*Beliefs rarely change as a result of intellectual challenge, but only through engaging emotions and behaving in new ways that produce evidence that confirms new beliefs*" (Chadwick, Birchwood, & Trower, 1996, p. 37).

While both TRs and BEs are commonly used techniques in CBT, there have been few direct comparisons of their relative efficacy and there is little empirical evidence to help CBT therapists in choosing which technique to employ in order to best achieve the desired belief change within the limited time available. Two early studies found no difference in the efficacy of interventions that correspond to TRs and BEs (Jarrett & Nelson, 1987; O'Donohue & Szymanski, 1993). In contrast, more recent studies have suggested an advantage of BEs over TRs (Bennett-Levy, 2003; Tang & Harvey, 2006). There are a number of possible reasons for these inconsistent findings. First, small sample sizes in the earlier studies mean that these may have been underpowered to detect a difference between two active treatments (sample sizes ranged between 27 and 48). Second, the lack of control groups means the efficacy of the interventions over the passage of time/non-specific factors was not established. Third, both Jarrett and Nelson (1987) and O'Donohue and Szymanski (1993) used group interventions which may have smaller effect sizes than individual CBT (e.g., Mortberg, Clark, Sundin, & Wistedt, 2007; Stangier, Heidenreich, Peitz, Lauterbach, & Clark, 2003). Furthermore, the results may not generalize to the individual format in which CBT interventions are typically carried out. Fourth, BEs have only been a focus of interest in CBT in recent years (indeed the first book on BEs was published in 2004 by Bennett-Levy and colleagues). Thus the technique of BEs has undergone refinement in recent years involving increased specification, dissemination and use. It is likely that this more widespread use will have led to refinement of the technique that has enhanced its efficacy (Salkovskis, 2002).

1.1. The present study: design and aims

The present study used a larger sample size with random allocation to one of the two active interventions (BE or TR) or a no-treatment control group. A mixed within and between participants design with individual treatment was used, with assessment of outcome immediately after the intervention and at one week follow-up. Each intervention was manualized and limited to a single session, to provide a 'pure' comparison that avoids the inherent variation that can occur when treatment is delivered over a large number of sessions (Shapiro & Startup, 1992).

The primary aim of the study was to compare the efficacy of TRs and BEs to a control intervention in effecting belief and analog symptom change from a single session intervention. It was hypothesized that both the TR and BE interventions would produce greater reductions in participants' belief, anxiety and behavior ratings, and scores on standardized symptom measures, than the control intervention. Further, it was hypothesized that the BE intervention may produce greater reductions on these measures than the TR intervention.

2. Method

2.1. Design

In order to recruit a large sample, and most importantly to keep the content of the interventions constant across participants and within each condition, it was decided to focus on a specified belief that is commonly held in the general population but that could be considered at least somewhat irrational e.g., superstitious beliefs (Newport & Strausberg, 2001) or subclinical OCD related beliefs (Gibbs, 1996). An email survey of the authors' associates ($n = 128$) was conducted to determine the prevalence of such beliefs in the local population. To ensure that belief change was possible in the interventions a belief rating of >60% was used as a cut off and the belief most frequently endorsed at this level was 'Not washing your hands after going to the toilet will make you ill', which was given a belief rating of 60% or above by 32% of the 128 pilot study participants. Whilst there is some validity to this belief, research shows that a significant proportion of the population do not wash their hands after going to the toilet (Drankiewicz & Dundes, 2003) and that 'normal' hand-washing is unlikely to be sufficient to remove pathogens (Moe, Christmas, Echols, & Miller, 2001). This belief is also ethically and practically amenable to intervention via either TR or BE in a single session (in contrast to, for example, the belief that seeing one magpie brings sorrow but two brings joy, which would be practically difficult to arrange) and emulates the clinical situation of testing out a belief that is likely to generate some anxiety about possible negative consequences.