Advances in the Cognitive Behavioural Treatment of Obsessive Compulsive Disorder

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Abstract

The aim of this paper is to highlight key advances in the cognitive-behavioural treatment of obsessive compulsive disorder over the course of Professor Lars Goran Öst's illustrious career. The paper will focus on three specific areas of interest: the treatment of obsessions, compulsive checking and the fear of contamination. It will also highlight recent advances concerning the broader need to ensure that treatment is acceptable. An increase in acceptability could result in improvements in completion rates so that more patients benefit from the recent improvements in the science and therapy for this disabling disorder.

KEYWORDS: OCD; checking; obsessions; contamination; safety behaviour; new

Introduction

In a keynote address to the British Association of Behavioural and Cognitive Psychotherapy in London in 2011, Professor Lars Goran Öst gave a typically thorough and scholarly review of the efficacy of the psychological treatment of anxiety disorders over the past 20 years and their implementation in clinical practice. One of his key findings was that the effect sizes for the treatment of anxiety disorders, including obsessive compulsive disorder (OCD), had not increased over this time. This finding is sad but unsurprising. The results of the first Randomized Controlled Trial (RCT) to evaluate the effects of a psychological therapy for OCD, reported in 1979 (Rachman et al., 1979), showed significant but moderate improvements and the results of the latest 3-site RCT were not appreciably superior (Foa et al., 2005).

Despite the disappointing stability of success rates, there have been advances in our understanding of anxiety disorders and associated therapeutic interventions. This paper will focus on three such advances in OCD. First, we are now able to successfully treat obsessions. This form of OCD would historically have been an exclusion criterion for trials involving the evaluation of exposure and response prevention. Second, in recent years, we have begun to understand and formulate compulsive checking, resulting in interventions that include attention to cognitive biases and metamemory. Finally, treatment for the fear of contamination can now help people who feel contaminated by their own thoughts, images and memories. This paper will review progress in each of these areas, and conclude with a comment on new ideas and data that may help increase the proportion of clients who enter and complete therapy.

Obsessions

To meet diagnostic criteria for OCD, an individual must experience recurrent, egodystonic, repugnant obsessions or excessive, ritualistic compulsive behaviors (APA, 1994). Although the majority of patients with OCD have both obsessions and compulsions, 20-25% of patients are thought to have obsessions without overt compulsive behaviour (Freeston & Ladouceur, 1997). Some of these will have internal compulsions and will engage in covert mental neutralising which appears to be

similar to overt compulsive behaviour (de Silva, Menzies & Shafran, 2003). Others, however, will be suffering from obsessional thoughts, images and impulses in the absence of any neutralising behaviour. This emphasis on exposure and response prevention is problematic for clients with obsessions. The treatment traditionally involved exposure to the obsession using imaginal or *in vivo* exposure to obsessions on loop tapes. Such interventions are long, typically produce high levels of anxiety, can be difficult to tolerate, and have been shown to be of limited benefit when used in isolation (Salkovskis & Westbrook, 1989). Obsessions are essentially a cognitive phenomenon and cognitive interventions may be a preferable alternative to exposure and response prevention.

The cognitive analysis of OCD (Salkovskis, 1985) paved the way for a new understanding of the persistence of obsessions in the absence of compulsions. It was suggested that what was critical in the aetiology and maintenance of obsession was the person's appraisal of normal unwanted intrusive thoughts as indicating that the person was responsible for harm.

The cognitive analysis was helpful in focusing attention on appraisals, and it inspired a number of subsequent investigations into the role of cognitive biases in the maintenance of psychopathology. One of these was thought-action fusion. Thought-action fusion has two components. The first is the belief that thinking about harm coming to others increases the likelihood they will actually come to harm, and the other is that thinking about harming others is almost as immoral as actually harming them (Shafran, Thordarson & Rachman, 1996). Biases concerning the close inter-relationship between appraisals of threat, probablility and control (Moulding, Kyrios & Doran, 2007) were identified. A series of elegant studies by David A Clark and Christine Purdon highlighted the importance of addressing beliefs about the importance of controlling thoughts (Purdon & Clark, 1994; Purdon & Clark, 2002). An important 'omission-commission' bias was identified in which patients with OCD were found to equate situations when they failed to prevent harm and situations where they actual caused harm. To bring the work together, the Obsessive Compulsive Cognitions Working Group was formed, in which six beliefs domains of OCD were rationally determined (control of thoughts, importance of thoughts, responsibility, intolerance of uncertainty, overestimation of threat and perfection. Three key interpretations were proposed to be fundamental in

the maintenance of OCD. These were (i) the importance of thoughts, (ii) the control of thoughts and (iii) responsibility. The group produced a measure to assess such beliefs and interpretations in patients (OCCWG 2003, 2005).

At the same time, a cognitive theory of obsessions was developed and subsequently elaborated (Rachman, 1997, 1998). The cognitive theory of obsessions states that obsessions are caused when the person makes catastrophic misinterpretations of the personal significance of his/her unwanted, intrusive, repugnant thoughts. A number of treatment interventions derived from the theory. Critical to the theory was the notion that the content of obsessions is not random, and that hypervigilance for threat can explain the frequency of obsessions in the absence of compulsive behaviour.

The first RCT on the treatment of obsessive thoughts with 29 patients was published at around this time (Freeston et al. 1997) with a wait-list comparison. As that research was conducted prior to development of the cognitive theory of obsessions and the work on biases and beliefs, the fundamental component of treatment was imaginal exposure (i.e., loop tape exposure to the obsession) although some cognitive strategies were included. Two-thirds of the participants did well immediately after the lengthy 40 hour treatment and just over half the participants maintained their gains at 6 month follow-up. A promising case series using cognitive therapy without exposure was subsequently published (Freeston, Leger & Ladouceur, 2001). Taken together, the results indicated that obsessions can be successfully treated. More than a decade after the cognitive theory of obsessions was published (such research is never quick and requires the patience of someone like Lars Goran Öst), a RCT for the treatment of primary obsessions in 73 patients based on the theory of the persistence of obsessional problems reported an effect size of $d = 2.34$ on the obsessions subscale of the Y-BOCS for those who completed treatment (Whittal, McLean, Rachman & Robichaud, 2010). In a previous study by the authors on the treatment of OCD, an effect size of $d = 1.84$ was reported for exposure and respone prevention (Whittal, Thordardson & McLean, 2005). The study on the persistence of obsessional problems found stress management training was also effective in the treatment of obsessions (Whittal et al, 2010). The stress management training involved identifying

stressful areas of the patient's life and providing skills training following a modular approach, individualized to the participant. Typically treatment began with applied relaxation (Öst, 1987). The study concluded that primary obsessions should no longer be considered to be resistant to treatment, representing a major advance in the field.

Compulsive Checking

The hallmark of a scholarly clinical researcher like Lars Goran Öst is to subject research findings that are incongruous with the observation of the clinical phenomenon to rigorous scientific scrutiny and conservative interpretations of the data. For many years, it has been suggested that OCD can be considered as a neurological deficit (see Tallis, 1997 for a review). The proponents of this argument explain compulsive checking as a problem in memory based on performance on neuropsychological assessments. The difficulty with this argument is that the apparent memory deficit in people with OCD has always appeared highly specific – they do not have problems with their memory in general. In addition, ask anyone with a contamination fear how an object became contaminated, they will tell you in exquisite detail about an event that might have happened more than 20 years previously. In the past ten years, we have gained a greater understanding into the functioning of the memories of people with OCD which has, in turn, led to advances in the treatment methods available.

A cognitive theory of compulsive checking (Rachman, 2002) was developed to try to better understand the nature and persistence of the problem. The cognitive model of compulsive checking comprises three major elements, namely inflated sense of responsibility, gross over-estimations of the probability of a misfortune and over-estimated expectations of the seriousness of the misfortune. The model proposes that compulsive checking is self-perpetuating because it (i) increases perceived responsibility (although patients are checking to try to reduce responsibility), (ii) increases perceived danger (again, in opposition to the patient's intention), and (iii) impairs meta-memory (i.e., knowledge about the contents and regulation of memory). The last of these putative self-perpetuating mechanisms has become the subject of research studies into the impact of repeated checking. A series

of elegant studies, led by Marcel van den Hout and Merel Kindt (2003a, 2003b, 2004) demonstrated that repeated checking of virtual objects by nonclinical participants reliably leads to significant decreases in memory confidence, vividness and detail; memory accuracy was unaffected. The findings were replicated for the repeated checking of real, possibly threatening objects in undergraduate students (Coles, Radomsky & Horng, 2006; Radomsky, Gilchrist & Dussault, 2006), for mental checking (Radomsky & Alcolado, 2010) and for checking using perseverative, compulsive-like staring (van den Hout et al., 2008, 2009).

One of the hallmarks of clinical research in OCD is that experimental studies such as those conducted by van den Hout and colleagues become incorporated into treatment methods. Cognitive behaviour therapy for OCD has for many years involved normalising intrusive thoughts, conducting exposure and response prevention and observation of the spontaneous decay of anxiety – all of these originated from experimental research (Rachman & Hodgson, 1980). The experimental work on compulsive checking is no different, and can now be incorporated into therapy in the form of behavioural experiments (Radomsky, Shafran, Coughtrey & Rachman, 2010). The repetition and memory confidence behavioural experiment has particularly high evidential value. Patients are asked to contrast the impact of checking on their confidence in memory, vividness and detail as well as their estimates of responsibility and danger when they check repeatedly and when they check once. For the vast majority of patients, the research findings are replicated in the therapy room; they find out that repeated checking causes memory distrust. Patients report that they become confused after repeated checking and their uncertainty as to whether an object is switched off increases. The minority who do not find that their confidence in memory is affected by repeated checking, typically find there is no difference in their metamemory when they check once compared to when they check repeatedly. The experiment allows such patients to conclude that repeated checking does not aid their memory and is taking up time that could be spent more fruitfully. Similar behavioural experiments stem from experimental manipulations of beliefs about memory (Alcolado & Radomsky, 2011), showing that the belief that one has a poor memory can cause urges to check.

Behavioural experiments are probably the key intervention in advanced CBT for OCD. The experiment on compulsive checking naturally gives rise to discussions about how estimates of danger and responsibility are influenced by checking but also by other variables such as anxiety. In the mid 1990s, the cognitive bias of thought-action fusion was a particular topic of interest. The development of a measure of thought-action fusion followed by an experimental analysis of its role in the maintenance of psychopathology spawned a multitude of studies that demonstrated this is a common bias across anxiety disorders (Shafran et al., 1996). Clients who believe strongly that their thoughts can cause harm to others ('Likelihood thought-action fusion) are now able to have their concerns quickly recognised and addressed. Therapists typically start by asking their patients to start by wishing harm on them to demonstrate the veracity that the patient's thoughts can cause harm, and then gradually build up to testing the belief that their thoughts can cause harm to loved ones. Normalising thought-action fusion and evaluating the belief is a cornerstone of therapy for those who have such a cognitive bias, even if they have held it for many years. How such biases interact with compulsive checking allows a range of therapeutic interventions. For example, the bias of likelihood thought-action fusion increases perceived responsibility for harm; perceived responsibility for harm increases patients' estimates of the likelihood of harm and seriousness of harm (Lopatka & Rachman, 1995); these 'multipliers' lead directly to compulsive checking which serves to increase rather than decrease responsibility, thereby maintaining a vicious cycle. Such an understanding of the processes involved in repeated checking is followed by personal demonstrations of how such processes work for the individual patient, and subsequent interventions to address the biases and counter-productive checking behaviour (Radomsky et al., 2010).

Fear of Contamination

The widely used technique of exposure and response prevention (repeated, prolonged exposures to the contaminants delivered in a graded hierarchy), is moderately effective but can be difficult to tolerate. It was easier to do such behavioural work with contamination in the clinic than it was with the checking concerns which were notoriously difficult to elicit outside the patient's own situation (Rachman & Hodgson, 1980). The view of the 1970s and 1980s that a contamination fear

overlapped significantly with a simple phobia was consistent with this being perhaps the most straightforward form of OCD. This approach overlooked the clinical phenomenon in which patients were reporting feeling contaminated in the absence of contact with a contaminant. In 1994, the phenomenon was described clearly as 'pollution of the mind' but it took another decade before the construal of the fear of contamination (Rachman, 2004; Rachman, 2006) incorporated the occurrence of mental contamination.

Mental contamination is defined as the 'feeling of being polluted, dirtied, infected or endangered in the absence of a physical contaminant.' It arises from physical, emotional or moral violations, and is associated with impurity, immorality, betrayal and humiliation. Such contamination is triggered by thoughts, memories or images. A particular form of mental contamination was identified in which the patient fears taking on the undesirable characteristics of others. This fear of morphing, or transformation obsessions, appeared relatively common in clinical practice yet was seldom discussed (Voltz & Heyman, 2007).

A comparison of contact contamination and mental contamination is shown in Table 1.

Table 1. *Comparison of contact contamination and mental contamination*

Contact contamination	Mental contamination
Feelings evoked instantly with physical contact	Physical contact not necessary for contamination
Generated by contact with external stimuli	Can be generated internally (e.g., thoughts, memories, and images)
Contaminants are dirty or harmful substances	Primary source is not a substance, but almost always a person
Others considered vulnerable	Uniquely vulnerable
Lacks a moral element	Moral element common
Transiently responsive to cleaning	Cleaning is often ineffective
Treatment moderately effective	Treatment under development

Of note, mental contamination can be provoked by 'mental events' such as memories, images and remarks. The feelings of contamination are not localised on the hands. They are diffuse and usually include feelings of internal dirtiness and /or pollution. The source of the contamination is human, not inanimate objects, and is caused by emotional and/or physical violations.

As with the majority of developments in the field of OCD, the construct of mental contamination arose from clinical observation but was soon followed by experimental analyses and treatment development. A 'dirty kiss' paradigm was developed in which it was demonstrated that women asked to imagine experiencing a non-consensual kiss experienced greater subjective feelings of dirtiness, a greater urge to wash, and are more likely to spontaneously wash their mouths than those asked to imagine experiencing a consensual one (Fairbrother, Newth & Rachman, 2005; Herba, 2005). Following a sexual violation, 60% of victims reported increased mental pollution and excessive washing (Fairbrother & Rachman, 2004).

These initial experimental paradigms confounded recalling an episode in which there was some physical contact with mental contamination, but other paradigms have reported similar findings that feelings of contamination arise in the absence of physical contact. After recalling unethical memories or copying immoral stories, non-clinical participants were found to be more likely to complete word fragments to produce washing related words, choose antiseptic wipes over pencils and rate cleaning products as more desirable (Zhong & Liljenquist, 2006). An adaptation of the cued recall test using words such as disgust, humiliate, shame, betrayed, immoral, dirty, contaminated, immoral and impure was given to 40 students. After such a task, participants felt significantly higher levels of state anxiety, general dirtiness, internal dirtiness and urge to wash (Coughtrey, Shafran & Rachman, submitted). In the bathroom break, 17.5 % washed their hands, 45% had a drink of water and 25 % used an antibacterial handwipe.

Contemporaneous with the experimental research, the development of a self-report measures of mental contamination, contamination sensitivity and contamination thought-action fusion were underway (Radomsky, Rachman, Elliot & Shafran, in preparation). The scales were found to be

internally consistent and convergent validity was demonstrated. The mental contamination scale was subsequently completed by people with significant obsessive compulsive symptoms or a formal diagnosis of OCD (Coughtrey, Shafran, Knibbs & Rachman, 2012). In one of the studies of 54 patients with OCD, 44% scored highly on the measure of mental contamination indicating that such a problem was common. The severity of mental contamination was positively associated with severity of OCD symptoms and Thought Action Fusion. Of the 32 patients with contamination fears, 56% reported both mental and contact contamination, 19% had mental contamination only, and 25% had contact contamination only.

The identification of mental contamination by means of a self-report measure to assess severity, and the finding that concurrent contact and mental contamination was the norm, was accompanied by the development of specific therapeutic interventions to address mental contamination (Coughtrey, Shafran, Lee & Rachman, 2012). Particular adaptations include assessment of violations and betrayals and the mechanism by which mental contamination is spread; the meaning of contamination, contamination-related images, and an emphasis on the stability of the construct of the self for those with morphing fears. The findings from a case series of 12 participants, all of whom had failed to respond to standard CBT for OCD, were encouraging with seven of the 12 no longer meeting diagnostic criteria for OCD. During the development and presentation of this work, the question arose of whether this was truly 'new' and an advance as such patients had been present in the clinic for decades. While it is undoubtedly true that the clinical phenomenon is not new, our understanding of the processes involved in mental contamination and the associated treatment interventions means that there is now hope that an effective treatment can be provided to patients who were previously overlooked.

Treatment Acceptability

There are too few treatment trials for OCD, and there is a consensus amongst clinical researchers that there are serious obstacles to conducting a treatment trial comparing 'new, advanced CBT for OCD' which we describe above with exposure and response prevention. The sample size

would need to be in the high hundreds for enough power to detect the differences between these two active therapies. Second, there is the view that few therapists currently conduct exposure and response prevention in its purest form, using systematic, prolonged graded exposure based on the habituation model in which patients are never asked what they were thinking, what they have learned from the exposure and in which the content of the exposure is irrelevant. When conducting exposure and response prevention, there is typically psychoeducation about the nature of anxiety and the therapist would encourage patients to think about what they learned from the exposure and response prevention exercises. When doing CBT, behavioural experiments typically involve some minimal form of exposure but it is neither repeated nor prolonged.

The few treatment trials reveal a consistent finding - attrition rates for existing therapies are unacceptably high. The prevailing treatments (exposure and response prevention) is so demanding that many people find it difficult to tolerate. In the large 3-site trial reported in 2005, 833 potential participants were screened. Of these, 520 were offered treatment but no fewer than 372 of them refused. 134 of these 372 (36%) refused due to the treatment offered and the remainder declined to participate for other reasons. Attrition after inclusion and randomization was mainly due to refusal of ERP and Clomipramine (mean attrition rate was 29%). Of the 142 patients who were assigned to a treatment condition, 36 dropped out, leaving only 122 completers out of the original sample of 520 (Foa et al, 2005). Other worrying results about the clinical reality of treatment for OCD were compiled by Houghton et al (2010). Perhaps the biggest advance, then, is to consider ways to increase the acceptability of treatment without compromising efficacy. One such way may be to be less dogmatic regarding the counter-productive effects of safety behaviour, which can be considered as actions, thoughts or protective objects used by anxious individuals to prevent or minimize feared catastrophe' (Salkovskis, 1996)

It is undoubtedly the case that some safety behaviours are unhelpful. For example, patients with social phobia who rehearse each word before verbalising it or who avoid eye contact come across as peculiar from a social interaction perspective. People with health anxiety who repeatedly seek reassurance and medical tests are likely to find that such behaviour exacerbates and maintains

their concerns about their health. All of these behaviours would be appropriate targets for treatment. Nevertheless, there are some safety behaviours that may actually be helpful insofaras they encourage patients to obtain information that could disconfirm their fears. Such patients would not countenance the idea of seeking out such information without their safety behaviour. For example, someone with OCD may be spending hours ordering and arranging for fear that 'something bad' will happen if objects were out of place. A therapist might suggest taking a photograph of the objects after 10 minutes of ordering and arranging that the patient can subsequently refer to if anxious while out. Such a photograph would enable the patient to do a behavioural experiment to see what happens if the patient does not order/arrange for more than 10 minutes whereas otherwise they may not do the experiment. Does the patient become dependent on the photograph? Is the therapist simply replacing one compulsion with another? Our clinical experience suggests not, and some recent experimental data is consistent with that. Using a subclinical sample, an experiment comparing exposure plus response prevention with exposure plus safety behaviour found few significant differences in the efficacy of the interventions – the presence of safety behaviour did not prevent reduction in fear, contamination, danger, disgust (Rachman, Shafran, Radomsky & Zysk, 2011; van den Hout, Englehard, Toffolo & van Uijen, 2011). Other experiments have shown that the judicious use of safety behaviour did not prevent declines in fear (Hood, Antony, Koerner & Monson, 2010; Milosevic & Radomsky, 2008) as well as failing to prevent the acquisition of helpful information (Milosevic & Radomsky, in press). Aside from the reality that it is hard for patients to drop their safety behaviour (McManus, Sacadura & Clark, 2008), recent research indicates that significantly more patients with anxiety disorders find a therapy that incorporates safety behaviour more acceptable than one that does not (Milosevic & Radomsky, in press), and that the use of safety behaviour can foster significantly closer approach to a contaminant (Levy & Radomsky, under review). We suggest that allowing patients to use safety behaviour in a judicious manner represents both a practical and ethical advance in the treatment of OCD (Rachman, Radomsky & Shafran, 2008).

Conclusions

We have chosen to focus on four areas in the treatment of OCD in which we feel there have been specific advances over the course of Lars Goran Öst's career. We have chosen to focus on these areas as they are our particular areas of expertise, but there are, of course, advances in other areas of CBT for OCD including excellent work on imagery (Speckens, Hackmann, Ehlers & Cuthbert, 2007), looming vulnerability (Riskind, Rector & Cassin, 2011), therapies such as telephone treatment, internet-delivered therapy and self help (Andersson et al., 2012; Haug, Nordgreen, Öst & Havik, 2012; Lovell et al.,2004; Wootton et al., 2011), work on controlling thoughts (e.g., Purdon, Rowa & Antony, 2005) and on other obsessive beliefs (e.g., Bradbury, Cassin & Rector, 2011). Work on 'not just right experiences' in OCD is progressing (e.g., Coles, Heimberg, Frost & Steketee, 2005) as is the latest thinking on hoarding and its specific (or non-specific) relationship with obsessional problems (Abramowitz, Wheaton & Storch, 2008). Changing how therapy is delivered so that it is more acceptable and feasible for young people is a promising avenue to help increase completion rates that warrants further exploration (Whiteside, Brown, & Abramowitz, 2008)

Such advances are not reflected in outcome studies demonstrating the superiority of CBT for OCD over behaviour therapy. They are, however, reflected in the fact that there are now freely available psychometrically robust measures and effective treatments for groups of people whose problems are essentially cognitive and whose treatment required a cognitive analysis. Such people include those with pure obsessions, whose checking compulsions are perpetuated by cognitive biases and the impact of checking on metamemory, the large number of patients who feel contaminated in the absence of contact and the patients for whom ordering and arranging is driven by appraisals of responsibility. Finally, we hope that therapy can become increasingly acceptable and gentle over time, so that the patients in need of such advances can access them.

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