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**Still cognitive after all these years? Perspectives for a Cognitive Behavioural Theory of Obsessions  
and where we are 30 years later.**

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## Abstract

Background: Obsessive-Compulsive Disorder (OCD) was historically regarded as untreatable. In 1965 OCD was seen as an intractable and deteriorating condition, with little hope of improvement. It was not understood, but generally regarded as a kind of “pre-psychotic” state, with sufferers permanently at risk of being tipped over that edge. Treatment was confined to long term hospitalisation and psychosurgery, although neither of these held any hope of recovery. Fifty years on, OCD is not only understood as being a result of a range of otherwise normal processes but is also regarded as entirely treatable, with complete recovery being a real possibility. This has come about through the development and evolution of first behavioural then cognitive-behavioural approaches to its understanding and treatment.

Objective: In 1993, Clark and Purdon, wrote an important and stimulating paper in *Australian Psychologist* in which they explored emerging cognitive theory, particularly that set out by Salkovskis (1985). The current paper aims to examine the contribution of the Clark and Purdon paper to the field. We aim to review this in the context of both the status of the field when it was written and subsequent developments.

Method & Results: This evaluation is used to consider the current status of cognitive and cognitive behavioural theories. Since 1993 there have been a number of key developments in the field. In our view, these include work that has focused on formulation and development of a shared alternative explanation, the use of safety seeking behaviours, identification of Elevated Evidence Requirements, reassurance seeking and mental contamination. All of which will be reviewed in turn.

Conclusion: It is concluded that the Clark and Purdon paper, although incorrect in several key aspects, made an important contribution to the development of a field which continues to evolve in a vibrant and challenging way.

Key Words: Cognitive Theory; Cognitive Behavioural Theory; Obsessive Compulsive Disorder; Theory-practice links

## Introduction

The application of scientific developments typically takes an evolutionary course. For example, in 1985, the first generation of mobile phones began to be used, with little awareness of the changes that this development would bring about. By 1993, the second generation appeared, and it became increasingly evident that something of a revolution had taken place. Today, as we edge towards the fifth generation, anything seems possible. So, does mental health research follow a similar pathway? 1985 saw the publication of a comprehensive cognitive-behavioural conceptualisation of OCD (Salkovskis, 1985). 1993 saw Clark and Purdon's (1993) paper 'New Perspectives for a Cognitive Theory of Obsessions' appearing in the *Australian Psychologist*. So was that the beginning of a second generation? And has everything changed again as of today? Has there been a linear progression so that, in terms of the understanding and treatment of OCD, is anything now possible? We will suggest here that the pace of change has been more leisurely, and that the 1985 conceptualisation, with extensions and refinements, continues to deliver a decent scientific framework for the understanding of OCD in ways which can inform clinical treatment. The present paper considers in some detail the contribution of the Clark and Purdon (1993) paper, and how cognitive-behavioural theories of OCD have progressed since.

There is an important contrast to consider between the initial (1985) theoretical paper and the contrasting perspectives offered by the second, which may illuminate an examination of the detail. Salkovskis (1985) proposed, from the outset, a "Cognitive-behavioural" account, rooted in the cognitive perspective of Tim Beck and the behavioural position of Jack Rachman. By contrast, Clark and Purdon (1993) refer to a "Cognitive theory", which distinction we consider to be the root of their problem. Central to the 1985 cognitive-behavioural theory was the way in which the appraisal of intrusions motivated compulsive behaviours and separately drove other responses including but not confined to emotional responses such as anxiety (Salkovskis & Freeston, 2001). Also crucial to the theory was the way in which cognitive appraisal (interpretation) formed the bridge between the intrusions and reactions intended to prevent harm. In terms of specificity relative to other anxiety problems (such as Generalised Anxiety Disorder, GAD) (mis)interpretations of responsibility for harm was considered to be crucial to the subsequent effortful deployment of compulsions, overt or covert. According to this theory, perception of responsibility was therefore regarded as necessary (but not sufficient) for the development and maintenance of OCD. Clark and Purdon, by contrast, considered responsibility appraisals to have been overemphasised; they were neither necessary nor sufficient in their view. We suggest here that this seems at least in part to be related to their considerable emphasis on cognition and a relative disregard of behaviour. This despite their emphasis on elements from behavioural theory, particularly the role of anxiety relief connected to stereotypical behaviour. We consider that Clark and Purdon have used an unduly restrictive definition of the central concept of responsibility by differently categorising ideas of being responsible for one's own thoughts as not responsibility related.

In the present paper, we will first consider the merits of Clark and Purdon's (1993) position, and use this as the starting point of a more comprehensive update of the current theoretical and empirical status of cognitive behavioural approaches to the understanding and treatment of OCD. In summarising key points in Clark & Purdon's (1993) paper, we will identify the extent to which it represented a helpful elaboration. However, we will go on to point out that most of the specified differences from the Salkovskis theory were insubstantial and in places inaccurate, leading to apparent inconsistencies in the empirical evidence. We will consider the subsequent theoretical developments and extensions of Salkovskis (1985, 1989) original cognitive behavioural model of obsessions, and particularly the excellent work of Jack Rachman.

We will consider how research since 1993 has measured up to theorising, including but not confined to the Clark and Purdon (1993) and Salkovskis (1985) conceptualisations. We will then consider the key implications of the present state of this field for both research and treatment of obsessions.

In terms of judging these theoretical positions, we believe that a helpful distinction can be made in terms of the extent to which factors are OCD relevant, then, if they are, whether or not they are OCD specific (Salkovskis and Forrester, 2002). OCD relevant factors are those which impact on OCD, but that are also found to be important in other problems. For example, in terms of psychological processes, selective attention to threat is relevant to OCD, but also occurs and has been found to be important across a range of other psychological problems. By contrast, we assert that responsibility motivated neutralising is both relevant and specific to Obsessional problems; without it, intrusive thoughts negatively interpreted would result in problems such as GAD or Depression, but not in OCD. Safety seeking behaviour may be present, but not in the form of compulsive behaviour.

### **Clark and Purdon's *Australian Psychologist* paper.**

Clark and Purdon explicitly take as their starting point the theoretical work of Salkovskis (1985, 1989), which set out the cognitive processes hypothesised to be involved in the development and maintenance of obsessional problems. Clark and Purdon (1993) are mostly accurate in their analysis; crucially, they correctly identify the importance of appraisal (misinterpretation) of intrusions as crucial. However, they separate appraisal from "Negative automatic thoughts" (NATs), as opposed to Salkovskis' identification of appraisal/misinterpretation as the cognitive *process* and NATs as the cognitive *product*. They also do not identify the importance of the aspect of responsibility for *harm* (to self or others); the appraisal of harm (to self or others) is key to the experience of anxiety itself, or, in the event of the harm being related to past events, depression, guilt or shame. They correctly identify the importance of responsibility appraisal in motivating compulsive behaviour, although they disagree with the idea that this is central. From our perspective, we regard negative appraisal, particularly in terms of harm, to be OCD relevant, but appraisals for responsibility for harm is in our view OCD specific because of its impact in motivating compulsions.

Clark and Purdon (1993) then go on to review the empirical research available at that time for each aspect in turn. Firstly, they conclude that there is evidence linking intrusive cognitions and obsessional thinking and highlight the importance of ego-dystonicity. They highlight the distinction in form and content between the ego-syntonic nature of negative automatic thoughts and the ego-dystonic nature of intrusive unwanted thoughts which was previously discussed by Salkovskis (1985). There is however discussion in the literature about the defining of intrusive thoughts as strictly ego-dystonic as with this definition obsessions that are less clearly ego-dystonic in nature (e.g. contamination, making mistakes, accidents (Freeston, Ladouceur, Rhéaume, Letarte, Gagnon et al., 1994) would be excluded (Julien, O'connor, & Aardema, 2007). Note that this work has been elegantly developed by Purdon et al. (2007), with further clarification of the interaction between pre-existing beliefs, intrusions and their appraisal being particularly important. This in our view represents a significant theoretical clarification. Secondly, they noted that there is considerable evidence for a link between responsibility beliefs and OCD itself, although they express reservations about how strong this is. Thirdly, they take issue with the definition of "neutralising" used in the theory. Salkovskis (1989) defines neutralising as any voluntary initiated activity (overt or covert) which aims to reduce the discomfort and perceived responsibility associated with the obsessions. They find support for the theory using this definition, but suggest that it is too broad and as a result they indicate that it fails to portray the distinct, repetitive nature of cognitive rituals characteristic in OCD. They propose instead using a narrower definition posited by Freeston, Ladouceur, Thibodeau and Gagnon (1991) that neutralising is an overt or covert form of escape or avoidance which aims to

reduce the 'anxiety-arousing' effects of the obsession. They state that this definition is more appropriate as it captures the "unusual, repetitive and often senseless nature of cognitive rituals" (Clark & Purdon, 1993, p.163) that are often used to counteract the discomfort associated with obsessions. Using that definition they then suggest that the support for the theory is more mixed and conclude that neutralising may increase the salience of intrusive thoughts but whether neutralising leads to an increase in the occurrence of intrusive thoughts, is unclear.

It is, in our view unsurprising that, when a different definition to that used in the theoretical work is adopted, the proposed link and prediction is weakened. However, the crucial element in the original definition was and still is the element of motivation for seeking safety, that is, the attempt through deliberate overt and/or covert action to reduce both threat and/or the perception of responsibility for its occurrence/non-occurrence. By contrast, the intention to reduce anxiety is not necessary (although it may be present, and can have an additional motivating function); however, safety seeking is key and particularly prominent in the early stages of the development of compulsive type behaviours. Note also that the "unusual, repetitive and often senseless nature" of such behaviour (as identified by Clark and Purdon, 1993) is *not* a requirement of the original definition; indeed one could reasonably suppose that, early on, such characteristics would be mostly absent. The cognitive-behavioural theory of both safety seeking in general (Salkovskis, 1991) and in OCD in particular specifies almost the precise opposite, *viz*, that the behaviour is motivated by the belief that it is indeed logical, and that checking will reduce risk, that washing will get rid of contamination, that neutralising a thought will reduce risk and so on. Clinical observation and basic phenomenology also suggests this is also often so, even in more chronic cases. When in the grip of compulsions, the person suffering from OCD believes that it is possible or even likely that they could be reducing the chance of harm and their responsibility for it. However, as the safety seeking becomes practiced and "proceduralised" over longer periods, one might anticipate it would become more stereotyped and the link with the perception of threat and responsibility would become masked or more obscure, again, as with other types of safety seeking behaviours (Salkovskis, 1991).

Clark and Purdon thus find what they regard as mixed support for the cognitive behavioural model of obsessions, but only when they change the definition used in the theory in a way that we would regard as potentially unhelpful and potentially misleading. However, they go on to make suggestions for refinement of the model, which also merit some attention.

### **Clark and Purdon's suggestions for refinement of the model**

Clark and Purdon (1993) outline three ways in which they believe a cognitive theory of obsessions could be revised. Firstly they suggest that greater emphasis should be placed on the role of depression and depressive symptoms in the development of obsessions. Secondly, they suggest that more emphasis should be given to appraisals linked to dysfunctional beliefs relating to thought control. Thirdly, they suggest that neutralising may not have an etiological role and that rather obsessions result as a consequence of the failure of thought control strategies which may or may not include neutralising. We will now consider each of these proposed refinements in turn.

### **Refinement: Importance of mood?**

Clark and Purdon (1993) suggest a broad etiological role for depressed mood. They suggest that the role of mood disturbance in the etiology of obsessions had been underestimated in the theory, and should be given more attention and emphasis. They propose that the hypothesised causal role of mood disturbance as a precipitant of intrusive thoughts be further investigated. This proposed

revision is underpinned by research which has identified a relationship between mood disturbance and reduction in mental control (Conway, Howell, & Giannopoulos, 1991; Wenzlaff, Wegner, & Roper, 1988). Negative mood plays a role in thought suppression, increasing the accessibility of negative thought intrusions (Conway et al., 1991). Negative moods decreased control over unwanted intrusive thoughts. The suggestion is that individuals who experience intrusive uncontrollable thoughts may also present with a pre-existing mood disturbance, which may explain why they find such intrusions more difficult to control. By contrast, Salkovskis (1985) suggested a more complex set of relationships. Salkovskis (1985) suggested that pre-existing mood disturbance could increase both the range of stimuli that trigger intrusions in the first place, the range of intrusions which lead to negative automatic thoughts (i.e. a lowered threshold for threat and responsibility appraisals) and an increase in the level of activation of pre-existing dysfunctional schema including but not confined to those of threat and responsibility. In that narrative, if the intrusion acts as a stimulus leading to negative automatic thoughts, then the consequent mood disturbance will feed back further increasing the accessibility of negative automatic thoughts. Salkovskis (1985) predicted that increases in anxiety will lead to more frequent intrusions, while depression will lead to an increased probability of negative automatic thoughts and consequent discomfort.

How then does this match with the phenomenology and research findings in the field? It is clear that, as OCD develops and becomes more persistent, depression impacts on obsessional symptoms, with the majority of those with severe OCD also scoring highly on measures of depression, and fluctuations in depression sometimes (but not always) co-varying with OCD symptom severity. However, it is also clear that depressed mood is not a necessary precursor of OCD. Note that it has long been known that depression and OCD interact in a complex way, with Gittleson (1966) identifying “Losers” (those for which obsessions occurring before a depressive episode cease to persist during the depressive episode), “gainers” (those for whom obsessions occur for the first time during the course of a depressive episode) and “keepers” (those for whom obsessions may have occurred both before the onset and persist during a depressive episode).

Clark and Purdon’s theoretical position again runs into problems regarding specificity. They do not specify why depressed mood would result in Obsessional problems rather than the person becoming depressed.

Low mood can clearly be regarded as a vulnerability factor. The mood appraisal spiral (Teasdale, 1983) is well established in research terms and almost certain to operate in OCD. Salkovskis originally proposed in 1985 that the clinical levels of mood disturbance so commonly observed in OCD are primarily a result of the occurrence of unwanted intrusive thoughts and their subsequent appraisal. That depressed mood interacts with other obsessional processes is not disputed; however, it is again neither necessary nor sufficient. Depressed mood is, in the terms set out above and in Salkovskis and Forrester (2002), OCD relevant but not specific.

### **Refinement: beliefs about thought control rather than responsibility?**

Clark and Purdon (1993) note that they agree with Salkovskis (1989) with regard to the central role that one’s appraisals of intrusive thoughts has in the development of obsessions. They suggest however that too much emphasis is given to appraisals of responsibility and blame and that more emphasis should be given to appraisals linked to dysfunctional beliefs relating to thought control. They draw on the thought suppression literature here (Clark, Ball & Pape, 1991; Wegner, Schneider,

Knutson & McMahon, 1991; Wenzlaff, Wegner & Roper, 1988; Wegner, Schneider, Carter & White, 1987) and suggest that in conjunction with beliefs related to responsibility, harm and blame, a model which emphasises the need to control intrusive thoughts will be key to evidencing the failure to control intrusive thoughts and the consequent development of obsessions.

However, it is notable in the 1985 paper, Salkovskis specifically defined responsibility as *including* thought control and beliefs. One example from the list of five dysfunctional assumptions that are likely to interact with intrusive thoughts is “one should (and can) exercise control over one’s thoughts” (p.579).

In the 1989 paper, Salkovskis also highlights the importance of thought suppression as an interpretation motivated response to intrusions; thought suppression is best thought of as a safety seeking behaviour (see below), and in the context of OCD a compulsion. The failure of thought suppression provides a further source of misinterpretation (Salkovskis, 1999), for example, “the fact that I think this even when I am fighting it means that I have completely lost control”.

Note also that beliefs about the importance of controlling thoughts do not appear to be universal in OCD, for example, in some contamination fears, some ordering and so on, suggesting that these beliefs may be important as a subset of responsibility beliefs, but are neither necessary nor sufficient in OCD.

#### **Refinement: Thought control, not neutralising?**

Clark and Purdon (1993) consider their most important proposed revision to be the suggestion that overt and covert neutralising rituals do *not* play a key role in the aetiology of obsessions. They suggest that obsessions result as a consequence of the failure of thought control strategies which may or may not include neutralising responses, but are “upstream”. They propose that careful examination of how individuals, who develop obsessions, evaluate their attempts to control unwanted intrusive thoughts is key. By contrast, cognitive behavioural theory suggests that poor or ironic thought control is firstly an effect of responsibility beliefs; that is, appraisals of the occurrence and/or content of intrusions leads to the imperative to exert control, which fails in an apparently paradoxical way; the failure to control thoughts then becomes the subject of further negative appraisals (“My horrible thoughts are like this even when I fight them; that means they are completely out of control, and I must try harder to control them and to ensure that there are no other consequences”). Note that, in addition to responsibility consequent beliefs of this type, there will also be counter-productive beliefs about the importance of monitoring thought occurrence and content. Self-focussed appraisals will also be important; “Only a vile person could have thoughts of this kind”). Within this framework, thought control strategies are safety seeking behaviours, along with mental arguments and other types of neutralising reactions and compulsions. Beliefs about control are simply a variation of responsibility beliefs, as are Thought Action Fusion (TAF) beliefs.

There is in fact some important experimental evidence for the important role of neutralising in both the magnification of discomfort and the establishment of more frequent neutralising. Essentially in both subclinical OCD (Salkovskis et al., 1997) and OCD ruminators (Salkovskis et al., 2003) encouraging neutralising in intrusive thoughts with responsibility implications has the effect of feeding back both to discomfort/anxiety and the urge to continue neutralising. There was also an indication that actual neutralising increased over and above the rated urge. Note that there is considerable similarity with the findings by van den Hout and Kindt (2003, 2004) and Radomsky (Radomsky, Gilchrist and Dussault, 2006; Coles, Radomsky and Horng, 2006), where repeated checking was shown to decrease certainty in memory.



Salkovskis (1989) highlighted the clinical imperative, which is that, in order to be able to control intrusive thoughts, the person experiencing them must be able to stop any efforts to do so. Clark and Purdon essentially draw a somewhat compatible conclusion, implying that the mechanism for achieving thought control might be through the challenging of the meta-beliefs associated with thought control.

### **Belief Domains: what matters?**

The Obsessive Compulsive Cognitions Working Group (OCCWG) was established in 1995 in order to clarify belief domains in OCD. As sometimes happens with such groups, the theoretical underpinnings became confused at times, leading in our view to a neglect of important distinctions (e.g. the OCD relevant/OCD specific distinction described above and in Salkovskis and Forrester, 2002). The group helpfully followed Salkovskis (1985, 1989) in separating assumptions from appraisals in conceptual and measurement terms. Less helpfully, the identified six belief domains regarded as pertinent to OCD; although it is clear that these are all OCD relevant, it is also clear that only some are specific and that some of the “categories” were not exclusive. The general belief (assumption) domains identified were (1) control of thoughts (2) importance of thoughts (3) responsibility (4) intolerance of uncertainty (5) overestimation of threat and (6) Perfectionism (OCCWG, 1997).

In terms of the cognitive-behavioural theory, overestimation of threat (and threat involvement in general) is relevant to the generation of anxiety appraisals, particularly if supplemented by other threat considerations (Salkovskis, 1986); however, it is not specific to OCD. By the same token intolerance of uncertainty, which appears to be transdiagnostically important and again not OCD specific, should be regarded in a quite different way. Specifically, those suffering from anxiety problems as well as those who do not but who believe themselves to be under serious threat had very poor levels of threat toleration; put simply, if one feels oneself to be in danger, then one becomes vigilant in ways which are likely to minimise threat and increase the chances of obtaining safety. Intolerance of uncertainty is a consequence of threat which may, in the right circumstances, contribute further to its perception as part of a feedback loop. Perfectionism, particularly in terms of “unrelentingly high standards” and “concern about mistakes” is clearly important across a range of problems including but not confined to anxiety and is of course relevant to OCD, but not specific. Essentially, this leaves, in addition to responsibility, beliefs concerning the control of thoughts and importance of thoughts. As discussed above, the second and third domains link closely to responsibility (for thoughts in this instance), and in our view become both OCD relevant and specific only when they have that characteristic. It is worth noting that a number of items from the Responsibility Assumptions Questionnaire (Salkovskis et al., 2000) were incorporated into the importance of thoughts and thought control factors of the Obsessive beliefs questionnaire and the interpretation of intrusions inventory (Occwg, 2003, 2005), the measure developed by the OCCWG. Consistent with this, the OCCWG also identified three key interpretation/appraisal domains as fundamental in the maintenance of OCD. These are (1) The importance of thoughts; (2) the control of thoughts and (3) Responsibility (Occwg, 1997); again items from the Responsibility Interpretations Questionnaire (Salkovskis et al., 2000) were incorporated into all three subscales.

### **Developments in the field: General Cognitive-behavioural theories of Anxiety and specific theories of OCD.**

Salkovskis (1985) originally sought to apply the general cognitive theory of Beck (1976) and the specific behavioural theory of OCD proposed by Rachman (1971, 1976) to the cognitive-behavioural understanding of OCD. Importantly, the general cognitive theory, particularly of anxiety has

progressed considerably and in ways which have helped to clarify the understanding outlined in the 1985 paper. Most relevant to the present discussion is the identification of safety seeking behaviours and their differentiation from other types of anxiety related behaviours, and the identification of the importance in treatment of developing and testing alternative, less threatening explanations, sometimes clinically called “Theory A/Theory B”.

The cognitive-behavioural theory of OCD has also been elaborated since 1993; a number of areas pertinent to the cognitive theory of obsessions have been further developed. The key developments in our view have been the (1) identification of the importance of the deployment of counter-productive stopping criteria in OCD and the link to elevated evidence requirements; (2) mental contamination and (3) clarification of the role of reassurance seeking as a type of “super check”.

### **Refining anxiety theory: Safety Seeking Behaviours**

In 1991 Salkovskis discussed the concept of “safety seeking behaviours” in the context of the importance of behaviour in maintaining threat beliefs and therefore anxiety from a cognitive perspective. Salkovskis (1991) described “safety seeking behaviours” as having the subjective effect of “saving” an individual from a perceived threat (involved in anxious stimuli and situations) leading the individual to the conclusion that their behaviour had prevented them from a probable danger. It is the behaviour (covert or overt) *with the intention of seeking safety* that plays an integral maintaining role in OCD by preventing the individual from obtaining alternative disconfirming information, preventing the unveiling of how the world really works. The dismantling and subsequent extinction of safety seeking behaviours has consequently become an integral part of cognitive behavioural therapy for OCD. This was further elaborated in Salkovskis (1996b); in particular, the distinction between “coping behaviour” and “safety seeking behaviour” was clarified.

In 2008 however, Rachman, Radomsky and Shafran proposed that the ‘judicious’ use of what they referred to as “safety behaviours” may not be detrimental, but may rather facilitate treatment sessions. They proposed that the careful use of such safety behaviours for a limited time in a limited manner may be useful in the early stages of treatment by making the treatment less threatening and demanding and increasing the individual’s sense of control, potentially making the treatment more acceptable resulting in fewer dropouts. Underpinning this they state that there is “no evidence that safety behaviours necessarily prevent disconfirmation of experiences” (Rachman et al., 2008, p.169) or “...always strengthen avoidance behaviours” (Rachman et al., 2008, p.169) and suggest that a reconsideration of safety behaviours be undertaken. The studies that have examined the use of supportive aids or behaviours historically (Bandura, Jeffery, & Wright, 1974; De Silva & Rachman, 1984; Rachman, Craske, Tallman, & Solyom, 1986) and more recently with specific phobias (Deacon, Sy, Lickel, & Nelson, 2010; Hood, Antony, Koerner, & Monson, 2010; Milosevic & Radomsky, 2008; Sy, Dixon, Lickel, Nelson, & Deacon, 2011) and contamination concerns (Rachman, Shafran, Radomsky, & Zysk, 2011; Van Den Hout, Engelhard, Toffolo, & Van Uijen, 2011) have had mixed findings and do not explore the intentionality underpinning the behaviour as a central concept to this work.

The key to this apparent contradiction lies in the terminology used. Salkovskis (1988, 1991, 1996b) deliberately and specifically used the term “safety seeking behaviour” rather than “safety behaviour” because of the explicit link with motivational issues; that is, the behaviour is not defined in terms of its objective effects, but rather the intention which drives it. So, if a person who is worried about contamination handles dog faeces in a sealed plastic bag, that’s a safety behaviour, but is it a safety seeking behaviour? We suggest that it is not because the primary intention of the behaviour is to *confront* their fear rather than to ensure safety *per se*. If the person wears rubber

gloves whenever out of their house, the behaviour supplements other safety seeking (such as avoidance) and is entirely threat focussed. The plastic bag behaviour is a way of facilitating approach; the use of the bag is best thought of as an “Approach Supporting Behaviour”. Effective treatment for anxiety usually involves a great many such approach supporting behaviours, where the intention is to provide scaffolding to enable the patient to confront their fears. Other examples would be therapist aided behavioural experiments, e.g. accompanying an agoraphobic into a supermarket to undertake behavioural experiments prior to sending them in on their own. Safety seeking behaviour is unhelpful. What can be helpful is approach supporting behaviour as part of an integrated cognitive behavioural strategy in which the person is using a strategy to more easily actively choose to confront their fears. Note that in such instances there is an explicit understanding that the approach supporting behaviour is a temporary device, a kind of scaffolding which the patient will remove as they become more confident in dealing with their feared situation.

To reiterate, the intention behind approach supporting behaviour is not to “seek safety” from a perceived imminent threat. The intention is instead to utilise this behaviour to enable the individual to move closer to the feared situation to aid in further exploration with the aim acquiring new information which can be used to disconfirm unhelpful beliefs and better understand the way their problems work. Clearly, such a distinction needs a clear view of the nature of the threat involved, which from the perspective of cognitive behavioural theory in OCD concerns not only the idea of harm, but the responsibility for bringing about or averting such harm. This has important implications for the way in which treatment progresses, and the extent to which responsibility is assumed by the therapist or family members.

### **“How treatment works”: Alternative explanations are central to effective treatment in anxiety in general and OCD in particular**

It is close to being an empirical truism to say that people experience anxiety because they regard particular situations or stimuli as more dangerous than they really are (Salkovskis, 1996b). From this, we can infer that a major element in treatment is the identification, discussion and evaluation (including active testing) of alternative, less threatening explanations of what is happening. So, for example, the person with OCD at initial assessment says “My problem is that I am horribly contaminated”. As assessment progresses and evolves into formulation and shared understanding, the therapist tentatively proposes an alternative; that this person is someone who highly values the idea of being clean, and as a result has become preoccupied with attempts to make sure that they are clean. Unfortunately, what then has happened is that the efforts to be completely sure that they are clean have “paradoxically” backfired, so they have become more preoccupied with their feared idea, and less certain of the extent of risk. They have also, as a result of their efforts, begun to feel more and more responsible for being completely certain that there is no risk at all of contamination and consequent harm. The solution has become the problem, and a problem without end.

Thus, the idea that there may be more than one way of appraising a situation has been explicitly refined within the context of the cognitive-behavioural treatment of anxiety in general and the treatment of OCD and health anxiety in particular (Salkovskis, 1996b). Drawing on the idiosyncratic but empirically grounded formulation that is collaboratively developed by the therapist and client, an alternative, less threatening explanation is derived and contrasted with the patients fears; this process is often referred to as “Theory A/Theory B”.

Individuals with OCD are caught by a specific way of viewing their situation and often only interpret their situation in this one way. The job of the therapist is to work with the individual to discover whether or not there might be other ways in which they can appraise their situation (Salkovskis, 1996b). Once an alternative explanation has been considered, the aim of therapy is for the merits and accuracy of the alternative to be considered against the individuals past, present and future experiences. This process allows the individual to discover where they may have been caught in their way of thinking and to explore other ways of thinking about their problem and how their problem might be working and being maintained.

When the client and the therapist work together to develop a shared understanding of the way the clients problem works the aim is not only to collaboratively develop this alternative less threatening interpretation but also to actively put it to the test by considering past experiences and setting up new experiences in the form of behaviours experiments. To do this it requires a clear understanding of the mechanisms involved in OCD in general and in the specific instance of the client concerned.

### **OCD theory: stopping criteria**

Within the cognitive theory of prolonged ritualising (Salkovskis, 1999) it has been suggested that individuals with OCD have low confidence in their recollection of a check and its outcome, and it is this which motivates repeated checking. It has been noted that people with OCD believe that they can only be completely certain when they effortfully achieve an internal feeling that things are “just right”. Wahl, Salkovskis and Cotter (2008) suggest that the use of internal effortful criteria characterise a particular type of decision making; that is, where decisions are extremely important or even “life or death”. For such decisions, a combination of external criteria and internal criteria such as mood state and general feeling state are appropriate and lengthy; this is sometimes referred to as “Elevated Evidence Requirements” (EER). These criteria are characterized by their reference to internal states of feelings or moods (“subjective criteria”), as opposed to criteria based on the perception of external observation (“objective criteria”). The inclusion of Elevated Evidence Requirements (ERR) in cognitive theory suggests that the termination of a compulsion requires large numbers of both subjective and objective criteria to be achieved before a decision can be made, with “just right” feelings central to this decision. However, such criteria are not typically used to make mundane decisions (such as whether hands have been washed enough or whether the door is locked), because the consequences are trivial. It is, however, key to our understanding of OCD that because of their misinterpretations in terms of threat and responsibility, the sufferer regards the failure to be certain as highly risky, and therefore deploys EER. This interacts with the paradoxical effects of neutralising and checking identified above, so the longer the person persists with their compulsive actions or thoughts in an attempt to be completely certain, the less confident they actually become.

Coles, Frost, Heimberg, and Rhéaume (2003) found within an undergraduate sample that the number of ‘not just right’ experiences correlated with washing symptoms. When comparing Obsessive washers with healthy controls and individuals with OCD for whom washing was not their primary problem, Wahl, Salkovskis, and Cotter (2008) found that obsessive washers reported using more subjective criteria to determine when to terminate a wash compared to the other groups. However both of the obsessional groups reported using more criteria to determine when to stop compared to healthy controls, suggesting that EER may be a strategy used by individuals with OCD more broadly in determining when to stop a compulsion.

Cougle, Goetz, Fitch, and Hawkins (2011) found in a non-clinical sample that the intensity of ‘not just right’ experiences was a consistent predictor of handwashing duration. They suggest that internal

reference criteria and 'not just right' experiences should not be viewed as mutually exclusive explanations for deciding when to terminate a compulsion. It may instead be that a combination of these is used by those with OCD when determining when to cease a compulsion.

### **OCD theory: Reassurance**

In 1985 Salkovskis discussed the role of reassurance seeking as a form of neutralisation where an individual seeks reassurance as a means of dispersing responsibility. Salkovskis (1999) further discussed reassurance seeking in the context of safety seeking behaviour, which is motivated by the perception of threat, with reassurance being sought as a means to achieve safety. Salkovskis proposes that reassurance seeking may be best conceptualised as type of "super-checking" behaviour, as it combines both the act of checking and the interpersonal transfer of responsibility. Unfortunately, as with other types of neutralising and checking described above, engagement with reassurance seeking undermines confidence both in the issue for which reassurance is being sought and in the veracity of the "reassuring" statements offered to them, resulting in a further feedback loop of the type which characterises other types of neutralising in OCD. The solution again becomes the problem.

### **OCD theory: Sensitivity to omission may be mediated by the occurrence of intrusive thoughts**

We have proposed a further link between the occurrence of intrusive cognitions and the perception of responsibility. Salkovskis (1996b) analysed the sensitivity shown by many patients suffering from obsessional problems to worry excessively about potential harm arising from possible omissions. He suggested that this observation actually arose from the occurrence of intrusive thoughts about harm which have the effect of transforming situations which required no decision into situations involving active choice concerning harm prevention. Consideration of the phenomenology of obsessional problems suggests several ways in which omissions may become relatively more important. For example, a person who walks over a sharp piece of glass could be regarded as having omitted to render the glass safe. In our daily lives, such situations abound. However, consider the person who walks over a sharp piece of glass and has the intrusion "A child might fall on that and be blinded". He or she now has to choose whether or not to seek to avert this possibility, transforming an omission situation into one where a choice has to be exercised (to act or not to act). This highlights the importance in judgements concerning responsibility of the perception of "agency", meaning that one has chosen to bring something about. Unfortunately, it is in the nature of obsessional problems that patients are troubled by intrusions which appear to represent foresight of a range of possible negative outcomes. That is, the intrusive thoughts often concern things which could go wrong unless dealt with (such as passing on contamination, having hurt someone accidentally, having left the door unlocked or the gas turned on). As described above, some people consider it their duty to try to foresee negative outcomes. However, if in any case a negative outcome is foreseen even as an intrusive thought, responsibility is established, because to do nothing the person would have to decide not to act to prevent the harmful outcome. That is, deciding not to act despite being aware of possible disastrous consequences becomes an active decision, making the person a causal agent in relation to those disastrous consequences. Thus, the occurrence of intrusive/obsessional thoughts transforms a situation where harm can only occur by omission into a situation where the person has "actively" chosen to allow the harm to take place. This might mean that the apparent absence of omission bias in obsessionals is mediated by the occurrence of obsessional thoughts. There is now some evidence supporting such a view (Wroe & Salkovskis, 2000; Wroe, Salkovskis, & Richards, 2000). It was found that non-clinical participants regarded their responsibility and likelihood of acting as being considerably increased by the occurrence of harm intrusions. By definition, many people suffering from OCD will experience such intrusions more frequently than those who do not.

This analysis can be extended further to apply to the development of obsessional problems by considering the circumstances under which harm arising from an omission is likely to be regarded as blameworthy. If I see that a donkey is not tied up and walk on, I would not usually be blamed for its escape. However, if my job is to stable donkeys, the situation changes considerably. That is, if I regard myself as having a duty to ensure the security of the donkey, then I could reasonably be regarded as being responsible for an omission which led to its escape. This analysis suggests that having a sense of duty to identify and prevent harm (such as by foreseeing all that could go wrong in a given situation) is likely to predispose to the development of obsessional problems.

Deciding not to do something in the face of realisation of the consequences results in a sense of "agency"; thus, a patient will not be concerned about sharp objects he or she has not seen, and will not be concerned if he or she did not consider the possibility of harm. However, if something is seen and it occurs to them that they could or should take preventative action, the situation changes because NOT acting becomes an active decision. In this way, the actual occurrence of intrusive thoughts of harm and/or responsibility for it come to play a key role in the perception of responsibility for their contents.

### **Rachman's take on cognitive behavioural approaches.**

Salkovskis theorising was firmly rooted in the work of Rachman and his development of behavioural theory and work with intrusive thoughts and obsessions. Rachman went on to build explicitly on cognitive conceptualisations in particularly helpful ways which also clarify some of the issues identified in Salkovskis 1985 paper.

### **Cognitive-behavioural Theory of Obsessions**

There can be little doubt that the early work of Rachman (e.g. Rachman, 1971) was crucial and central to the understanding and treatment of Obsessional problems. Rachman's work, in our view, has continued to be one of the most important influences on the development and refinement of treatments for OCD and laid the foundations for our current understanding. Not content with this, in 1997, Rachman synthesised the work of Salkovskis on obsessions (1985, 1989) and Clark (1986) on panic when he published a cognitive theory of obsessions; this was elaborated in his 1998 paper. Rachman proposed that obsessions are caused when an individual makes a catastrophic misinterpretation of the personal significance of their unwanted intrusive thoughts. Rachman (1997) argued that obsessions will persist providing misinterpretations continue and that obsessions will diminish if misinterpretations are weakened and altered. Importantly he emphasised that the content of ones obsessions is not random, and that there was a link to the person's underlying values and beliefs.

### **Cognitive-behavioural theory of checking**

In 2002 Rachman went on to describe a cognitive theory of compulsive checking. The theory was developed in an attempt to further develop the explanation for the nature and persistence of this problem and builds on the original work of Salkovskis (1985). The theory proposes that compulsive checking takes place when an individual who believes they have an elevated sense of responsibility for preventing harm (to others and themselves) is uncertain as to whether a perceived threat has been reduced or eliminated (Rachman, 2002). It is proposed that the intensity and the duration for which the check is carried out is influenced by three "multipliers" (although only the first multiplier is essential). These include 1. An inflated sense of responsibility (if this rises, compulsive checking increases), 2. Overestimation of the probability of harm (the more likely, the more checking) and 3. Overestimated expectations of the seriousness of the harm (the greater the perceived cost, the greater the level of checking). The recurrence of checking is promoted by a self-perpetuating

mechanism which has four factors which include 1. Increases in perceived responsibility after completing a check; 2. Increases in perceived probability of harm in response to their elevated level of responsibility; 3. An absence of a certain end to the threat, with no natural terminus the search for safety continues, and 4. Reduced confidence in memory. A number of research studies have consequently investigated metamemory in the context of repeated checking and have demonstrated that as a check is repeated a decline in memory confidence occurs.

As mentioned above, Van Den Hout and Kindt (2003) conducted a series of studies which involved non-clinical participants checking a virtual stove and providing ratings on their memory confidence, vividness and details of the virtual stove. It was found that memory confidence, vividness and details all decreased whilst memory accuracy remained unaffected. Research in recent years has replicated these findings both with undergraduate populations (Boschen, Wilson, & Farrell, 2011; Dek, Van Den Hout, Giele, & Engelhard, 2010; Linkovski, Kalanthroff, Henik, & Anholt, 2013; Van Den Hout & Kindt, 2004) utilising real objects (e.g. actual kitchen stoves) (Coles, Radomsky, & Horng, 2006; Fowle & Boschen, 2011; Radomsky, Dugas, Alcolado, & Lavoie, 2014; Radomsky, Gilchrist, & Dussault, 2006) and specifically with individuals who have OCD for whom checking is a primary part of their problem (Radomsky et al., 2014).

### **Contact and Mental Contamination**

Rachman (2004) defined contamination as an “intensive and persisting feeling of having been polluted or infected or endangered as a result of contact, direct or indirect, with a person/place/object that is perceived to be soiled, impure, infectious or harmful” (p.1229). In their earlier work, contamination fears were viewed as overlapping with simple phobias (Rachman & Hodgson, 1980) and the theoretical underpinning was based largely on the three pathways theory of fear acquisition (Rachman, 1977). It was identified however that this view did not account for the phenomenon in which an individual reports feeling contaminated in the absence of a contaminant. This phenomenon was first described as “pollution of the mind” (Rachman, 1994). This phenomena was then described by Rachman (2006) a decade later in his work on the fear of contamination, as “mental contamination”. Mental contamination is defined as a “feeling of being polluted, dirtied infected or endangered in the absence of a physical contaminant” (Rachman, 2006) and arises from violations which can be physical, moral or emotional in nature and are associated with immorality, betrayal, impurity and humiliation. Mental contamination can be provoked by memories, images or thoughts. The source of the contamination is often human, for example a perpetrator of a betrayal may in some cases become the source of the contaminant (Rachman, 2010). Or the contamination can be self-generated for example, if an individual felt that they have violated one of their own moral standards (Coughtrey, Shafran, Lee, & Rachman, 2012; Rachman, 2006). The location of the dirtiness is not confined to the hands or other body part, but is often described as being internal. At its simplest, individuals suffering from mental contamination may engage in washing not because they are dirty, but rather because they have been “treated like dirt” (Millar, Salkovskis & Brown, under review).

A number of experimental studies utilising the paradigm of the “dirty kiss” have been conducted to examine the phenomenon of mental contamination. In the first of these studies undergraduate female students who were asked to listen to a recording of an imagined scenario that involved them in a non-consensual kiss with a man, reported feeling more dirty on both the outside and inside, more immoral and ashamed and reported a greater urge to wash (Fairbrother, Newth, & Rachman, 2005). Five other studies have utilised the paradigm with different manipulations and varying results (Elliott & Radomsky, 2009, 2012; Herba & Rachman, 2007; Rachman, Radomsky, Elliott, & Zysk, 2012). Rachman’s novel approach to this previously neglected variant of OCD has opened up

fascinating new possibilities for improving both the understanding and treatment of OCD, and is likely to develop fruitfully over the next few years.

## **Conclusion**

Advances in psychological understanding of OCD over the last fifty years have been considerable. It is no longer seen as an incomprehensible and untreatable condition. Rather it is considered to be an exaggeration of otherwise normal processes that can, with the right help and support, be resolved partially or completely in most cases. This progress has been achieved through the interplay of theory, research in psychopathology and evaluation of the effectiveness of treatment itself, in an approach to treatment development which we consider can best be described as “Empirically Grounded Clinical Interventions” (Salkovskis, 2002). The contribution of the *Australian Psychologist* paper from Clark and Purdon in 1993 has been considerable in terms of stimulating debate and evaluation of theoretical predictions. Mostly the ways in which the paper sought to differentiate from the earlier work by Salkovskis (1985) were, it would seem, ill founded, probably because of the attempt to derive a purely cognitive rather than a cognitive-behavioural account. Nevertheless, the emphasis on the ego-syntonic/dystonic distinction has been productive. Also encouraging are the developments in cognitive-behavioural theory which have resulted in evolutionary developments both in the understanding and treatment of OCD. This is not the white-hot heat of new technology, but a gradual expansion of a person-centred way of making sense of and treating a massively debilitating and above all unnecessary psychological problem.

## **Key Points:**

### **What is already known about this topic:**

- \* Although OCD has been historically poorly understood and regarded pessimistically in treatment terms, the last 50 years have seen a transformation in both understanding and prognosis.
- \* In 1985 a cognitive behavioural theory of obsessions was published (Salkovskis) and in 1993 this was reviewed and critiqued in the *Australian Psychologist* by Clark and Purdon (1993), who also suggested alterations and in their view improvements for a cognitive theory of obsessions.
- \* Since 1993 understanding of OCD from a cognitive-behavioural perspective has progressed considerably through both theoretical refinements and clinically focussed research.

### **What this topic adds:**

- \* This paper revisits and critiques Clark and Purdon’s (1993) paper and its suggested elaboration in terms of a cognitive theory of obsessions.
- \* This paper provides an overview of the key more recent developments in the field which have made a major contribution not only to our understanding of OCD but also the further development of empirically grounded and evidence based treatment for OCD.



## References

- Bandura, A., Jeffery, R.W., & Wright, C.L. (1974). Efficacy of participant modeling as a function of response induction aids. *Journal of Abnormal Psychology, 83*(1), 56-64. doi: 10.1037/h0036258
- Boschen, M.J., Wilson, K.L., & Farrell, L.J. (2011). Attenuating memory distrust in a repeated checking task. *Behaviour Research and Therapy, 49*(8), 466-471. doi: <http://dx.doi.org/10.1016/j.brat.2011.05.001>
- Clark, D.M., Ball, S., & Pape, D. (1991). An experimental investigation of thought suppression. *Behaviour Research and Therapy, 29*, 253-257.
- Clark, D.A., & Purdon, C. (1993). New perspectives for a cognitive theory of obsessions. *Australian Psychologist, 28*(3), 161-167.
- Clark, D.M. (1986). A cognitive approach to panic. *Behaviour Research and Therapy, 24*(4), 461-470. doi: [http://dx.doi.org/10.1016/0005-7967\(86\)90011-2](http://dx.doi.org/10.1016/0005-7967(86)90011-2)
- Coles, M.E., Frost, R.O., Heimberg, R.G., & Rhéaume, J. (2003). "Not just right experiences": perfectionism, obsessive-compulsive features and general psychopathology. *Behaviour Research and Therapy, 41*(6), 681-700. doi: [http://dx.doi.org/10.1016/S0005-7967\(02\)00044-X](http://dx.doi.org/10.1016/S0005-7967(02)00044-X)
- Coles, M.E., Radomsky, A.S., & Horng, B. (2006). Exploring the boundaries of memory distrust from repeated checking: Increasing external validity and examining thresholds. *Behaviour Research and Therapy, 44*(7), 995-1006. doi: <http://dx.doi.org/10.1016/j.brat.2005.08.001>
- Conway, M., Howell, A., & Giannopoulos, C. (1991). Dysphoria and thought suppression. *Cognitive Therapy and Research, 15*(2), 153-166.
- Coughtrey, A.E., Shafran, R., Lee, M., & Rachman, S.J. (2012). It's the Feeling Inside My Head: A Qualitative Analysis of Mental Contamination in Obsessive-Compulsive Disorder. *Behavioural and Cognitive Psychotherapy, 40*(02), 163-173. doi: doi:10.1017/S1352465811000658
- Cogle, J.R., Goetz, A.R., Fitch, K.E., & Hawkins, K.A. (2011). Termination of washing compulsions: A problem of internal reference criteria or 'not just right' experience? *Journal of Anxiety Disorders, 25*(6), 801-805. doi: <http://dx.doi.org/10.1016/j.janxdis.2011.03.019>
- De Silva, P., & Rachman, S. (1984). Does escape behaviour strengthen agoraphobic avoidance? A preliminary study. *Behaviour Research and Therapy, 22*(1), 87-91. doi: [http://dx.doi.org/10.1016/0005-7967\(84\)90038-X](http://dx.doi.org/10.1016/0005-7967(84)90038-X)
- Deacon, B.J., Sy, J.T., Lickel, J.J., & Nelson, E.A. (2010). Does the judicious use of safety behaviors improve the efficacy and acceptability of exposure therapy for claustrophobic fear? *Journal of Behavior Therapy and Experimental Psychiatry, 41*(1), 71-80. doi: <http://dx.doi.org/10.1016/j.jbtep.2009.10.004>
- Dek, E.C.P., Van Den Hout, M.A., Giele, C.L., & Engelhard, I.M. (2010). Repeated checking causes distrust in memory but not in attention and perception. *Behaviour Research and Therapy, 48*(7), 580-587. doi: <http://dx.doi.org/10.1016/j.brat.2010.03.009>
- Elliott, C.M., & Radomsky, A.S. (2009). Analyses of mental contamination: Part I, experimental manipulations of morality. *Behaviour Research and Therapy, 47*(12), 995-1003. doi: <http://dx.doi.org/10.1016/j.brat.2009.03.004>
- Elliott, C.M., & Radomsky, A.S. (2012). Mental contamination: The effects of imagined physical dirt and immoral behaviour. *Behaviour Research and Therapy, 50*(6), 422-427. doi: <http://dx.doi.org/10.1016/j.brat.2012.03.007>
- Fairbrother, N., Newth, S.J., & Rachman, S. (2005). Mental pollution: feelings of dirtiness without physical contact. *Behaviour Research and Therapy, 43*(1), 121-130. doi: <http://dx.doi.org/10.1016/j.brat.2003.12.005>
- Fowle, H.J., & Boschen, M.J. (2011). The impact of compulsive cleaning on confidence in memory and cleanliness. *Journal of Anxiety Disorders, 25*(2), 237-243. doi: <http://dx.doi.org/10.1016/j.janxdis.2010.09.008>

- Freeston, M.H., Ladouceur, R., Rhéaume, J., Letarte, H., Gagnon, F., & Thibodeau, N. (1994). Self-report of obsessions and worry. *Behaviour Research and Therapy*, 32(1), 29-36.
- Freeston, M.H., Ladouceur, R., Thibodeau, N., & Gagnon, F. (1991). Cognitive intrusions in a non-clinical population. I. Response style, subjective experience, and appraisal. *Behaviour Research and Therapy*, 29(6), 585-597. doi: [http://dx.doi.org/10.1016/0005-7967\(91\)90008-Q](http://dx.doi.org/10.1016/0005-7967(91)90008-Q)
- Gittleson, N. (1966). The fate of obsessions in depressive psychosis. *The British Journal of Psychiatry*.
- Goodman, W.K., Mcdougle, C.J., & Price, L.H. (1992). The role of serotonin and dopamine in the pathophysiology of obsessive compulsive disorder. *International Clinical Psychopharmacology*, 7(Suppl 1), 35-38. doi: 10.1097/00004850-199206001-00009
- Herba, J.K., & Rachman, S. (2007). Vulnerability to mental contamination. *Behaviour Research and Therapy*, 45(11), 2804-2812. doi: <http://dx.doi.org/10.1016/j.brat.2007.07.010>
- Hood, H.K., Antony, M.M., Koerner, N., & Monson, C.M. (2010). Effects of safety behaviors on fear reduction during exposure. *Behaviour Research and Therapy*, 48(12), 1161-1169. doi: <http://dx.doi.org/10.1016/j.brat.2010.08.006>
- Insel, T.R. (1992). Toward a neuroanatomy of obsessive-compulsive disorder. *Archives of General Psychiatry*, 49(9), 739-744.
- Julien, D., O'connor, K.P., & Aardema, F. (2007). Intrusive thoughts, obsessions, and appraisals in obsessive-compulsive disorder: A critical review. *Clinical Psychology Review*, 27(3), 366-383. doi: <http://dx.doi.org/10.1016/j.cpr.2006.12.004>
- Linkovski, O., Kalanthroff, E., Henik, A., & Anholt, G. (2013). Did I turn off the stove? Good inhibitory control can protect from influences of repeated checking. *Journal of behavior therapy and experimental psychiatry*, 44(1), 30-36.
- Millar, J.F.A., Salkovskis, P.M., Brown, C. (under review). Mental contamination in “the dirty kiss”: Imaginal betrayal or bodily fluids?.
- Milosevic, I., & Radomsky, A.S. (2008). Safety behaviour does not necessarily interfere with exposure therapy. *Behaviour Research and Therapy*, 46(10), 1111-1118. doi: <http://dx.doi.org/10.1016/j.brat.2008.05.011>
- Purdon, C., Cripps, E., Faull, M., Joseph, S., & Rowa, K. (2007). Development of a measure of egodystonicity. *Journal of Cognitive Psychotherapy*, 21(3), 198-216.
- Rachman, S. (1971). Obsessional ruminations. *Behaviour Research and Therapy*, 9(3), 229-235. doi: [http://dx.doi.org/10.1016/0005-7967\(71\)90008-8](http://dx.doi.org/10.1016/0005-7967(71)90008-8)
- Rachman, S. (1976). The modification of obsessions: A new formulation. *Behaviour Research and Therapy*, 14(6), 437-443. doi: Doi: 10.1016/0005-7967(76)90090-5
- Rachman, S. (1977). The conditioning theory of fearacquisition: A critical examination. *Behaviour Research and Therapy*, 15(5), 375-387. doi: [http://dx.doi.org/10.1016/0005-7967\(77\)90041-9](http://dx.doi.org/10.1016/0005-7967(77)90041-9)
- Rachman, S. (1994). Pollution of the mind. *Behaviour Research and Therapy*, 32(3), 311-314. doi: [http://dx.doi.org/10.1016/0005-7967\(94\)90127-9](http://dx.doi.org/10.1016/0005-7967(94)90127-9)
- Rachman, S. (1997). A cognitive theory of obsessions. *Behaviour Research and Therapy*, 35(9), 793-802. doi: Doi: 10.1016/s0005-7967(97)00040-5
- Rachman, S. (1998). A cognitive theory of obsessions: elaborations. *Behaviour Research and Therapy*, 36(4), 385-401. doi: Doi: 10.1016/s0005-7967(97)10041-9
- Rachman, S. (2002). A cognitive theory of compulsive checking. *Behaviour Research and Therapy*, 40(6), 625-639. doi: Doi: 10.1016/s0005-7967(01)00028-6
- Rachman, S. (2004). Fear of contamination. *Behaviour Research and Therapy*, 42(11), 1227-1255. doi: <http://dx.doi.org/10.1016/j.brat.2003.10.009>
- Rachman, S. (2006). *The fear of contamination: Assessment and treatment*: Oxford University Press, USA.
- Rachman, S. (2010). Betrayal: A psychological analysis. *Behaviour Research and Therapy*, 48(4), 304-311. doi: <http://dx.doi.org/10.1016/j.brat.2009.12.002>

- Rachman, S., Craske, M., Tallman, K., & Solyom, C. (1986). Does escape behavior strengthen agoraphobic avoidance? A replication. *Behavior Therapy*, 17(4), 366-384. doi: [http://dx.doi.org/10.1016/S0005-7894\(86\)80069-7](http://dx.doi.org/10.1016/S0005-7894(86)80069-7)
- Rachman, S., & Hodgson, R. (1980). *Obsessions and compulsions*: Prentice Hall.
- Rachman, S., Radomsky, A.S., Elliott, C.M., & Zysk, E. (2012). Mental contamination: The perpetrator effect. *Journal of Behavior Therapy and Experimental Psychiatry*, 43(1), 587-593. doi: <http://dx.doi.org/10.1016/j.jbtep.2011.08.002>
- Rachman, S., Radomsky, A.S., & Shafran, R. (2008). Safety behaviour: A reconsideration. *Behaviour Research and Therapy*, 46(2), 163-173. doi: <http://dx.doi.org/10.1016/j.brat.2007.11.008>
- Rachman, S., Shafran, R., Radomsky, A.S., & Zysk, E. (2011). Reducing contamination by exposure plus safety behaviour. *Journal of Behavior Therapy and Experimental Psychiatry*, 42(3), 397-404. doi: <http://dx.doi.org/10.1016/j.jbtep.2011.02.010>
- Radomsky, A.S., Dugas, M.J., Alcolado, G.M., & Lavoie, S.L. (2014). When more is less: Doubt, repetition, memory, metamemory, and compulsive checking in OCD. *Behaviour Research and Therapy*, 59(0), 30-39. doi: <http://dx.doi.org/10.1016/j.brat.2014.05.008>
- Radomsky, A.S., Gilchrist, P.T., & Dussault, D. (2006). Repeated checking really does cause memory distrust. *Behaviour Research and Therapy*, 44(2), 305-316. doi: <http://dx.doi.org/10.1016/j.brat.2005.02.005>
- Salkovskis, P.M. (1985). Obsessional-compulsive problems: A cognitive-behavioural analysis. *Behaviour Research and Therapy*, 23(5), 571-583. doi: 10.1016/0005-7967(85)90105-6
- Salkovskis, P.M. (1989). Cognitive-behavioural factors and the persistence of intrusive thoughts in obsessional problems. *Behaviour Research and Therapy*, 27(6), 677-682. doi: [http://dx.doi.org/10.1016/0005-7967\(89\)90152-6](http://dx.doi.org/10.1016/0005-7967(89)90152-6)
- Salkovskis, P.M. (1991). The Importance of Behaviour in the Maintenance of Anxiety and Panic: A Cognitive Account. *Behavioural and Cognitive Psychotherapy*, 19(01), 6-19. doi: doi:10.1017/S0141347300011472
- Salkovskis, P.M. (1996a). Cognitive-behavioural approaches to the understanding of obsessional problems. In R. M. Rapee (Ed.), *Current controversies in the anxiety disorders* (pp. 103-133). New York: Guilford Press.
- Salkovskis, P.M. (1996b). The cognitive approach to anxiety: threat beliefs, safety-seeking behaviour, and the special case of health anxiety and obsessions. *Frontiers of cognitive therapy*. Nueva York: Guilford.
- Salkovskis, P. M. (1998). Psychological approaches to the understanding of obsessional problems. *Obsessive-compulsive disorder: Theory, research, and treatment*, 33-50.
- Salkovskis, P.M. (1999). Understanding and treating obsessive—compulsive disorder. *Behaviour Research and Therapy*, 37, Supplement 1(0), S29-S52. doi: [http://dx.doi.org/10.1016/S0005-7967\(99\)00049-2](http://dx.doi.org/10.1016/S0005-7967(99)00049-2)
- Salkovskis, P.M. & Forrester, E., (2002). Responsibility. In: Frost, R. O. and Steketee, G., eds. *Cognitive Approaches to Obsessions and Compulsions: Theory, Assessment and Treatment*. Amsterdam, Netherlands: Pergamon/Elsevier Science, pp. 45-61.
- Salkovskis, P. M., Thorpe, S. J., Wahl, K., Wroe, A. L., & Forrester, E. (2003). Neutralizing increases discomfort associated with obsessional thoughts: an experimental study with obsessional patients. *Journal of Abnormal Psychology*, 112(4), 709.
- Salkovskis, P.M., & Freeston, M.H. (2001). Obsessions, compulsions, motivation, and responsibility for harm. *Australian Journal of Psychology*, 53(1), 1-6. doi: 10.1080/00049530108255113
- Salkovskis, P. M., Westbrook, D., Davis, J., Jeavons, A., & Gledhill, A. (1997). Effects of neutralizing on intrusive thoughts: An experiment investigating the etiology of obsessive-compulsive disorder. *Behaviour Research and Therapy*, 35(3), 211-219.
- Salkovskis, P. M., Wroe, A. L., Gledhill, A., Morrison, N., Forrester, E., Richards, C., & Thorpe, S. (2000). Responsibility attitudes and interpretations are characteristic of obsessive compulsive disorder. *Behaviour Research and Therapy*, 38(4), 347-372.

- Sy, J.T., Dixon, L.J., Lickel, J.J., Nelson, E.A., & Deacon, B.J. (2011). Failure to replicate the deleterious effects of safety behaviors in exposure therapy. *Behaviour Research and Therapy*, 49(5), 305-314. doi: <http://dx.doi.org/10.1016/j.brat.2011.02.005>
- Teasdale, J.D. (1983). Negative thinking in depression: Cause, effect, or reciprocal relationship? *Advances in Behaviour Research and Therapy*, 5(1), 3-25. doi: [http://dx.doi.org/10.1016/0146-6402\(83\)90013-9](http://dx.doi.org/10.1016/0146-6402(83)90013-9)
- Van Den Hout, M., Engelhard, I.M., Toffolo, M.B.J., & Van Uijen, S.L. (2011). Exposure plus response prevention versus exposure plus safety behaviours in reducing feelings of contamination, fear, danger and disgust. An extended replication of Rachman, Shafran, Radomsky & Zysk (2011). *Journal of Behavior Therapy and Experimental Psychiatry*, 42(3), 364-370. doi: <http://dx.doi.org/10.1016/j.jbtep.2011.02.009>
- Van Den Hout, M., & Kindt, M. (2003). Repeated checking causes memory distrust. *Behaviour Research and Therapy*, 41(3), 301-316. doi: [http://dx.doi.org/10.1016/S0005-7967\(02\)00012-8](http://dx.doi.org/10.1016/S0005-7967(02)00012-8)
- Van Den Hout, M., & Kindt, M. (2004). Obsessive-compulsive disorder and the paradoxical effects of perseverative behaviour on experienced uncertainty. *Journal of Behavior Therapy and Experimental Psychiatry*, 35(2), 165-181. doi: <http://dx.doi.org/10.1016/j.jbtep.2004.04.007>
- Wahl, K., Salkovskis, P.M., & Cotter, I. (2008). 'I wash until it feels right': The phenomenology of stopping criteria in obsessive-compulsive washing. *Journal of Anxiety Disorders*, 22(2), 143-161. doi: DOI: 10.1016/j.janxdis.2007.02.009
- Wegner, D.M., Schneider, D.J., Carter, S.R., & White, T.L. (1987). Paradoxical effects of thought suppression. *Journal of Personality and Social Psychology*, 53, 5-13.
- Wegner, D.M., Schneider, D.J., Knutson, B., & McMahon, S.R. (1991). Polluting the stream of consciousness: The effect of thought suppression on the mind's environment. *Cognitive Therapy and Research*, 15, 141-152.
- Wenzlaff, R.M., Wegner, D.M., & Roper, D.W. (1988). Depression and mental control: the resurgence of unwanted negative thoughts. *Journal of personality and social psychology*, 55(6), 882-892.
- Wroe, A. L., & Salkovskis, P. M. (2000). Causing harm and allowing harm: A study of beliefs in obsessional problems. *Behaviour Research and Therapy*, 38(12), 1141-1162.
- Wroe, A. L., Salkovskis, P. M., & Richards, H. (2000). "Now I know it could happen, I have to prevent it": A clinical study of the specificity of intrusive thoughts and the decision to prevent harm. *Behavioural and Cognitive Psychotherapy*, 28(01), 63-70.