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Cognitive–behavioural approach to understanding obsessional thinking

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Background Obsessional ruminations (obsessions without any accompanying overt compulsive behaviour) were previously considered especially difficult to treat.

Method Cognitive–behavioural theory regarding obsessional problems is discussed. Strategies for therapy developed on the basis of this theory are reviewed.

Results The cognitive–behavioural theory of obsessive–compulsive disorder proposes that obsessional problems occur as a consequence of the particular meaning or significance which patients attach to the occurrence and/or content of intrusive thoughts. When intrusions are interpreted (appraised) as indicating increased personal responsibility, this results in both distress and the occurrence of neutralising behaviour. Cognitive–behavioural treatment seeks to change responsibility beliefs and appraisals, and thereby reduce distress and eliminate neutralising responses which usually occur as covert neutralising (mental rituals). Evidence is emerging for the success of therapy developed on this theoretical basis.

Conclusions Recent developments in the psychological conceptualisation of obsessional ruminations have improved the prospects for successful therapy.

Until recently, obsessional rumination (obsessional thinking without overt behavioural ritualising) was regarded as a particularly unresponsive form of obsessive–compulsive disorder (OCD). This situation has now changed as a result of two developments initiated by the Oxford OCD Treatment Research Group and colleagues in other centres, particularly Quebec. First, a re-analysis of obsessional ruminations from a behavioural perspective reveals a failure to exploit fully the behavioural theory. Second, the development of a cognitive–behavioural hypothesis has added new dimensions to both the understanding and the treatment of obsessional problems in general and obsessional thinking in particular. In this paper the basic psychopathology of obsessional problems will be described, followed by an outline of the behavioural theory of the maintenance of obsessions and their treatment. The way in which the cognitive theory extends the behavioural approach is explained by first describing the general cognitive theory of anxiety and then its more specific application to obsessional problems. Finally, cognitive–behavioural treatment (CBT) of obsessional thinking is described.

OBSESSIVE–COMPULSIVE DISORDER: THE BASIC PHENOMENA

Obsessions are unwanted and intrusive thoughts, images (mental pictures) and impulses (urges). They are usually regarded by the individual experiencing them as repugnant, senseless, unacceptable and difficult to dismiss. Commonly, specific triggering stimuli can provoke obsessions. Once an obsession occurs, it is accompanied by feelings of discomfort (often a blend of depression/dysphoria and anxiety), and the urge to neutralise (put right) the obsession (or its perceived consequences). Neutralising most commonly takes the form of compulsive behaviour (such as washing or checking). Compulsive or neutralising behaviours are usually carried out in a stereotyped way or according to idiosyncratically defined 'rules', and are associated with temporary anxiety relief or the expectation that anxiety would have increased had ritualising not been carried out. Neutralising behaviours also include changes in mental activity, such as deliberately thinking a different thought in response to an obsessional thought. Patients also develop avoidance behaviours, particularly avoiding situations which could trigger obsessional thoughts.

Obsessive–compulsive phenomena are usually divided into obsessional thoughts without obvious compulsive behaviours (obsessional ruminations) and obsessions with overt compulsions (obsessional ritualising) (Rachman & Hodgson, 1980). This simple division of obsessive–compulsive phenomena into overt and covert manifestations probably conceals important functional qualities. The psychological model of obsessions (Rachman, 1978) emphasises the functional significance of overt and covert compulsions (known collectively as neutralising behaviours). On this basis, obsessions are the intrusive thoughts, images, and impulses which are involuntary and automatic and are accompanied by increasing anxiety, whereas neutralising (overt and covert compulsive behaviour) is voluntary, controlled behaviour which the patient carries out with the intention of reducing anxiety (or the risk of harm). Covert neutralising behaviour can be identical in many respects to the obsessional thoughts. An example was a patient who had the obsessional thought that a stranger would be violent towards him; if this thought occurred, he would have to make himself have the thought again (i.e. an even number of times) in order to feel better. This could lead to long sequences of intrusion–neutralising–intrusion–neutralising–intrusion . . . and so on, giving a chain of thoughts which differed in function, but not in their content.

BEHAVIOURAL THEORY OF OBSESSIVE–COMPULSIVE DISORDERS

The basis of the behavioural model is that obsessions are internal stimuli which have become the focus of anxiety as the result

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of learning experiences. Following traumatic conditioning experiences, such anxiety would be expected to diminish as obsessions recur unless the person experiencing them engages in some kind of escape behaviour (e.g. hand-washing, checking behaviours). When such escape behaviours are adopted, an immediate reduction in anxiety is experienced preventing exposure and therefore habituation. The anxiety relief is 'negatively reinforcing' and increases the likelihood of future occurrences of the same behaviour. As this cycle repeats itself, the escape behaviour becomes more stereotyped, and an obsessional ritual has been established which has the effect of preventing extinction of the conditioned anxiety associated with the obsession. In summary, avoidance prevents exposure to the feared thoughts, and compulsions (overt or covert) terminate exposure; both types of behaviour prevent the patient from confronting (being exposed to) his or her feared thoughts and situations. Based on this model, treatment involves exposing patients to the feared stimuli, while encouraging them to block any behaviours which prevent or terminate this exposure.

This theory stipulates that compulsive behaviours are crucial to the maintenance of obsessional problems. Obsessional ruminations are, by definition, obsessions where there is no overt compulsive behaviour. Salkovskis & Westbrook (1989) highlighted the prevalence and importance of 'covert' compulsive behaviour, which appears to be invariably present in some form in obsessional rumination. Obsessions without overt compulsions can be considered as a type of OCD in which avoidance and compulsive activity are almost totally covert and are therefore especially difficult to gain access to and control. The term 'obsessional ruminations' is confusing because it has been used indiscriminately to describe both obsessions and mental neutralising. For example, a patient reported that she had thoughts and images about her family dying; she would ruminate about these thoughts for periods of up to three hours at a time. Careful questioning elicited two functionally different types of thoughts: first, she had intrusive thoughts such as, 'My son is dead'. If she had thoughts like this, she would neutralise them by making herself have the thought, 'My son is NOT dead' and by forming a clear image of her son carrying out normal activities.

The behavioural model of obsessional problems thus requires only slight extension, acknowledging the role of mental neutralising and avoidance behaviours which are difficult to detect and control. The underlying principle that anxiety can be reduced by repeated exposure to the feared thoughts remains, if there are no overt or covert responses which terminate or avoid exposure.

A further specific consideration is that rapid and enduring anxiety reduction is best achieved by ensuring that stimuli to which the patient is exposed occur as predictably as possible. In obsessions without overt compulsions, exposure is to thoughts, and these are more difficult to make predictable than the stimuli used in exposure with obsessions with overt compulsions. Variables such as vividness, time of onset, speed of onset, intensity, duration, rate of occurrence, and the actual detailed content of the thoughts are all beyond the control of the patient and the therapist, and usually vary from presentation to presentation. Although habituation might eventually occur even with irregular presentation of thoughts, this is not evident to the patient, who may therefore continue to neutralise ('It's the only way I can feel any better') or even abandon treatment.

DISTINGUISHING BETWEEN OBSESSIONAL AND NEUTRALISING THOUGHTS

Obsessions and neutralising thoughts are mixed together in the cognitive domain, and discriminating between them is crucial to treatment. Intrusive, involuntary thoughts which produce anxiety must be differentiated from thoughts which the patient deliberately initiates by voluntary effort and which are intended to reduce anxiety or risk. There may also be covert avoidance behaviours, such as attempts not to think particular thoughts. Avoidance is not defined in terms of how successful it is in preventing anxiety, but rather in terms of what the behaviour is intended to do. Covert avoidance and neutralising are assessed by asking the patient about any mental efforts that are made because of the problem.

For example, a patient felt compelled to think every 'bad' thought an even number of times. He spent much of his day trying not to have 'bad' thoughts (avoidance); these efforts were frequently followed by thoughts such as, 'I never liked my father' (obsession). He would then have to think, 'I never liked my father' again (neutralising) and try to stop (avoidance); this cycle then repeated. The obsessional thought can become a neutralising thought if there is voluntary effort; for example the patient who makes himself think particular thoughts before they occur on their own.

BEHAVIOURAL TREATMENT OF OBSESSIONAL THOUGHTS

Revised habituation training (Salkovskis & Kirk, 1989; Salkovskis & Westbrook, 1989) is based on the idea that the practical task early in habituation training is repeatedly and predictably to elicit thoughts over the period required for anxiety reduction, while at the same time preventing any covert avoidance and neutralising behaviours. Once habituation to predictable stimuli has been achieved, treatment progresses to more unpredictable stimuli and habituation while the patient is anxious.

Treatment begins with a detailed discussion of the problem formulation, with emphasis on the unpredictability of thoughts and the role of covert neutralising. The rationale for habituation training with response prevention is introduced by drawing attention to the way in which avoidance prevents the patient from confronting anxiety and getting used to it. Neutralising thoughts are similarly discussed. Once these principles have been agreed, the patient is asked whether this suggests ways of dealing with the problem (i.e. that you can 'get used to the upsetting thoughts without doing anything about them').

In order to present the thoughts repeatedly in a predictable way, a number of strategies are possible: (a) deliberate thought evocation ('form the thought, hold it until I say, then pause; repeat this several times'); (b) writing the thought down repeatedly; and (c) listening to a 'loop tape' of the thought in the patient's own voice.

A combination of these strategies can be particularly powerful, beginning with the loop tape. The patient is asked to record an intrusive thought or a series of the same thought for 30 seconds. For example, a patient might record the thought, 'I may harm my son, I may stab him with the kitchen knife so that he bleeds to death'. It is very important that no neutralising thoughts are included on the tape. The

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loop cassette (which can be bought from audio stores) will then continuously repeat the intrusive thoughts on a 30-second cycle. The patient is instructed to listen to the tape as closely as possible, without any neutralising, for 10 presentations. After each presentation, discomfort and urge to neutralise are rated on 0–100 scales. After listening to the tape, any urges to avoid or neutralise are discussed in detail; if any actually took place during or after the tape, ways of preventing this are discussed and tried out with the tape for a further 10 presentations until a non-neutralised presentation is achieved. This may involve changing the content of the tape, adding another thought (perhaps on the other audio channel), closing the eyes, playing through headphones, producing an image to go with the thought, or whatever else might prevent neutralising. The tape is then played continuously for about 15 minutes with ratings of discomfort and urges to neutralise made at intervals of, for instance, three minutes. Any difficulties with avoidance and neutralising are again discussed.

The patient is asked to practise with the tape at least twice daily for periods of at least an hour, preferably until anxiety has reduced to 50% of its highest level during the practice session. Response prevention of any neutralising is again stressed. In addition, the patient is asked to eliminate any neutralising which occurs throughout the day and to keep records of the occurrence of thoughts, discomfort, and urges to neutralise. In subsequent sessions, difficulties experienced with the homework tape or self-directed response prevention are discussed. All activity directed at avoiding or terminating the obsessional thoughts should be identified and prevented. Once the patient can listen to the tape without neutralising and with only minimal anxiety occurring, then the thought on the tape is changed and the procedure repeated with a new thought. Once the patient has habituated to one or two thoughts, there is usually generalisation to other thoughts, which become less distressing. This can be checked by reference to the patient's diaries. Specific techniques to enhance generalisation can then be employed. These include:

(a) having the patient listen to the tape in very difficult situations, possibly using a personal stereo (e.g. patients with thoughts about harming people in the street can listen to the tape while out walking);

(b) getting the patient to listen to the tape while anxious, either from naturally occurring stresses (e.g. going to the dentist, capitalising on natural mood variations) or for contrived reasons (e.g. imagining a stressful situation or using mood-induction procedures (Clark 1983)); and

(c) deliberate variation of the taped habituation (e.g. using a non-looped cassette tape, varying the thoughts' content, loudness, vividness, and so on); loud noises can be introduced into the tape to elicit startle responses.

Finally, the patient is asked to provoke thoughts deliberately, proceeding through a similar sequence of using single thoughts, multiple thoughts, in a range of situations, and so one, without neutralising.

Recent cognitive approaches draw upon this type of strategy in the treatment of obsessional rumination, but the treatment is further enhanced by embedding it in a detailed cognitive rationale. Bringing about belief changes prior to exposure of this type increases compliance and speeds up the rate of improvement. Exposure ceases to be an atheoretical technique and can be clinically enhanced by an understanding of the way in which it can be used to bring about belief change in specific and focused ways (as behavioural experiments). Before considering the way in which the cognitive theory is applied to obsessional thinking, the general ideas behind the cognitive approach are outlined to provide a more general context.

THE COGNITIVE APPROACH: THE GENERAL MODEL AS APPLIED TO ANXIETY DISORDERS

Beck's (1976) cognitive model of emotion is based on the assumption that emotions are experienced as a result of the way in which events are interpreted or appraised. The meaning of events triggers emotions rather than the events themselves. The particular appraisal made will depend on the context in which an event occurs, the mood the person is in at the time it occurs, and the person's past experiences. Particular types of emotions depend upon this specific interpretation. Effectively this means that the same event can evoke a different emotion in different people, or even different emotions in the same person on different occasions. Research into specificity of emotions lends support to this view: the interpretations made by depressed persons tend to focus on loss, anxiety is characterised by threat/danger interpretations, guilt by the idea of having violated important personal rules, and so on.

Although not adopting a pathological view of anxiety disorders such as OCD, the cognitive hypothesis does specify circumstances under which otherwise normal cognitive processes can become 'stuck', resulting in the excessive and disabling levels of anxiety that are experienced by people who suffer from anxiety disorders. The factors involved in the occurrence of more severe and persistent anxiety can be divided into two categories: (a) factors which lead people to experience relatively greater levels of anxiety; and (b) factors involved in the maintenance of high levels of anxiety.

Factors which increase the degree of anxiety experience

Fundamental to the cognitive theory of the development of emotional disorders (Beck, 1976) is the notion that people are more likely to interpret situations as more dangerous than they really are because of particular assumptions or beliefs which they learned during an earlier period in their life. Such beliefs may have been useful during that earlier stage of the person's life, but may become problematic when new situations arise which call for a different type of understanding. Examples of this kind of belief would be, 'It is important to be perfectly calm at all times'; 'If I don't control myself then I am in danger of losing control'; 'I must not show my feelings'; 'If I don't worry about things, then everything will go wrong for me'. Apart from general assumptions about anxiety itself, there are other types of assumptions which characterise different disorders such as panic, social phobia, OCD, hypochondriasis, and so on. Life events or other 'critical incidents' can result in the activation of this type of assumption resulting in a more or less continuous interpretation of a range of situations in an unduly threatening way (Beck, 1976).

A second, related factor involved in the production of excessive anxiety concerns the specific appraisal of threat itself. Most commonly, the cognitive model is viewed as specifying that people who suffer from anxiety tend to overestimate the likelihood of threat. However, Beck *et al* (1985) describe a much broader and more useful

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conceptualisation of the cognitive component of anxiety. This can be summarised by the following equation:

$$\frac{\text{perceived probability of threat} \times \text{perceived cost/awfulness of danger}}{\text{perceived ability to cope} + \text{perceived 'rescue factors'}}$$

According to this view, an increased perception of likelihood of danger would result in an increase in anxiety. However, perceived probability interacts with the specific meaning which the person assigns to the danger concerned. For example, someone may believe that it is very likely they may have left a door unlocked, but would not feel unduly anxious unless they felt that leaving the door open was a particularly bad or dangerous thing to do (for example, resulting in their being responsible for or blamed for their house being burgled). These two factors are regarded as multiplicative and synergistic. This conceptualisation of cognitive factors in anxiety also accounts for the commonly occurring situation where the person believes that a particular negative outcome is extremely unlikely but nevertheless shows extreme fear of it. Such a pattern is particularly likely when the person believes that, although unlikely, the threat is too awful to risk. This combination is prominent in many instances of both severe health anxiety and obsessional problems, where the person recognises that their concerns are probably senseless but would be utterly devastating if the unlikely were to happen. For most obsessional patients, it is not possible for them ever to be certain that the consequences they fear or attempt to avert cannot happen, even if they seem unlikely to the assessor.

The combination of risk and cost is further modulated by the extent to which the person feels they would or would not be able to cope with the danger should it materialise and the extent to which factors extraneous to their own coping (for example, helpful reactions from other people) would be involved. Clinical and research evidence suggests that people who suffer from anxiety problems can show distortions involving each of these factors singly or in combination. Different combinations are likely across individuals and probably between disorders. For example, patients suffering from panic may show elevations in all aspects. Patients suffering from OCD and hypochondriasis often report relatively low probabilities of danger but unusually high levels of perceived cost or awfulness; in OCD this links more specifically to ideas of responsibility, guilt and blame. Assessment of anxiety disorders should focus on all of the components described.

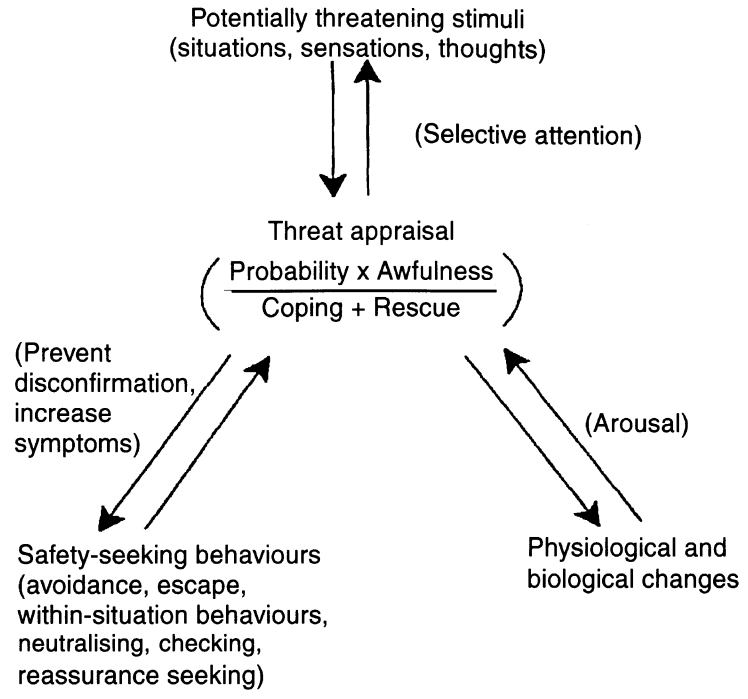


Fig. 1 An illustration of the way in which psychological factors can perpetrate threat cognitions and therefore maintain anxiety problems.

Factors involved in the maintenance of anxiety

Persistence of overly negative interpretations of stimuli, events or situations is regarded as crucial to the understanding of anxiety disorders. According to the cognitive theory, there are at least three major components in the maintenance of negative thinking and anxiety (Beck *et al*, 1985; Clark 1986*b*; Clark & Beck, 1988). Figure 1 illustrates the principal types of vicious circles believed to be involved in the maintenance of anxiety, described below.

Selective attention

Someone who believes himself to be in danger tends to become sensitive to noticing stimuli consistent with that perceived danger. Although it seems likely that this is to some degree an automatic response (closely akin to the way in which someone who has discovered that they or their partner is pregnant begins to notice other pregnant women), at least some of the selective attention observed in anxiety results from deliberate scanning for danger. Thus, the obsessional washer deliberately looks for specks on their clothes or the person troubled by ruminations notices intrusive thoughts. Noticing more signs of 'danger' may then be erroneously interpreted as a sign that danger has really increased, thus increasing their concern and further reinforcing that interpretation.

Physiological change

Anxiety has direct and indirect physiological effects. The person who perceives himself as being in danger may experience the effects of adrenalin being released. If the source of danger is perceived as being linked to bodily sensations, then the perception of danger is heightened, spiralling up into a panic attack (Clark, 1986*a*). The obsessional patient who has the idea of being contaminated despite having washed their hands repeatedly starts to sweat more and experience the sensation of their hands becoming 'dirty'; this may

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actually be because their hands have become very dry and are moistened by sweating in response to anxiety. In each instance, the vicious circle results in an increased perception of threat.

Changes in behaviour

The perception of danger is known to increase avoidance behaviour. Avoidance behaviour increases preoccupation with threat (because it focuses the patient's attention on the things they are avoiding) and thus constitutes a third vicious circle involved in the maintenance of anxiety according to the cognitive model. Inappropriate seeking of safety can also prevent the anxious person from discovering that their fears are groundless. After an episode which should have established that the feared consequence did not happen, the person who is engaged in active safety behaviours may believe that they had a lucky escape because they did things which prevented the feared catastrophe from coming about. From this perspective, the obsessional patient who has had thousands of instances where thinking the wrong thing did not result in harm perceives himself as having had thousands of instances where they were successful in preventing harm from happening. (Note, however, that the perceived danger is commonly seen as likely to occur far in the future, further masking the irrelevance of safety behaviours and making disconfirmation particularly difficult.) Safety-seeking behaviours can be global behaviours such as avoidance and escape, or more subtle forms of avoidance occurring within a situation which the person feels prevented a danger from materialising such as trying to exclude a particular type of thinking. Not only can a safety-seeking behaviour prevent disconfirmation but, in some circumstances, it can also increase the symptoms which were the initial source of misinterpretation and, therefore, anxiety (Salkovskis, 1996*c*).

By definition, obsessional patients experience intrusive thoughts which they "attempt to suppress or neutralise by some other thought or action" (DSM–IV; American Psychiatric Association, 1994). The deliberate attempt to suppress naturally occurring intrusive thoughts demonstrably increases the occurrence of these thoughts (Salkovkis & Campbell, 1994; Trinder & Salkovkis, 1994). If a person attempts to exclude thoughts of giraffes from their mind, it is almost inevitable that such thoughts or images occur more frequently throughout the time that the active attempts of suppression take place. This is probably due to paying attention to the general idea of giraffes in order to exclude this class of thinking. It is also self-evident from the exercise itself why the 'unwanted' thoughts occur during the time when the thoughts are actively excluded. However, in the case of an obsessional patient who responds to unpleasant intrusions by the effort to exclude obsessional thoughts (such as someone experiencing blasphemous or violent thoughts), there is no obvious link between the safety behaviour and the increase in frequency of the unwanted thought. Indeed, such patients often think that the unwanted thoughts are occurring at an alarmingly high frequency despite efforts not to think them; it therefore follows that thoughts would occur yet more frequently and in a more uncontrolled way if he or she were to cease attempts at suppression.

APPLYING COGNITIVE THEORY TO OBSESSIONS

The general cognitive theory of emotion and emotional problems therefore emphasises the role of thoughts in producing emotional disturbance. According to this view, treatment requires modification of the distorted thinking pattern so that it produces less distress and is less persistent. Such an approach depends first on identifying the *specific focus* of appraisals and consequent maintaining responses involved in a particular instance; when this is done it is possible to begin to attempt to modify such distortions and those factors which maintain them. Different disorders are characterised by particular types of distorted thinking (although the specific expression in any individual will involve highly idiosyncratic factors). For example, panic is characterised by negative thinking focused on the catastrophic misinterpretation of bodily sensations, social phobia by the negative interpretation of interpersonal situations and the person's role and performance in them, and so on.

'Normal' *v.* 'abnormal' intrusions

Although at first sight it may seem as if intrusive thoughts were the key cognitive component of obsessional problems, this view does not stand up to careful scrutiny. Almost all non-clinical subjects experience such intrusions which are indistinguishable in terms of their initial content from obsessional thoughts (Rachman & de Silva, 1978; Salkovskis & Harrison, 1984). Furthermore, most patients regard their obsessional thoughts as senseless or extremely unlikely. Both of these factors suggest that it would be inappropriate for obsessional thinking to be a primary target of cognitive intervention.

The cognitive–behavioural theory of OCD proposes that obsessional thoughts and normal intrusive thoughts do not in themselves differ. Like obsessional thinking, normal intrusive cognitions are ideas, thoughts, images or impulses which intrude in the sense that they interrupt the person's current stream of consciousness. The difference between normal intrusive cognitions and obsessional intrusive cognitions lies not in their initial occurrence but rather in the interpretation made by obsessional patients of the occurrence and/or content of the intrusions. According to the cognitive hypothesis, obsessional problems occur when intrusive cognitions are interpreted as an indication that the person may be, may have been, or may come to be, responsible for harm or its prevention (Salkovskis, 1985, 1989; Rachman, 1993; Salkovskis *et al*, 1995). It is this specific interpretation of the occurrence and content of intrusive thoughts in terms of responsibility for harm to oneself or other people which is believed to link intrusions with both the discomfort experienced and neutralising (compulsive) behaviours, whether overt or covert[1]. Neutralising behaviour, avoidance behaviour, a tendency to overfocus attention on the contents on one's own mind and negative mood can all interact in the way described above in the context of the general cognitive theory to maintain the negative beliefs concerning responsibility arising from the occurrence and content of intrusions. Figure 2 summarises the way in which such factors are hypothesised as interacting in the origins and maintenance of obsessional problems. This way of portraying such factors can be helpful in the development of a 'shared understanding' with the patient.

1. Responsibility is used in this context in a specific way. The responsibility appraisal which is hypothesised as characterising obsessional problems is operationally defined as "The belief that one has power which is pivotal to bring about or prevent subjectively crucial negative outcomes. These outcomes may be actual, that is, having consequences in the real world, and/or at a moral level" (Salkovskis, 1996*a*).

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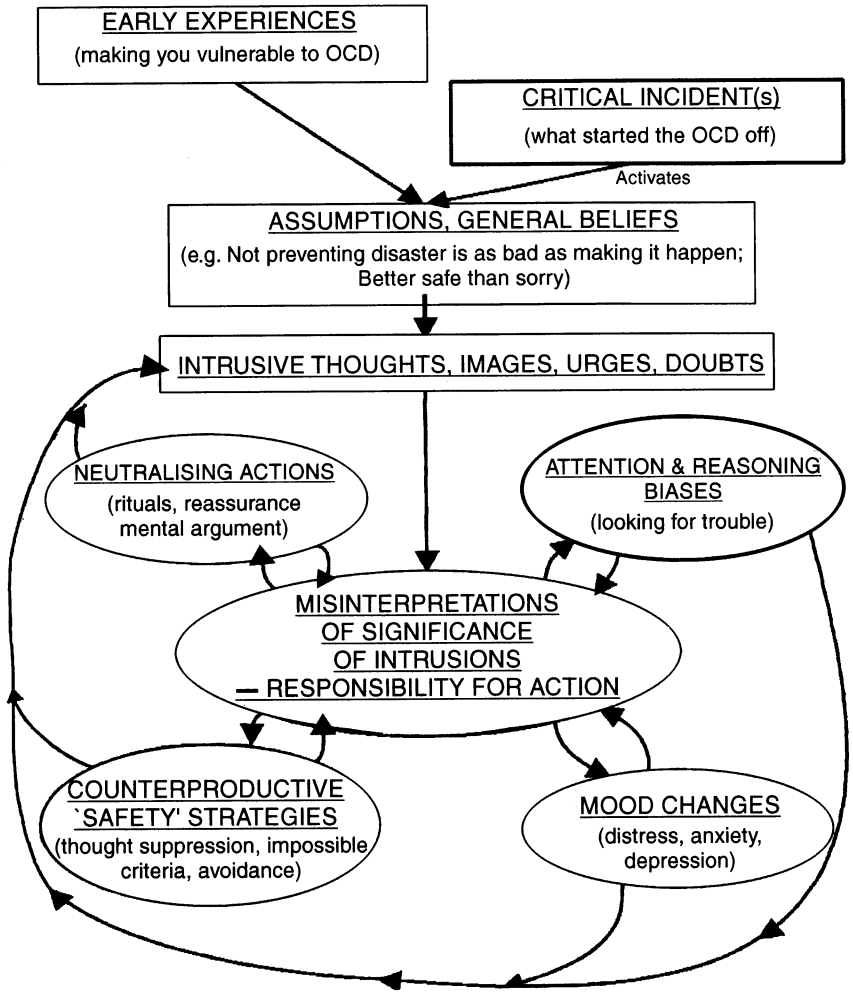


Fig. 2 Psychological factors maintaining threat beliefs. OCD, obsessive–compulsive disorder.

Conceptualising the problem

The general structure of this conceptualisation closely parallels the cognitive approach to other types of anxiety disorder in that a particular non-threatening situation becomes the focus of concern as a result of beliefs concerning danger or threat. The way in which anxiety manifests therefore depends on the focus of threat perceptions and the consequences that this perception has for subsequent reactions. For example, in the cognitive hypothesis of panic (Clark, 1986*a*; Salkovskis, 1988) panic attacks are said to occur as a result of the misinterpretation of normal bodily sensation, particularly the sensations of normal anxiety. Most normal people experience such sensations, but only people who have an enduring tendency to interpret them in a catastrophic fashion will experience repeated panic attacks. This is probably as a result of the tendency for catastrophe-focused anxiety to result in (a) a perceived increase in the symptoms which were the original focus of concern and (b) in safety-seeking behaviours which have the effect of preventing the persons from discovering that the things which they are afraid of do not happen, and sometimes increasing the symptoms themselves (Clark, 1986*a*; Salkovskis, 1991). By the same token, intrusive thoughts, impulses, images and doubts are part of normal everyday experience, but only people who have an enduring tendency to interpret their own mental activity as indicating personal 'responsibility' will experience the pattern of discomfort and neutralising characteristic of OCD. The effects of the emotion aroused and the safety-seeking behaviours will be to maintain and increase the pattern of concern.

For example, an obsessional patient may believe that the occurrence of a thought such as 'I might kill or molest my baby' means that there is a risk that she will succumb to the action unless she does something to prevent it, such as avoiding being left alone with her child. Not only will the child have been harmed, but she herself and others would clearly hold her responsible for the action. In order to counteract these fears, she would seek reassurance from people around her and try to prevent or escape from her intrusive thoughts, or try to think positive thoughts to balance the negative ones (neutralise them). Thus, the interpretation of obsessional intrusions as indicating increased responsibility has a number of important and interlinked effects: (a) increased discomfort, anxiety and depression; (b) increased focused attention on these intrusions; (c) greater accessibility of the original thought and other related ideas; and (d) active and usually counter-productive attempts to reduce the thoughts and decrease or discharge the responsibility which is perceived to be associated with them, including behavioural and cognitive 'neutralising' responses. These may include compulsive behaviour, avoidance of situations related to the obsessional thought, seeking reassurance (having the effect of diluting or sharing responsibility) and attempts to get rid of or exclude the thought from the mind.

Each of these effects contributes not only to the prevention of anxiety reduction but also to increased preoccupation and a worsening spiral of intrusive thoughts leading to maladaptive affective, cognitive and behavioural reactions. In some instances, where a feared consequence is seen as imminent, behavioural responses can have the additional effect of preventing disconfirmation of the person's negative beliefs (Salkovskis, 1996*b*, *c*). For example, a patient may believe that failing to wash his hands vigorously for 15 minutes could lead to severe illness in his family that day or the next. Having washed in this way, none of his family become ill, providing him with confirmation of his initial belief, and leaving the belief intact (or even strengthening it) for subsequent occasions when the thought of contamination occurs again.

Responsibility appraisals

The cognitive hypothesis proposes that inflated responsibility appraisals can focus on either the occurrence or the content of intrusive cognitions, or on both (Salkovskis *et al*, 1995). Emotional significance is a result of the particular idiosyncratic pattern of appraisal. If this is so, it may be that intrusions are initially emotionally neutral when they first occur, but are like other

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potentially emotional stimuli in that they can take on positive, negative or no emotional significance, depending on the person's prior experience and the context in which intrusions occur (Edwards & Durkerson, 1987; England & Dickerson, 1988). As described above, a crucial part of the appraisal of an intrusion will concern the implications of an intrusion and the need for further action. If the intrusion is appraised as having no implications, processing priority will tend to be diminished.

Appraisal of responsibility arising from the occurrence and content of intrusions can be at least partially independent, although often linked. A patient who was unable to get rid of bizarre and unpleasant thoughts and images interpreted this apparent resistance to his efforts at control as a sign that he was in danger of losing control and behaving in some unpredictable and violent way. He became preoccupied with efforts intended to prevent unwanted thoughts from coming in to his mind, and attempted to regiment his thinking. In this instance, it was primarily the occurrence of intrusions which was misinterpreted. In another example, a patient experienced repeated and vivid images of herself lying dead in front of her local shop, and of her family assembled round a coffin in which she lay. She interpreted the occurrence of these particular images as a prediction of the future, and was especially disturbed by the fact that the images represented real places and people, and by their vividness and detail. Here, the content of the intrusions was of relatively greater importance.

Although these two facets of appraisal are most commonly linked in obsessional problems ('Having these thoughts means that I am a danger to my family'), this is not necessarily obvious in every instance. For example, a pleasant thought might be negatively appraised if it occurs incongruously on a sad occasion (e.g. an erotic thought at a funeral). When the meaning of the particular thought occurring is taken into account, however, the link between occurrence and content is usually evident.

Persistence of intrusive thoughts

When appraisal of occurrence and content of intrusions suggests a specific voluntary reaction (including attempts to neutralise, suppress or avoid the intrusion, or even to monitor its occurrence carefully) processing priority and, therefore, subsequent frequency of that intrusion will almost inevitably be increased. Intrusions interpreted as relevant to responsibility will therefore tend to persist and become the focus of further thought and action; irrelevant ideas can be considered but no further thought or action will ensue. However, sometimes unpleasant or upsetting cognitions cannot be resolved and become more persistent, as in depression, anxiety and worry. In instances where the occurrence of a particular type of thought is appraised as an indication that the individual has become responsible for averting harm to themselves or others, then the occurrence and content of the thought becomes both a source of discomfort and an imperative signal for action which is intended to neutralise the thought and the potentially harmful consequences of its occurrence as well as preventing or controlling its further occurrence.

In order to prevent the occurrence of intrusions and/or be aware of and limit the implications for responsibility, the obsessional patient often feels that it is necessary to pay close attention to his or her mental processes. The deployment of effortful strategies and attention towards the control of mental activity involves a variety of phenomena which all may contribute to the experience of obsessional symptoms and their maintenance. These may include, for example, attempts to be sure of the accuracy of one's memory, to take account of all factors in one's decisions, to prevent the occurrence of unacceptable material, to ensure that an outcome has been achieved when the difference between achieving it and not achieving it is imperceptible (for example, deciding that one's hands are properly clean after washing in order to remove contamination). The precise strategies will be determined by the person's idiosyncratic beliefs about the impact of such strategies. The choice of strategies is best understood from a safety-seeking perspective; the patient will react in ways that he or she believes are most likely to be effective in reducing the threat of being responsible for avoidable harm. Safety behaviours can thus be directed at either preventing harm or preventing responsibility for harm. However, if one accepts the possibility of being able to prevent even potential harm, then perceived responsibility may be increased by this knowledge, on the basis that if one can influence an event, then one assumes some responsibility for the possible outcomes. The short-term 'evasion' or transfer of responsibility, therefore, has the additional unwanted effect of strengthening more enduring beliefs concerning the extent to which one is responsible in the first place and in the future.

Role of assumptions

The cognitive theory proposes that people are predisposed to making particular appraisals because of assumptions which are learned over longer periods from childhood onwards or which may be formed as a result of unusual or extreme events and circumstances. Some assumptions which characterise OCD patients are described in Salkovskis (1985) and include:

> "Having a thought about an action is like performing the action".
>
> "Failing to prevent (or failing to try to prevent) harm to self or others is the same as having caused the harm in the first place".
>
> "Responsibility is not reduced by other factors such as something being improbable".
>
> "Not neutralising when an intrusion has occurred is similar or equivalent to seeking or wanting the harm involved in the intrusion to happen".
>
> "One should (and can) exercise control over one's thoughts."

If someone holds these attitudes very strongly, then the overt and covert behaviours characteristic of people suffering from obsessional problems tend to follow naturally.

The effects of these type of assumptions is often described in terms of 'thinking errors' (Beck, 1976); thinking errors are characteristic distortions which influence whole classes of reactions. Thinking errors are not of themselves pathological; in fact, most people make judgements by employing a range of 'heuristics', many of which can be fallacious (Nisbett & Ross, 1980).

The cognitive hypothesis suggests that OCD patients show a number of characteristic thinking errors which link to their obsessional difficulties; probably the most typical and important is the idea that 'any influence over outcome equals responsibility for outcome'.

A particularly interesting possibility is the relationship between responsibility through action as opposed to inaction. As outlined above, Salkovskis (1985) suggests that the belief that "failing to prevent (or failing to try to prevent) harm to self or others is the same as having caused the harm in the first place" may be a key assumption in the generation of obsessional problems. Spranca *et al* (1991) demonstrated what they refer to as 'omission bias' in non-clinical subjects. They showed that normal subjects judge responsibility for negative

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consequences to be diminished when an omission is involved as opposed to when some specific action was involved in bringing about the negative consequence. This is true in normal subjects even when the element of intention (i.e. the extent to which the person wishes the 'negative' outcome to occur) is controlled for. Thus, most people appear to regard themselves as more responsible for what they actively do than what they fail to do. Clinical experience (and recent pilot work by our group) suggests that obsessional patients do not seem to show evidence of this type of omission bias. If this observation is experimentally validated, it opens up a range of new possibilities for the understanding of obsessional behaviour (see Salkovskis, *et al*, 1995; Salkovskis, 1996*a* for a further discussion of the issue of omission and how it may link to the perception of responsibility).

COGNITIVE–BEHAVIOURAL TREATMENT IN OBSESSIONS

As described here, the cognitive hypothesis allows a clear understanding of both the origin and the maintenance of anxiety problems. A particularly powerful component of therapy involves techniques directed at bringing about disconfirmation of danger (Salkovskis, 1991). However, OCD poses some special difficulties in this respect. Attention to the details of obsessional beliefs illustrates where the difficulty lies and how it may best be resolved. In obsessions it is often the case that the danger which is feared is judged as likely to occur at some relatively distant future time. For example, the obsessional patient may believe that his failure to control his blasphemous thoughts mean that he will suffer eternal torment after his death. Manoeuvres which are intended to show the person that their feared consequences did not come about are likely to fail. It has long been known that these problems do not respond well to reassurance (Marks, 1981).

Fortunately, it is fundamental to the practise of cognitive therapy that the therapist and patient work together to reach a shared understanding (conceptualisation) of the way the patient's problem works. The most effective way of changing a misinterpretation (whether it be of a symptom, a situation or a thought) is to help the person come up with an alternative, less threatening interpretation of their experience. Subsequent therapy (including discussion, behavioural experiments and exercises in disconfirmation) are then all directed at helping the person distinguish between the different interpretations that they have. In every instance the alternative explanation is likely to be highly idiosyncratic, based on the particular pattern of symptoms and interpretations experienced by each person. The cognitive hypothesis also specifies that different types of psychological problem will show certain broad consistencies within categories. Thus, the concerns of the person experiencing repeated panic attacks are particularly likely to focus on the way in which that person interprets bodily and mental sensations as a sign of imminent catastrophe; the social phobics' concerns are particularly likely to focus on ideas of being humiliated, scorned or rejected. Such concerns are relatively easy to disconfirm as they occur in the 'here and now'. However, because the feared catastrophes in OCD tend to lie further in the future, disconfirmation is much less useful as a strategy. This increases the relative importance of both the patient's and the therapist's understanding of the non-threatening explanation of their problem, that is the cognitive model as it is idiosyncratically applied to the patient's symptoms and situation. The features of the cognitive account of OCD important to such an account are those which were described below.

GENERAL STRATEGY OF TREATMENT IN OBSESSIVE–COMPULSIVE DISORDER

It follows from the preceding discussion that treatment of obsessional problems needs to involve agreeing a shared understanding with the patient concerning the psychological basis of their problem. This is crucial because at the beginning of therapy, these patients believe that their problem is that they are in danger of some terrible catastrophe unless they take preventative action. If this belief is held very strongly, the patient is unlikely to engage properly in psychologically (or psychiatrically) based treatment. For example, the obsessional patient believes that his thoughts mean that he is a child molester, a potential murderer, a blasphemer and so on. Given such beliefs it is not surprising that he seeks to deal with the situation by fighting his thoughts and neutralising any consequences of their occurrence in attempts to ensure that he cannot be responsible for any harm or be otherwise blamed. It is therefore necessary that in the early stages of treatment the patient is helped to see that there may be an alternative explanation of the difficulties they are experiencing. The patient is introduced to an idiosyncratically based cognitive model which offers a quite different and less threatening account of their problems. Using the same scenario, it is not that they are a child molester but rather that they are worried about and believe that they might be a child molester and are therefore plagued by the very intrusive thoughts which they seek to exclude as a result of their fear and failed (and counter-productive) coping attempts. For treatment to be effective, it follows that it is necessary that the patient agrees that therapeutic strategies should be aimed at reducing such worries rather than the fruitless attempts to reduce risk (which are also likely to result in worsening of the worries).

At this stage of treatment (engagement) the two possible explanations for the patient's problems are considered alongside each other rather than as mutually exclusive alternatives. The patient is invited to consider how the two alternative views match up to their experience. Once therapist and patient agree on the two alternatives, therapy proceeds as an evaluation of the relative merits of these two views. Evidence for and against each is reviewed and discussed in detail. The use of a formulation diagram, based on Figure 2, helps patients to understand the psychological alternative. The specific form and contents of the diagram are determined by the particular idiosyncratic pattern identified during assessment.

Often, discussion reaches the point where further information which is not currently available to the patient has to be sought. This is where behavioural experiments come in – information-gathering exercises which help the person reach conclusions about the beliefs which they hold. The obsessional patient can see that trying not to think a thought might increase the frequency of that thought. However, she also considers it possible that her thoughts of harming her children may not follow this pattern and it may be that she is only managing to hold them at bay by pushing them away and distracting herself. To test this out the patient keeps a diary record of the frequency of occurrence of the thoughts and some days attempts to distract herself from the thoughts as hard as she possibly can and on other days tries to allow the thoughts to come and not fight them. In doing so she

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discovers that the thoughts occur more frequently and upset her more on those days when she chooses to resist the thoughts. In this way there is a constant interplay between the cognitive–behavioural formulation drawn up by patient and therapist, discussion of how the patient's experience fits with that formulation, and generation of new and informative experience using behavioural experiments to illuminate the model further. Cognitive and behavioural elements are interwoven but the guiding principle is always enabling the patient to consider and adopt a more helpful and less frightening belief than the one they have been stuck with previously.

SPECIFIC ELEMENTS OF COGNITIVE–BEHAVIOURAL TREATMENT

Once the patient is engaged in treatment in a collaborative relationship, the main elements of treatment are:

(a) Working with the patient to develop and agree a comprehensive cognitive–behavioural model of the maintenance of their obsessional problems. This involves the identification of key distorted beliefs and the collaborative construction of a non-threatening alternative account of their obsessional experience to allow the patient explicitly to test beliefs about responsibility.

(b) Detailed identification and self-monitoring of obsessional thoughts and patients' appraisal of these thoughts combined with exercises designed to help the patient to modify their responsibility beliefs on a minute-by-minute basis (for example, by using the daily record of dysfunctional thoughts).

(c) Discussion techniques for challenging appraisals and basic assumptions upon which these are based. The aim is modification of the patient's negative beliefs about the extent of their own personal responsibility (for example, by having the patient describe all contributing factors for a feared outcome and then dividing the contribution in a pie chart).

(d) Behavioural experiments to test directly appraisals, assumptions and processes hypothesised to be involved in the patient's obsessional problems (e.g. demonstrating that attempts to suppress a thought leads to an increase in the frequency with which it occurs, or show that beliefs such as "if I think it I therefore want it to happen" are incorrect). Each behavioural experiment is idiosyncratically devised in order to help the patient test their previous (threatening) explanation of their experience against the new (non-threatening) explanation worked out with their therapist.

(e) Helping patients to identify and modify underlying general assumptions (such as "not trying to prevent harm is as bad as making it happen deliberately") which give rise to their misinterpretation of their own mental activity.

The general style of therapy is that of guided discovery. Through questioning and discussion, patient and therapist reach a shared understanding of the nature of the problem from which the patient is suffering. On the basis of this shared understanding and the discussion, specific behavioural experiments are devised which are designed to extend the understanding of the problem and to evaluate predictions which arise from the shared understanding or formulation which has been reached. Behavioural experiments are detailed further below, but will include a range of strategies including the broad categories listed below.

(a) Behavioural experiments designed to assess the extent to which a particular process may be playing a role in maintaining the patient's fears.

(b) Other experiments designed to elicit processes which may be increasing symptoms themselves (such as intrusive thoughts) or the fear and distress associated with these symptoms.

(c) Exposure exercises (in ruminations, particularly commonly using loop tape) where the patient is given the opportunity to discover that repetition of their intrusive thoughts or eliciting stimuli (hopefully, with reduced levels of negative appraisal of responsibility) resulting in a decrease in the discomfort experience.

Although a great deal of emphasis in the treatment of ruminations is placed upon the usefulness of the loop tape as an eliciting strategy, this particular technique has to be embedded in the overall framework of the cognitive–behavioural approach. It is important to bear in mind that the fundamental basis of obsessional problems lies in the way which the patient interprets or appraises intrusive thoughts and related mental phenomena. It is particularly important to note that, although in many anxiety disorders it is possible to help the patient change their beliefs through the process of the disconfirmation of the feared consequences (Salkovskis, 1991), this is seldom true in obsessional problems (Salkovskis, 1996*b*). Given this, the best way to decrease belief in a misinterpretation (typically, interpreting the occurrence and content of an intrusive thought as a sign of personal responsibility for harm) is to provide the person with a less threatening alternative explanation. The alternative explanation is, of course, based upon the cognitive–behavioural formulation agreed with the patient. Thus, the patient is continually reminded that there are really two possible explanations for the problems they are experiencing: it could be that they really are in danger of causing harm or failing to prevent harm and that they therefore have to do everything they possibly can to avert such harm, or it could be that they are someone who is worried about such harm and that their problems are coming from this particular anxiety and concern rather than from any actual reality of harm. It is also emphasised at every opportunity that these two different views make contradictory predictions about what would be helpful. In particular, it is emphasised that constant effort to prevent something which one is concerned about is inevitably going to have the effect of increasing preoccupation.

OVERVIEW OF TREATMENT

Stage I: Assessment and goal-setting

In the assessment stage, the therapist focuses on getting a description of a recent episode of rumination and identifying within that episode the specific sequence which occurred. Considerable emphasis is placed on identifying the way in which intrusive thoughts (or other intrusive cognitions) were interpreted in terms of responsibility and the impact that this interpretation had on subsequent efforts to neutralise, suppress or otherwise control the intrusive thoughts. The impact of such control attempts on the occurrence of thoughts is also then highlighted. By the end of this phase, two targets should have been reached. First, a formulation or shared understanding of the problem should be agreed, and second, the goals of therapy should have been negotiated. These goals should include short-term, medium-term and long-term goals. It is very important

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to emphasise with patients suffering from obsessional ruminations that the type of goal being considered would not include getting rid of the thoughts entirely.

Stage 2

This involves further clarification of the formulation and helping the patient to understand the mechanisms by which their problem with intrusive thoughts is being maintained. Several strategies should be employed in this phase including: (a) discussing the normal function of intrusive thoughts; (b) discussing who it is who would experience particular types of intrusive thoughts and what that means about that person; and (c) identifying the link between problem-solving/creativity and the occurrence of intrusive thoughts, whether they be positive, negative or neutral. This latter strategy would also involve identifying the usefulness of having negative intrusive thoughts in unusual situations and also the way in which a positive intrusive thought could be evaluated negatively were it to occur in an appropriate context.

By the end of this phase, patients should have been helped to see that intrusive thoughts are not merely normal, but are also a crucial part of daily life.

Stage 3

The patient is invited directly to contrast the two alternative views of their problem. The differences and similarities are highlighted and the requirement to be able to experience the thoughts without experiencing distress is discussed in detail. The use of the audiotape procedure and the importance of modifying ideas about responsibility and preventing any kind of neutralising behaviour are explained.

Stage 4: Audiotaped exposure and belief modification

As described above, a loop tape is used to elicit the patient's intrusion; emphasis is placed on identifying responsibility appraisals and how they link to urges to neutralise identified at this point. Response prevention is initiated with a cognitive rationale, usually by helping the patient to challenge their appraisal of the intrusions. In session, habituation begins with a rating of discomfort, the tape played for the first time and any difficulties in response prevention identified and dealt with and discomfort is re-rated. The process is repeated until patient and therapist agree that the procedure is being properly carried out, and anxiety/discomfort or the urge to neutralise is at least beginning to show signs of decreasing. Homework is set up with charts and full instructions. Belief modification continues during this phase at every opportunity. The patient is asked about what they make of any changes which are occurring and how this fits with each of the two alternatives. Subsequent sessions involve different thoughts and moving the practice from regular sessions in the patient's own home at set times, to using the tape *in situ* where possible.

Stage 5: Further behavioural experiments *in vivo*

In this next stage, the natural occurrence of intrusive thoughts is used as a cue for the use of the tape. Self-directed exposure and response prevention for other thoughts is initiated and recorded. The patient keeps a record of thoughts and other intrusions which occur together with the appraisals made during response prevention. Part of the response prevention recording is picking up on particular beliefs and modifications of these. Throughout this period, the responsibility and interpretations questionnaire is used to monitor particular beliefs which may need tackling.

The formulation and the patient's beliefs about their thoughts should be very clear at this stage, and guide the further conduct of therapy. Discussion and behavioural experiments should weave together the notion of the alternative explanation ('my problem is worry') and behavioural experiments designed to reinforce this idea. Examples would be imagery or thought restructuring, catastrophising imagery or verbal exercises as a demonstration of a way in which these ideas increase discomfort and distress; pie charts which tackle the idea of responsibility; thought experiments in which the person thinks up ways of bringing about the event which they fear they may be responsible for; pros and cons of being obsessional and not being obsessional; cumulative probability downward arrows.

In the treatment of obsessional thinking, factors which previously triggered anxiety and discomfort may continue to occur. However, therapy has the effect of modifying the meaning of intrusive thoughts to the kind of level experienced by most other (non-obsessional) people. No direct attempt is made to decrease the number of intrusive thoughts experienced, and any intention on the part of the patient to bring about such a reduction is challenged on the basis of the beliefs which drive it. However, a fortunate and desirable side-effect of cognitive–behavioural therapy is that there is usually an actual decrease in intrusions because they are no longer considered important and therefore lose their priority of processing. Note that the 'normal' person does not constantly seek to control thoughts; control tends to be indirect, because there are no serious negative consequences of failing to control symptoms.

Final stage: relapse prevention

Possible future difficulties are identified and a 'set-back pack' compiled by the patient. Throughout therapy, the patient is asked to keep notes on what they have learned in each session to enable them to 'become their own therapist' and to act as a summary of the main points.

EFFECTIVENESS OF TREATMENT

There have been a number of published case reports and case series describing effectiveness of this type of CBT for obsessional thinking (e.g. Salkovskis, 1983; Salkovskis & Westbrook, 1989; Roth & Church, 1994). More recently, Freeston (1994) reported the results of a controlled trial in which full CBT (including both re-appraisal strategies and revised habituation training) was compared with a waiting list control condition. Treatment resulted in a substantial reduction in both self-report and assessor-rated obsessional symptoms. It is especially encouraging to note that the treatment effects persisted at the six-month follow-up, with no evidence of relapse after the cessation of active psychological treatment. Our group is currently comparing CBT to both a waiting list control and to a high-credibility stress-management package.

CONCLUSION AND RECOMMENDATIONS FOR FUTURE RESEARCH

The cognitive–behavioural theory as applied to obsessional thinking offers a fresh approach to treatment which is now backed by evidence of effectiveness. As with CBT

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for obsessional problems where ritualising is prominent, there is evidence of particularly good long-term outcome with low rates of relapse.

Future research is likely to focus on the generalisability of CBT and the ways in which treatment affects psychological and psychobiological processes in obsessional problems. There is an urgent need for the development of more sophisticated assessment procedures. Measures such as the Yale–Brown Obsessive–Compulsive Scale (Y–BOCS; Goodman *et al*, 1989) were devised to evaluate pharmacological treatment and reflect broad categories of change. Re-analysis of this scale indicates problems with the resistance item and the need to include an avoidance rating (Woody *et al*, 1995). In evaluating the effectiveness of the treatment of obsessional rumination, Freeston (1994) highlights the need for separate assessment of overt and covert ritualising, suggesting the 'compulsion' scale of the Y–BOCS be completed both for all compulsions and for covert neutralising. These suggestions need to be adopted throughout the field. Moreover, in the 'obsessions' scale of the Y–BOCS, the item designed to measure the controllability of obsessional thinking is problematic if used to assess the effects of CBT. This item gives a low score when the person is fully in control of their obsessional thoughts, and a pathological score when the person is not attempting to control them. This is problematic because CBT specifically aims to help the patient to cease attempts to control their obsessional thinking, in order to help the patient discover that this is the best way of 'controlling' their obsessional thinking.

There is also a need for studies in which changes to key psychological processes are assessed during the course of treatment; these might include factors such as the frequency of intrusion, acceptability appraisals, responsibility appraisals, general beliefs concerning responsibilities, thought suppression efforts and effects, risk/threat probabilities, perceived cost and so on. Such assessments are likely to enhance both psychological and pharmacological treatments by allowing the identification of treatment effects in terms of mode of action of treatment and residual problems once treatment is completed. There is preliminary evidence that effective treatment of obsessional thinking is now available. Future research should seek to replicate this finding, and to improve the effectiveness and efficiency of such treatment, and to understand better the mechanisms of change.

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