

OBSESSIONAL–COMPULSIVE PROBLEMS: A COGNITIVE–BEHAVIOURAL ANALYSIS

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(Received 20 February 1985)

Summary—Cognitive–behavioural approaches have made no impact on research and treatment in obsessional–compulsive disorder, despite the obvious link between thinking and psychopathology that characterizes this disorder. A close examination of cognitive and behavioural models leads to the suggestion that intrusive thoughts are best regarded as cognitive stimuli rather than responses. Cognitive responses (negative automatic thoughts) to these stimuli are typically linked to beliefs concerning responsibility or blame for harm to self or others. A cognitive–behavioural model based on this view is outlined and illustrated by clinical material derived from a case series. The model is used to explain a wide range of phenomena observed clinically, and a number of specific predictions are made. Implications for cognitive approaches to therapy are discussed.

The recent explosion of cognitive–behavioural approaches to clinical conditions has been matched by an increasing interest in the experimental validation of the underlying theoretical formulations. Teasdale (1982) has suggested that clinically useful strategies tend to arise from the availability of new paradigms, that is, well-elaborated sources of potential hypotheses and methodology. In these terms, cognitive models of emotional disorders have attained paradigmatic status and are beginning to make major contributions to the development of empirically based psychological therapies. In particular, Beck's cognitive model (Beck, 1967, 1976) has provided a coherent theoretical explanation of the basis of a variety of clinical conditions and normal mood states with important implications for treatment. It is particularly important that this model has also served to generate a considerable amount of experimental work testing predictions regarding, for instance, depression (Clark and Teasdale, 1982) and anxiety (Butler and Mathews, 1983).

Although the cognitive model has provided useful information on the nature and treatment of depression and anxiety disorders in general, it has so far failed to offer a comprehensive approach to the understanding and treatment of obsessional disorders. This is particularly surprising as it could be argued that obsessional thinking is the archetypal example of a cognitive disorder in the neuroses. A cognitive explanation of obsessional–compulsive problems is proposed by Beck (1976). However, this account of obsessional thoughts appears to be based solely on the view that the content of obsessions is related to thoughts of danger in the form of doubt or warning. There is no discussion of the difference between these and the thoughts of danger or risk subsequently shown to be specific to anxiety (e.g. Sewitch and Kirsch, 1984), although one might expect this distinction to be necessary for any cognitive view specific to the psychopathology of obsessions. Indeed, a number of the examples identified by Beck (1976, Chap. 7) as being anxiety- and fear-related cognitions appear to involve major elements of doubt or warning.

A differently orientated attempt at a cognitive–behavioural conceptualization of obsessive–compulsive disorder was made by McFall and Wollersheim (1979). However, this is directed at 'bridging the gap' between behavioural and psychoanalytic theory, and carries with it many of the problems associated with such an enterprise (Yates, 1983). Throughout there is a heavy dependence on the presence of preconscious and unconscious cognitions, which, compared to the psychoanalytic formulation, are said to be 'closer to the individual's awareness' as unacceptable ideas and feelings. No serious attempt is made to elaborate the processes involved in the direct cognitive and behavioural manifestations of these processes, other than mention of an undue belief in 'magical rituals'. Drawing heavily on Carr (1974) the main mediating processes are considered to be 'deficits' in primary and secondary appraisal—unfortunately, they are unable to distinguish between inaccuracies of cognitively mediated threat appraisals in obsessional patients and those

in other patients. This lack of specificity must surely be a key issue and one which will probably only be resolved by a careful analysis of the *psychological processes* involved in intrusive phenomena rather than description of the characteristics of individuals experiencing obsessions. Furthermore, it is hard to see what benefits will arise from adopting psychodynamic concepts in an area where so much effort has been directed towards psychoanalytic treatment with such conspicuously poor outcome (Cawley, 1974), irrespective of the elaborate theoretical basis of this approach.

Previous attempts at cognitive *intervention* have concentrated on largely atheoretical techniques such as thought-stopping (e.g. Stern, Lipsedge and Marks, 1973) and have been mostly unsuccessful. Rachman and Hodgson (1980) have discussed distraction and dismissal procedures; however, convincing empirical evidence of the utility of such approaches has yet to be reported. It is important to consider the possibility that such procedures may be counter therapeutic, either by virtue of becoming 'neutralizing' in themselves, or by interfering with functional CS exposure (Borkovec, 1982).

Clearly, any attempt to conceptualize obsessions in cognitive terms must, as a first step, specify the position of obsessions within an hypothesized framework of cognitive phenomena such as that proposed by Beck (Beck, Epstein and Harrison, 1983). The relationship between 'negative automatic thoughts' and obsessions initially appears promising. Certainly, both can be regarded as subsets of Rachman's (1981) group of unpleasant intrusive cognitions. However, Beck (1976) clearly states that automatic thoughts are

"not the typical repetitive thoughts reported by patients with obsessional neurosis"
(p. 37),

although he does not go on to discuss what the important differences are. There are three major reasons why it is important to clarify the relationship between automatic and obsessional thoughts and hence place intrusions firmly within the context of cognitive theory:

1. The integration of the concept of unpleasant intrusive cognitions with cognitive theory seems particularly important now that there is evidence supporting the view that such intrusions or obsessions are part of "normal experience" (Rachman and de Silva, 1978; Salkovskis and Harrison, 1984). It is now possible to entertain the view that obsessional thoughts, previously regarded as pathological, may be on a continuum with normality, in the same fashion as mood states such as anxiety and depression, together with their associated cognitions.
2. It has been suggested by workers such as Rachman (1983a) that the link between depressed mood states and clinical worsening of obsessions (as well as resistance to behavioural treatments) could be accounted for in terms of the growing evidence of increased accessibility of negatively valenced cognitions in depressed mood states (Teasdale, 1983). For such an account to be fully useful, obsessional phenomena need to be integrated into cognitive theory so that more specific predictions about the putative mechanism of this interaction can be made with confidence, allowing the direct testing of propositions from both areas of work.
3. The development of specific cognitive techniques for the treatment of obsessional-compulsive problems could augment behavioural treatments in general and perhaps allow new approaches to 'treatment failures' as described by Foa (1979), Foa, Steketee, Grayson and Doppelt (1983) and Rachman (1983b) in whom cognitive factors (especially depressed mood and overvalued ideation) appear to be crucial.

Interesting comparisons may be made between the separate literatures on obsessions (including unwanted intrusive thoughts) and negative automatic thoughts. Rachman (1981, p. 89) defines intrusive unwanted thoughts as

"repetitive thoughts, images or impulses that are unacceptable and/or unwanted"

and goes on to specify the necessary and sufficient conditions for identification of a thought, image

Table 1. Comparison of obsessional thoughts (Rachman and Hodgson, 1980) and automatic thoughts described by Beck (1976)

Characteristic	Obsessional thoughts	Negative automatic thoughts
Relationship to 'stream of consciousness'	Intrude into	Run parallel to
Accessibility	Very easy	Can be difficult even with training
Perceived intrusiveness (irrelevance of interruption)	High	Low
Perceived rationality	Irrational	Rational
Relation to belief system	Inconsistent (ego dystonic)	Consistent (ego syntonic)
Relationship to external stimuli	Partial	Partial
Attributed source	Internal	Internal
Modalities affected	Linguistic, images and impulses	Linguistic and images
Content	Idiosyncratic	Idiosyncratic

or impulse as intrusive as

"the subjective report that it is interrupting an ongoing activity; the thought, image or impulse is attributed to an internal origin, and is difficult to control."

Negative automatic thoughts, on the other hand, are defined by Beck, *et al.* (1983) as

"elicited by stimuli (actual external events *or* thoughts about events)"

and

"*plausible* or reasonable, although they may have seemed far-fetched to somebody else. The patients accepted their validity without question and without testing out their reality or logic." (Beck, 1974, p. 36)

Further careful examination of the literature allows us to derive the comparison illustrated in Table 1. The major differences between these negative automatic thoughts and obsessions seem to lie in the perceived intrusiveness, immediate accessibility to consciousness and the extent to which they are seen as being consistent with the individual's belief system. This last difference is particularly important, insofar as Beck's view of cognitions producing affective disturbance rests on their perceived *realistic* and *plausible* nature, and their acceptance by the individual experiencing them. By contrast, obsessions are unacceptable, irrational and implausible. Obsessions are incongruent with the individuals belief system, unlike negative automatic thoughts which are an expression of it.

If we are not able to regard obsessions as being a type of negative automatic thought, where do they fit into a cognitive model of psychopathology? Rachman (1971, 1976) has suggested that obsessional thoughts are noxious conditioned stimuli which have failed to habituate, and which are maintained by the mechanisms involved in two-process learning. Adopting this view and attempting to consider obsessional problems from a cognitive standpoint, I would like to argue that obsessional thoughts function as stimuli which may provoke a particular type of automatic thought. The evidence is that disturbing *intrusions* occur frequently in normal individuals without leading to serious disturbance of mood or coping. It seems likely that they may become a persistent source of mood disturbance only when they result in negative automatic thoughts through interaction between the unacceptable intrusions and the individuals belief system, i.e. in some kind of adverse evaluation ('this is a bad thing to be thinking'). This process is very similar to one frequently considered to produce affective disturbance in depressed patients when making global judgements of self in relation to behaviour, viz. 'if I get angry with the children that means I'm a bad mother'; 'if I have thoughts like this that means that I'm an evil person', 'thinking this is as bad as doing it' (Fennell, 1984). The intrusions will only be expected to produce distress when they have some (idiosyncratic) meaning or salience to the individual experiencing them (i.e. strong adverse personal implications). This is consistent with the findings of Parkinson and Rachman (1981), who report finding that, for normal Ss, intrusions high on unacceptability were 'worse in all respects' than intrusions of low acceptability, i.e. less dismissable, controllable, produced more

discomfort, anxiety, stress, resistance and were of longer duration. In terms of Beck's model intrusions may, for some individuals on some occasions, activate pre-existing dysfunctional schemata and hence result in unpleasant automatic thoughts. Such automatic thoughts in response to intrusions appear to relate specifically to ideas of being responsible for damage or harm coming to oneself or to others, or associated imagery of a similar nature (see below and Table 4). That is, obsession-provoked automatic thoughts or images revolve around personal responsibility, the possibility that if things go wrong it might well be the persons' own fault. Such responsibility may be indirect as well as direct, so that the possibility of preventing harm caused by external agents is equally potent. Clearly, such ideas of responsibility would lead to self-condemnation in vulnerable individuals to the extent that such responsibility (or failure to avoid culpability) is abhorrent to them. Such ideas of responsibility can extend to having had the thought itself; that is, if the person believes that they are responsible for their own thoughts (Borkovec, Robinson, Pruzinsky and DePree, 1983; Borkovec, 1984), the content of which is abhorrent to them, then they presumably regard themselves as being responsible for being a bad or evil person unless they take steps to ensure their blamelessness. The affective disturbance usually described as arising from the obsession or intrusion actually arises from such automatic thoughts about the intrusion rather than from the intrusion itself. As depression primes concepts of self-blame this may be used to account for the increased distress experienced by obsessionals when depressed.

The prominence of a clearly identifiable and extremely obvious cognition (i.e. the intrusion) has probably served to prevent the closer examination of cognitions associated with obsessions, despite the adoption of Lang's (1970) three-systems model. The doubting described by Beck as typical of the ideation of obsessionals appears to be characteristic of the initial intrusion. The ideation from which the emotional disturbance arises is a cognitive response to this, and relates to responsibility or possibility of blame for some kind of personally salient harm (cf. Turner, Steketee and Foa, 1979). Impulses are similarly not particularly disturbing unless there is some belief in the possibility that they might be carried through, and blame being likely to fall on the individual as a result of failing to control the impulse.

Neutralization, either as compulsive behaviour or cognitive strategies (e.g. thinking a 'good thought' after having a 'bad thought') can be understood easily in this context as attempts to put things right, and avert the possibility of being blamed by self or others. Active attempts at such rectification are more likely against the background of thoughts of direct responsibility for harm, especially amongst those described by Rachman as being of 'tender conscience'. Clearly, if it is possible to rectify something that one may be responsible for, then any possible consequences cease to be a worry. The persistent seeking after reassurance, particularly from those in authority, displayed by many obsessionals also makes much more sense when viewed in this context and can be seen as a way of spreading the responsibility. Thus, the patient who has thoughts of harming others may somewhat diminish their feelings of responsibility by making sure that others know, often in great detail, the content of their worries or even carry out actions for them. So, if the doctor, psychologist or relative knows that the patient has touched a potential source of disease and then something likely to be touched by others, then they share the responsibility to some extent. This may also help account for the differences in the ability of different individuals to provide 'valid' reassurance. [See Foa (1979, p. 173) for a particularly interesting illustration of the power of reassurance in obsessionals with 'overvalued ideas'.] Some clinicians regard such reassurance seeking as a form of neutralization, but often the connection is unclear; for instance, in contamination fears where washing is the usual form of neutralization involved, but in addition reassurance is persistently (and often irritatingly) sought. Assessment and formulation based on ideas of responsibility or blame for disaster related to the effects of contamination and not washing may have greater explanatory value in the functional analysis of individual patients than fears of contamination *per se*. The implications for treatment are also important. Whereas some writers (Marks, 1981, p. 84) have stressed the importance of not providing reassurance during treatment, more often this important topic is given little prominence in descriptions of behavioural treatments. Where it is discussed, reassurance is, at best, defined very narrowly indeed, usually in terms of direct verbal requests. Frequently, reassurance seeking adopts subtle guises, and may not be recognized as a form of neutralization by patient or therapist. At worst, active provision of reassurance is recommended as a way of decreasing discomfort and improving compliance, with little regard for

potential detrimental effects (Warwick and Salkovskis 1985). These authors highlight the important difference between effective transmission of new information relevant to the patient's problems as opposed to repetitive provision of old information as a way of producing a temporary reduction in anxiety in response to doubts (i.e. intrusive thoughts) expressed by the patient. A further important implication is for the *way* in which treatment is carried out. That is, therapist-directed exposure could, under some circumstances, act to provide inappropriate reassurance and hence unwittingly lead to failure of response prevention. Examples of this include repeated unnecessary therapist modelling and excessive use of specific instructions without a shift in the emphasis towards self-directed exposure. In such circumstances, a careful analysis of the individual case with such a possibility in mind could be coupled with a strong emphasis on homework and self-programmed generalization. For the same reason, care also needs to be exercised in the use of spouse as therapist. In cases where there is a failure to generalize outside therapist-directed sessions, careful examination of this possibility is indicated, and programmed exposure to responsibility for their own programme is often useful. Some evidence for this view is provided by Roper and Rachman (1976), who demonstrated that it is difficult to elicit urges to check in the presence of the experimenter, and that urges to check elicited in the absence of the experimenter were significantly stronger than if the experimenter were present. In fact, they account for this phenomenon in terms of the transfer of responsibility to the experimenter or therapist, although they do not explain why this should have such an effect.

Neutralization can therefore be regarded as attempts to avoid or reduce the possibility of being responsible for harm to oneself or others. Frequently, the effort required for neutralization is slight when compared to the awful consequences of failure to neutralize, at least in the early stages of the disorder. Certainty of blamelessness is extremely difficult to achieve, however, and if the consequences of being to blame are particularly unpalatable to the individual concerned then the availability heuristic might be expected to come into operation, in a similar way to that suggested in anxiety by Butler and Mathews (1983). It is possible to go on to argue that the cognitive distortion involved in obsessional-compulsive problems relates to an inflated belief in the probability of *being the cause* of serious harm to others or self, or failing to avert harm where this may have been possible rather than an increased belief in the probability of harm *per se*. Related to this is Rachman's (1983) view that close clinical and theoretical attention needs to be paid to cognitions in which the informational content is "recent representative, personally salient (and) vivid" (p. 76). Frequently occurring *thoughts* regarding unacceptable actions (or possible failures to 'put right' where this may have been possible) may seem to the patient to be representative of the actions (or failure to act) themselves, in the light of their beliefs regarding the connection between thought and action (Borkovec *et al.*, 1983). This could equally apply to thoughts of having made a mistake. Clearly such thoughts are likely to be salient both in terms of their implications for possible unpleasant outcomes such as blame or criticism by others (Turner *et al.*, 1979), and in terms of their implications for action (neutralizing).

This view allows the explanation of a previously problematic clinical observation, the occurrence of intrusions without consequent discomfort. The presence or absence of dysphoric mood or salient belief appears to be an important determinant of whether discomfort follows such intrusions or not. Beck (1976) argues that negative automatic thoughts become more prominent when disturbed mood is present; thus, the intrusions are likely to cause more affective disturbance in the dysphoric individual due to the increased accessibility of *specific types* of negative automatic thoughts (Teasdale, 1983). This is not to say that pre-existing dysphoria is necessary for such affective disturbance: clearly, a particularly salient or vivid intrusion could provoke discomfort in the absence of generalized disturbed mood state rather in the way that failure experiences can provoke depressed mood whatever the initial state, but are more likely to when there is a pre-existing mood disturbance. Themes of danger (as in anxiety) and loss (as in depression) are both frequently present in the content of obsessional compulsive ideation, so that, for instance, it could appear very likely (dangerous) that something terrible (constituting a loss) *will* happen, and the individual concerned be responsible to some degree for this. Some degree of responsibility is assumed by the obsessional as similar to being fully responsible. This model would predict that increased accessibility of such concerns (as occurs in heightened anxiety and depression) would result in clinical worsening of obsessions.

The formulation outlined above was arrived at as a result of careful consideration of a large number of obsessional patients, and is illustrated below by two examples of quite different patients. Both patients were interviewed about the content of their intrusive thoughts, and then asked to try and focus on any thoughts subsequent to the intrusions as they occurred, particularly if these were associated with discomfort.

Case 1

Patient J.F. had recently qualified as a medical doctor, and was referred just prior to starting her house jobs and getting married. She was displaying compulsive behaviour related to ideas that she might become contaminated by substances such as cosmetics which could have become transformed by sunlight or heat into carcinogens; also that she might catch warts from her fiancée. She was well aware of the extremely unlikely nature of her intrusion, but was disturbed by the possibility to the extent that she spent most of the day protecting cosmetics, soap powders and the like from sunlight and heat, and avoided contact with anything which might be contaminated by such combinations. She avoided any consumer goods which might be 'different' or 'untested' for carcinogens, to the point of dismantling enormous shop displays to find an unflawed packet. She reported intrusions regarding the possibility of things having become carcinogenic, and the safety standards used ("have they tested handcream with this particular brand of toothpaste *and* when it has all been in the sun?"). She reported that when discomfort was provoked by these stimuli, it was accompanied by a vivid image of herself with her face disfigured by skin cancer, or the thought that if she did get cancer that her fiancée would certainly be so revolted that he would abandon her. Also, she reported that the thing that made it worst of all was the idea that *it would all be her fault because she had not done enough to prevent such an occurrence*. When she experienced intrusions which were not accompanied by these thoughts and images and the idea of blame, they did not particularly upset her and compulsive behaviour did not follow. Table 2 shows the intrusions and associated automatic thoughts for this patient.

Table 2. Intrusions and automatic thoughts for patient J.F.: health concerns

Intrusion	Automatic thought	Consequence
This hand cream may be contaminated as a result of mixing with sunlight, and some chemical interaction	I'll get cancer and it'll be my own fault (plus image of her face horribly disfigured by a growth)	Seeks reassurance. refuses to use cosmetics
Some contaminated handcream may still be on my hands	No-one will want to know me not even my fiancée, because I'll have made myself rot away	Rinses hands repeatedly
This damaged packet of food might have become contaminated by some (unknown) chemical and have become carcinogenic	If I don't find a perfect packet I'll have been responsible for Peter and myself getting cancer	Asks assistant. doesn't buy it, tries to find a packet without any flaws

This patient clearly illustrates thoughts of being responsible for physical harm, mainly to herself. The second example is quite different, insofar as the range of intrusions is much more varied, and the ideation is related to social-evaluative concerns.

Case 2

Patient E.C. was a 50-yr-old schoolteacher, and had been referred as a result of an acute worsening of long-standing problems. At the time of referral he was checking excessively, showing clear depressive symptoms which he attributed to the severity of the obsessional symptoms. His obsessions took the form of 'unfinished business', in that he could not leave the topics concerned alone until he was sure that he had not been "responsible for something resulting in terrible disgrace" (his words). He was convinced of the stupidity of the checking, but had no doubts about the certainty of disgrace if the intrusion were true. Table 3 shows the intrusions and ideation for this patient.

A series of patients seen by the author were reviewed prior to detailing the specific model outlined above, and the results of these investigations (based on interviews) are given in Table 4.

Table 3. Intrusions and automatic thoughts for patient E.C.: social evaluative

Intrusion	Automatic thought	Consequence
(When closing a building) I might not have switched the light off	I'll get into dreadful trouble: I'll be disgraced or lose my job because of this carelessness on my part	Checks light repeatedly
(Shakes hands having touched an unidentified substance on a desk) I've given this girl a disease, perhaps poisoned her	I'll have caused terrible harm to her, might even have caused her death	Makes sure she isn't ill
(Made an unwitting comment to class about headmaster) someone will tell him I was rude about him	My thoughtlessness will result in my getting the sack, or at least into terrible trouble	Tells class he didn't mean what he said in that way
(Took some drawing pins from work to use at church) someone will find out about this	I'll be described as a thief, I'll be in terrible disgrace because of what I have done	Hides drawing pins

Table 4. Obsessions and their associated ideation

Sex	Duration (yr)	Type of intrusion	Ideation	Behaviour
F	5	Blasphemous thoughts	I won't be forgiven for these thoughts; I have sinned by having them	Avoids churches, prays
F	7	Thoughts of having picked up someone's money, or set fire or made them lose their purse	I might have done something which will make me a thief; the thought might mean I want to be a thief	Asks if people have their purse, seeks reassurance, avoids tills, purses
F	14	Thoughts of harming her children; images of strangling them, them dead by her hand	This means that I want to do these things; having such thoughts means I am evil; having the picture may make it happen	Avoids being on her own with children, tries to think good thoughts
F	2	Thoughts of having contaminated others, especially her children by touching them	I will have caused people/my children to get cancer, they'll get sick because of me	Avoids touching anything which others may touch, washes, checks reassurance
M	6	Thoughts of having made a serious mistake at work (architect) of having missed some vital detail out	I'll be blamed for having made an expensive or injurious mistake through carelessness; I'll lose my job	Checks work repeatedly, asks others for advice, avoids finishing work
F	8	Thoughts of things being out of place, untidy	People will regard me as a bad wife/person because of my behaviour	Cleans, reassurance
F	4	Thoughts of harm coming to her dog	It'll be me that hurt the dog	Tries to think good thoughts
F	7	Doubts about having turned off the gas, etc.	My flat will explode, my neighbours will die because I didn't check	Repeated checking
M	13	Thoughts of getting a sexually transmitted disease, of leaving the gas (and other things) turned on	I'll be ill because I neglected my health, things will go wrong because I was neglectful	Checks genitals, seeks reassurance, checks gas
F	3	Thoughts of wishing harm on friends and family	Having these thoughts might make these things happen, I'll have harmed people I love	Tries to think of people alive and well
F	4	Thoughts of being very overweight, thoughts of ghosts coming into the house (as she does things, e.g. closing door)	If I do things while having such awful thoughts, these things might happen because of this	Thinks of herself as underweight, pictures an angel as she repeats
M	8	Thoughts of having herpes or other disease	I may transmit disease to my family; if I don't show the doctor, he'll not make the right diagnosis	Avoids contact with family, goes repeatedly to clinic
F	2	Thoughts of harming others by contamination, carelessness, fire and other things	If I cause harm to other people then I will not go to heaven	Checks, washes, gets other to do things for her
M	10	Thoughts about not having locked the door; ruminating about 'floaters' in his eyes	If I don't get rid of these thoughts I won't be able to enjoy myself	Checks, deliberately distracts himself

A COMPREHENSIVE COGNITIVE-BEHAVIOURAL MODEL OF OBSESSIONS

The account of obsessions described here clearly owes much to the previous 'anatomy of obsessions' proposed by Rachman (1978), and makes many of the same assumptions, specifically that obsessional symptoms should be conceptualized along the lines of a three-systems model, and that intrusions *per se* are a normal phenomenon.

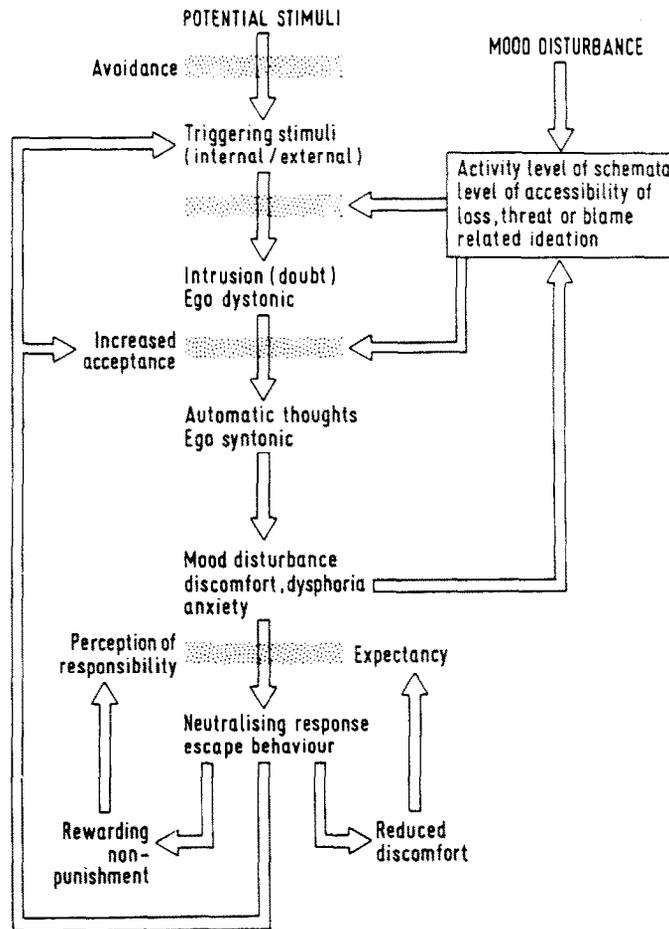


Fig. 1. Mechanisms and modulating influences in obsessional thoughts and behaviour.

Figure 1 illustrates the main elements of the proposed model, including the mechanisms by which resonating responses are maintained, and the gating mechanisms affecting the probability of particular sequences. The environment is full of a wide range of potential triggering stimuli for intrusive thoughts. However, most obsessional patients will take steps to avoid encountering such stimuli as much as possible (Robertson, Wendiggenon and Kaplan 1983). This avoidance may be overt or covert—that is, it may involve keeping out of particular environments and not allowing contact with particular stimuli, or may involve attempts to steer their thoughts off particular topics. This type of behaviour will be indistinguishable from that seen in phobics, with the intention being identical. Clearly such strategies may fail (or even be counter-productive, so that the avoidance behaviour itself begins to trigger the thoughts it is intended to prevent), in which case triggering stimuli are encountered. Such stimuli may be external (e.g. the sight of sharp knives), or may be other thoughts related or unrelated to the obsession. It seems likely that they may include the performance or even the satisfactory termination of a neutralizing response. There is no reason to believe that the processes governing the triggering of unpleasant intrusive thoughts are different from those involved in any other type of thought.

The intrusive thought triggered at this stage is, by definition, ego dystonic—that is, the content is experienced as inconsistent with the individual's belief system, and is perceived as objectively irrational. The reaction of the individual experiencing this intrusion (stimulus) will therefore be determined by the extent to which its occurrence is salient for the person concerned. If they believe that odd thoughts with an unpleasant content can occur and have no further implications, then the sequence will terminate here. If, on the other hand, they believe that thoughts of this kind might have important implications, then automatic thoughts would be expected to arise as a function of the strength of the beliefs concerned, which in turn will be affected by pre-existing mood state

(Teasdale, 1983). The kinds of belief involved are probably best summarized in terms of Beck's (1976) concept of 'dysfunctional assumptions'. Dysfunctional assumptions most likely to interact with intrusive thoughts include:

- (1) having a thought about an action is like performing the action;
- (2) failing to prevent (or failing to try and prevent) harm to self or others is the same as having caused the harm in the first place;
- (3) responsibility is not attenuated by other factors (e.g. low probability of occurrence);
- (4) not neutralizing when an intrusion has occurred is similar or equivalent to seeking or wanting the harm involved in that intrusion to happen;
- (5) one should (and can) exercise control over one's thoughts.

The assumptions involved in each case will vary considerably, but in each case an element of responsibility, blame or control will be involved in a way which interacts with the content of intrusive thoughts to produce automatic thoughts concerning some combination of blame, threat and loss. As already discussed, such automatic thoughts will, by definition, be ego syntonic.

Mood disturbance will result from the automatic thought, and this in turn is likely to lead to neutralizing responses. The likelihood of occurrence of neutralizing responses will depend on previous experience in terms of the extent to which relief is expected as a result of their performance (including schedule effects). Also important is the extent to which their non-performance is salient to the beliefs described above (i.e. perceived responsibility).

There are three main consequences of neutralizing, each of which have further implications for the process described. Firstly, neutralizing usually results in reduced discomfort (Hodgson and Rachman, 1972; Roper, Rachman and Hodgson, 1973) which allows the development of obsessional behaviour as a strategy for coping with stress. This not only increases the probability of subsequent neutralizing, but may also result in generalization of this strategy for anxiety reduction to other circumstances (see below). Secondly, neutralization will be consistently followed by non-punishment. Rewarding non-punishment is a powerful reinforcement in its own right (Gray, 1975) and will also be expected to have an effect on the perceived validity of the beliefs described above. These would act along the lines of 'I acted on my belief and felt better, therefore the belief must have some basis in truth' and 'the disaster I attempted to forestall has not come about, which may mean that my neutralization was a reasonable and effective thing to do'. Finally, the performance or completion of neutralizing will be, in itself a powerful and unavoidable triggering stimulus.

Pre-existing mood disturbance, although not central to the model proposed, can act at several levels. It could, for example, lead to resonance of the system in the absence of specific triggering stimuli if it were strong enough, insofar as in predisposed individuals specific cognitions relating to responsibility would become available as a result of severe dysphoria (Teasdale, 1983). Mood disturbance would widen the range of stimuli which provoke intrusions in the first place, the range of intrusions which lead to negative automatic thoughts, and the activity level of pre-existing dysfunctional schemata. If the intrusion serves as a stimulus resulting in a negative automatic thought, then the consequent mood disturbance will feed back to increase accessibility of further negative automatic thoughts. Specifically it can be predicted that increases in anxiety will result in more frequent intrusions, while depression will result in an increased probability of negative automatic thoughts and hence discomfort.

Clearly, if the automatic thoughts arising from the intrusion do not include the possibility of being in some way responsible (either actively or passively), then neutralizing is very unlikely to take place, and the result is likely to be heightened anxiety or depression rather than an obsessional problem. It could also be added that rapid extinction of affective responses would also be predicted in these circumstances, as in the stress-induced intrusions reported by Horowitz (1975). Thus, for the obsessional patient threat and loss are to be avoided, but responsibility more so.

For the model to be useful, a number of important observations need to be encompassed within the framework offered here, leading to specific modifications in particular circumstances. It should be added that these observations are problematic for most current theoretical models of obsessive-compulsive disorder, and the ways in which this model deals with them are, in the main

part, not markedly different from other related formulations such as that proposed by Rachman (1978).

(1) Clinically, compulsions which appear to be fundamentally 'senseless' and not specifically related to thoughts of blame or responsibility may be encountered (de Silva, 1984). It is even possible to encounter individuals who actually find the performance of rituals pleasurable, although such individuals seldom present for treatment entirely of their own accord.

The key to this issue appears to be the presence of extremely well-elaborated and above all, effective, neutralization. This can be in the form of covert or overt compulsive behaviour. In each of the cases drawn to my attention, the compulsion has assumed considerable stereotypy, and most commonly has been present for a considerable period of time. For instance, a colleague allowed me to interview a girl (who had been referred for a psychosomatic condition), who found rearranging objects in exact lines, sometimes for many hours, a relaxing and pleasurable activity. She also reported strong urges to perform such activity during times of stress. When interviewed, she was able to date the onset of this behaviour to her early teens, at which time she recalled feeling that if she did not line things up harm would come to her parents. She did not recall these thoughts having diminished, but was emphatic that they had not been present for some years. It would appear that completely effective avoidance may lead to the disappearance of the automatic thoughts (and anxiety) in a way similar to that described by Solomon (Rescorla and Solomon, 1967). In avoidance experiments, dogs learned to shuttle so effectively that they did not encounter any aversive stimuli. They also ceased to show any signs of fear, although preventing the avoidance response resulted in the reinstatement of fear responses. It is interesting to note that Beck (1976) makes a similar observation, noting that consistent avoidance in phobics is related to lack of awareness of 'maladaptive ideation' (i.e. negative automatic thoughts), adding that being forced into the avoided situation leads to activation of such ideation, and consequent easy identification.

In obsessions, this situation would be expected to occur in individuals for whom the neutralization is fully effective and can be carried out on every occasion. In such cases, the obsession would cease to elicit the negative automatic thoughts, as the thoughts of blame would not apply if 'putting things right' were immediately and consistently possible. It is also possible that the neutralizing response would come to have the kind of reinforcing properties associated with a strong safety signal (Rachman, 1984), and may occur independently of intrusions, as described in the case above. In cognitive terms, the neutralizing response could come to elicit *positive* automatic thoughts, although this need not necessarily happen. From this analysis, a number of testable predictions can be made about obsessions for which no thoughts of blame or responsibility can be found: (i) a highly effective neutralizing response will always be present; (ii) thoughts of blame or responsibility will have been present at the onset of the obsession; (iii) the obsession will tend to be of very long duration or of early onset; (iv) little or no resistance to the obsession will be present for most of the time; (v) little or no subjective or psychophysiological disturbance will accompany the performance of the neutralizing behaviour, although response prevention will tend to produce both; and (vi) the neutralizing response will tend to be very stereotyped. Such patients are relatively rare, but these predictions have been borne out in the five such cases the author has been able to interview.

(2) Thoughts of blame or responsibility are not prominent in many 'normal' obsessions, in the absence of compulsive behaviour.

In a sense, this may well be a key strength of the present formulation. It does appear that thoughts of blame and responsibility are not present in some normal Ss. This is particularly the case for individuals who report that they do not engage in any neutralizing activity. The explanation for this can be found in the previously described distinction between automatic thoughts and intrusions. Normal Ss experiencing intrusions with weak or no negative automatic thoughts of blame are almost certain not to attempt neutralizing, as this would clearly serve no function whatsoever. Parkinson and Rachman (1980) report, in a study of habituation of 'normal' obsessional thoughts, that eliciting the thought stimulated the urge to neutralize in only 1 of 60 Ss. This is in very marked contrast with studies on clinical obsessions, in which the urge to neutralize is consistently elicited in such circumstances. This, then, appears to be a major difference between 'normal' and clinical obsessions, and can be easily explained within the framework offered here. Hence, it is argued that 'normal' obsessions, in most circumstances, do not elicit negative

automatic thoughts of blame. They may not elicit any response at all, or they may elicit negative automatic thoughts unrelated to blame or responsibility (such as thoughts related to threat or loss), produce discomfort without neutralizing, and simply habituate with repetition. Predictions from this aspect of the model would be: (i) there will be a strong association between neutralization and thoughts of blame in normal obsessions; (ii) normal and abnormal obsessions will differ in terms of the likelihood of thoughts of blame being present; (iii) when thoughts of blame are present in normal obsessions, the belief in such thoughts will be considerably less than in a clinical population even when the effect of frequency of intrusive thoughts is partialled out; (iv) the content of intrusive thoughts is likely to be more variable over time in a normal compared to a clinical sample; and (v) when neutralization takes place frequently in a normal obsession, the scope of this will closely parallel clinical obsessions.

(3) While the relationship between mood and obsessions is easily explained where obsessions increase as a result of mood disturbance, there is a small identifiable subsample ('losers') for whom depression results in a decrease and sometimes complete remission of obsessional symptoms (Gittelson, 1966). Such individuals show a return of obsessional symptoms once the depression lifts. The explanation for this phenomenon may be found in the content of the cognitions involved in these patients when they become depressed. In depression two relatively distinct sets of cognitions may be involved; self-blame and guilt feelings as opposed to overwhelming feelings of helplessness and hopelessness. The belief that things are going (or have gone) wrong as a result of the patients own actions as opposed to the belief that nothing one does makes any difference at all, now or ever, would have quite different effects on the assumptions described as underlying obsessional problems. Ideas of self-blame and guilt should amplify any pre-existing obsessional thoughts ('gainers'), while hopelessness and helplessness would invalidate those already present ('losers'). Predictions from this would be: (i) 'gaining' and 'losing' should relate to the interactions between obsessional beliefs and depressive beliefs such that hopelessness specific to obsessional content will inversely correlate with worsening of obsessions; (ii) 'losing' should be confined to depression (particularly retarded depression), and should not be seen in anxiety states without severe depression or hopelessness; and (iii) for such patients the intrusive thoughts will still occur in depression but will be regarded as 'not mattering'.

The therapeutic implications of this model are largely consistent with those of the behavioural model, with some particular additions. It would be predicted that attempts at cognitive modification of obsessions should concentrate not on modification of intrusions, which would be unlikely to have other than a transient effect on the belief system of the individual, but on the automatic thoughts consequent on the intrusions, and the beliefs which give rise to these. Clearly, exposure and response prevention are vital in the context of this model in terms of their effect on the resonating circuits in the later stages of the sequence described here. These procedures, together with related techniques such as modelling, would also function in the same way as the behavioural experiments currently employed in cognitive therapy for depression and anxiety (Beck, Rush, Shaw and Emery, 1979; Beck and Emery, 1979). Such an approach provides the opportunity to challenge automatic thoughts by thinking and behaving differently, in ways which may often be more effective than purely cognitive manoeuvres alone (Rachman, 1983a). If some modification of the occurrence, nature or impact of automatic thoughts concerning responsibility were possible in tandem with such procedures, then the subjective discomfort and psychophysiological disturbance could be reduced as well (de Silva and Rachman, 1981) with important implications for compliance. Likewise, if it were possible to alter the assumptions associated with the obsession, presumably the possibility of any resonance being set up would be removed and habituation enhanced accordingly. Another major application of cognitive techniques would be with individuals who may present difficulties in exposure, such as those who fear contamination by stimuli which it would be unwise to allow direct exposure (e.g. poisons) or in whom the predicted disasters arising from failure to perform the obsessions are remote in time, such as fears of contamination by potential carcinogens.

It is important to stress that attempts to act on the intrusion itself by means of direct argument would probably be unsuccessful between sessions and would, at worst, be most akin to providing reassurance and hence serve to strengthen the dysfunctional schemata. If the intrusion is regarded as the stimulus resulting in particular automatic thoughts rather than the cognitive basis of the discomfort itself this is clearer: reassurance is simply providing a further means of avoiding the

stimulus. Another possibility for therapy relates to the use of cognitive intervention in depressed obsessionals, for whom there is now considerable evidence of failure to respond to behavioural treatments (Rachman, 1983b; Foa, 1979). If a cognitive approach is employed with such patients, then particular attention would need to be paid to dealing with thoughts of guilt or overwhelming responsibility; within-session habituation to exposure would then be expected to proceed, this probably being a necessary condition for clinical improvement (Foa, 1979).

Clearly, further validation of the view expounded here is required, and a study to provide this is under way. Preliminary single-case experiments evaluating the value of an approach of this kind with a variety of problems are also being carried out (Salkovskis and Warwick, 1985b). A case study which raises further questions of the type discussed here and illustrates the use of a cognitive intervention in a depressed obsessive who developed overvalued ideation has been completed (Salkovskis and Warwick, 1985a). Ultimately, the utility of such a model must rest on its ability to make a contribution to the clinical assessment and treatment of obsessional patients.

Acknowledgements—The author is grateful to a number of people for help with the ideas discussed here. In particular, I would like to thank Ivy Blackburn, Tom Borkovec, David M. Clark, Melanie Fennell, Edna Foa and Hilary Warwick for useful discussions; also David A. Clark, David M. Clark, Padmal de Silva, Melanie Fennell and Hilary Warwick for substantial comments on earlier versions of this paper.

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