# Clinical review

## *Fortnightly review*

# Cognitive behaviour therapy—clinical applications

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Although there are many variants of cognitive behaviour therapy, these are unified by the proposition that psychological problems arise as a direct consequence of faulty patterns of thinking and behaviour. Patients tend to misinterpret situations or symptoms in ways that undermine their coping. Their abnormal behavioural patterns exacerbate and consolidate these problems. The critical factor lies in how patients assess specific situations or problems—as summarised by Epictetus, a first century Greek philosopher: "Men are disturbed not by things, but the views they take of them."[1]

### Summary points

Cognitive behaviour therapy ascribes a central role to conscious thought, beliefs, and behaviour in the perpetuation of disability

The therapy is a brief, problem oriented approach that aims to help patients to identify and modify dysfunctional thoughts, assumptions, and patterns of behaviour

It is now the treatment of choice for many mental health disorders and has extensive application to general medicine, supported by increasing numbers of clinical research studies

There are relatively few qualified cognitive behaviour therapists: if the treatment is to achieve its clinical potential there must be substantial and rapid expansion of training opportunities

More research is needed in all areas of cognitive behaviour therapy to refine theory and therapy

## Methods

This review of cognitive behaviour therapy is based on a literature search of all papers, books, and chapters related to its application in mental health and general medicine. In the search I used the following key words—cognitive, behaviour, behavioural, theory, therapy, treatment—and searched the following databases on the Embase CD ROM from September 1985 to September 1996—Healthplan, Psych-Lit, Excerpta Medica (psychiatry, drugs, pharmacology), Cinahl, Medline, and Social Science Citation Index. This review covers the major clinical applications of cognitive behaviour therapy, focusing on those aspects of psychology, psychiatry, and medicine where the research data are most substantial.

## Cognitive behaviour theory

The link between psychological problems and faulty patterns of thinking and behaviour can be illustrated Beck's original model of depression.[2] He proposed that negative thinking in depression has its origins in attitudes and assumptions arising from experiences early in life. Such assumptions can be positive and motivating, but they can also be too extreme, held too rigidly, and be highly resistant to revision.

Problems arise when critical incidents occur that contradict a person's goals and beliefs. For example, the assumption "My worth is dependent on my success" might cause a person to be vulnerable to an event like failing to get a job at interview. Once activated by the critical incident, the core assumption leads to the production of spontaneous negative automatic thoughts such as "I am a worthless failure." Such thoughts lower mood and increase the likelihood of further negative automatic thoughts since research has shown that specific types of affect will automatically increase the accessibility of thoughts congruent with that mood.[3]

Once a person is depressed a set of cognitive distortions known as the cognitive triad (negative view of oneself, current experience, and the future) exert a general influence over the person's day to day functioning, and negative automatic thoughts become increasingly pervasive. Other biases in information processing also act to consolidate the depression, whereby patients exaggerate and overgeneralise from minor problems and selectively attend to events that confirm their negative view of themselves.

Behavioural factors will also serve to exacerbate the depression. Sufferers' activity levels begin to reduce. Reduced exercise may also be associated with a lowering of mood. Depressed people go out less and gradually withdraw from life, thereby experiencing less stimulation and reduced opportunity for positive experiences.

Cognitive behaviour theory does not claim that negative thinking and abnormal behaviour cause

depression but rather that these factors exacerbate and maintain the emotional disturbance.

## Cognitive behaviour therapy

The cognitive behaviour therapist and patient work together to identify specific patterns of thinking and behaviour that underpin the patient's difficulties. Treatment continues between sessions with homework assignments both to monitor and challenge specific thinking patterns and to implement behavioural change.

The cognitive methods in therapy include:

- Detailed explanation and discussion of the cognitive model
- Keeping a diary monitoring situations, thoughts, and feelings to develop awareness about these
- Identifying connections between thoughts, affect, and behaviour
- Examining evidence "for" and "against" the thoughts
- Coaching patients in challenging negative thoughts by question and rationalising techniques
- Learning to identify dysfunctional assumptions underpinning distortions
- Cognitive rehearsal of coping with difficult situations or use of imagery

The behavioural elements in therapy may include:

- Setting up behavioural experiments to test irrational thoughts against reality
- Graded exposure to feared situations in reality or the imagination
- Target setting and activity scheduling
- A programme of reinforcement and reward
- Teaching specific skills such as relaxation
- Role playing, behavioural rehearsal, therapist modelling coping behaviours

### Growth of cognitive behaviour therapy

Though cognitive behaviour therapy was initially developed for treating depression, in the past 25 years the subject has rapidly expanded. This expansion is based on the premise that cognitive and behavioural factors are relevant to all human experience. It is therefore logical to assert that there is no psychological or physical problem that cannot be potentially assisted by a cognitive behavioural approach.

It is easy to see the appeal of the cognitive behaviour therapy bandwagon. Its methods are well documented and readily accessible. It focuses on well defined targets that can be quantified and researched. Treatment is brief, highly structured, problem oriented, and prescriptive. Patients are seen as active collaborators who can readily understand and apply the theory and techniques.

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## Clinical applications of cognitive behaviour therapy

### Depression

Treatment is based on a two pronged attack: first, using cognitive techniques to alter maladaptive assumptions containing negative information about the self in relation to the world and the future; and, second, ameliorating reduced levels of behavioural activity, exercise, and positive experience.[4] The dominance of negative thought patterns leads to a systematic negative bias in the perception and interpretation of information, which in turn underpins the motivational, behavioural, and physical symptoms of depression. Cognitive techniques train patients to identify, evaluate, and alter the faulty thinking that distorts reality. Behavioural methods are complementary and activate patients to test out alternative assumptions in reality.

The efficacy of cognitive therapy in treating depression is well documented. Research has primarily been conducted with outpatients with unipolar, non-psychotic depression. A recent review of 15 studies concluded that cognitive behaviour therapy was at least as effective as medication in treating depressed outpatients, the combination of the two treatments was more effective than either one alone, and most of the studies found that cognitive behaviour therapy was equally applicable to more severe and more endogenous types of depression.[5] In comparison with other psychological treatments for depression, cognitive behaviour therapy also fares well.

Studies of long term follow up reported that cognitive behaviour therapy was associated with greater prophylactic effects in depressive disorders. When cognitive behaviour therapy was added to routine inpatient treatment 54% of patients remained well at the 12 month follow up compared with 18% in the routine treatment group.[6] In another study 79% of depressed patients remained well at two years after cognitive behaviour therapy, compared with 85% of patients who had combined cognitive behaviour therapy and medication.[7] This enhanced outcome was maintained at four year follow up.[8]

### Panic disorder and agoraphobia

Cognitive behaviour therapy for patients who experience panic attacks is based on identifying and modifying catastrophic misinterpretations of the initial physical symptoms of the anxiety. Specific exercises that enable exposure to feared bodily sensations and actual exposure to fear cues are central to the treatment.

Controlled studies attest to the efficacy of cognitive behaviour therapy in treating panic and agoraphobia and its superiority over supportive therapy, relaxation, and drugs.[9] The long term effects of cognitive behaviour therapy seem to be superior to other techniques.[10]

### Post-traumatic stress disorder

Perceived unpredictability and uncontrollability have a pivotal role in the development of post-traumatic stress disorder. In addition, cognitive behaviour therapy focuses on active exposure to the experience of the trauma through repeated activation of the fear memories and eliminating imaginal and behavioural avoidance.[11]

Behaviour therapy and cognitive behaviour therapy have been reviewed by Hacker-Hughes and Thompson in treating post-traumatic stress disorder.[12] They report encouraging results but highlight the need for more empirical support for the specific cognitive components of the treatment.

**Generalised anxiety disorder**

Worry lies at the core of generalised anxiety disorder. Sufferers overestimate the likelihood and severity of things going wrong and underestimate both their internal and external coping resources.

A review of 11 studies using cognitive behaviour therapy to treat generalised anxiety disorder indicated that these methods were at least as effective as anxiolytic drugs and superior to placebo or to no treatment.[5] The results of the treatment in studies of long term follow up are also encouraging.[13]

**Social phobia**

Social phobics interpret social situations as threatening; their attention is self focused, leading to a belief that others are evaluating them negatively; and they exhibit a greater awareness of their own bodily symptoms. Despite having poorer memories of recent social interactions than control subjects, social phobics tend to conduct long post mortems after social encounters typified by negative self evaluation. This process leads ultimately to behavioural avoidance.

Combined exposure and cognitive restructuring has proved beneficial.[14] However, cognitive behaviour therapy has been shown to bring greater benefit to patients with circumscribed social phobia rather than those with generalised social phobia.[15]

**Obsessive-compulsive disorder**

Behavioural treatments involving exposure of patients to their fears while preventing obsessive ritualising have proved highly successful in treating many obsessive-compulsive disorders. However, those who fail to respond to behaviour therapy tend to have "overvalued ideas" concerned with exaggerated personal responsibility, perfectionism, and fear of punishment or catastrophic outcomes.[16] These beliefs are the focus for cognitive interventions with obsessive-compulsive patients.

A recent review of 15 studies of cognitive behaviour therapy in obsessive-compulsive disorder concluded that, because of methodological problems, claims for the added benefit of cognitive techniques to existing behavioural methods were encouraging but as yet unproved.[17]

**Eating disorders**

In anorexia the central dysfunctional assumption is the statement "I must be thin." The developmental distresses of adolescence are allayed through the pursuit of thinness, and feelings of self doubt and deficiency are overridden by maintaining a figure perceived to be the envy of all others.[18]

Despite the central role ascribed to cognition in the aetiology of this disorder, anorexia has remained remarkably resistant to cognitive behaviour therapy. Outcome studies are limited and offer only marginal support of cognitive behaviour therapy compared with other types of intervention.[19]

Fairburn and Cooper are credited with the most comprehensive model of bulimia nervosa with regard to cognitive behaviour therapy.[20] They emphasise a preoccupation with weight and shape, leading to excessive and inflexible dietary rules. Sufferers fail to adhere to their regimen and view this failure catastrophically, leading to abandonment of the rules and bingeing behaviour. Self esteem becomes solely associated with weight or shape, increasing the perceived value of dieting. Bingeing and purging behaviours reinforce low self esteem to complete the vicious cycle.

The specificity of cognitive behaviour therapy in treating bulimia is still a matter for debate. In most outcome studies, important therapeutic effects are reported in about half of those treated by cognitive behaviour therapy.[21]

**Hypochondriasis**

Cognitive behaviour therapy focuses on patients' enduring tendency to misinterpret innocuous physical symptoms as evidence of serious illness. The ensuing anxiety leads to repeated reassurance seeking, hypervigilance to information about illness, increased bodily focus, and avoidance.

The only published controlled trial compared 16 sessions of cognitive behaviour therapy with a control group awaiting treatment. Despite limitations in design and methodology, this study reported a positive outcome for the treated group.[22]

**Psychosis and schizophrenia**

Cognitive behaviour therapy for patients with psychoses is based on the idea that first rank symptoms occur as a result of normal attempts to make sense of abnormal perceptual experiences. Treatment helps patients distract themselves from their symptoms and alter their beliefs about the nature of their experiences.

Much of this work has been based on residual symptoms that persist despite drug treatment. Data on outcomes suggest that cognitive behaviour therapy can be effective in reducing the intensity of beliefs and preoccupation with delusions. However, general functioning and negative symptoms seem to be less affected by cognitive behaviour therapy.[23]

Other studies have reported the beneficial effects of cognitive behaviour therapy in improving compliance, insight, and functioning in a mixed group of patients with psychotic disorders.[24] Research has also focused on using cognitive behaviour therapy in family interventions, which have been shown to improve families' problem solving skills and to reduce clinical, social, and family morbidity.[25]

**Personality disorders**

Beck and colleagues have suggested that each of the subcategories of personality disorder reflect specific dysfunctional beliefs and an associated maladaptive behavioural strategy that is harmful to the individual or to society.[26] Other work highlights early dysfunctional beliefs that reflect four areas of vulnerability: autonomy, connectedness, worthiness, and limits and standards.[27]

As yet there are few controlled trials to validate treatment of personality disorder with cognitive behaviour therapy. Treatment can last for more than two

**Appendix:** Applications of cognitive behaviour therapy

| Problem | Focal issues for therapy | Studies: Treatment methods | Studies: Reviews and outcomes | Summary of efficacy |
|---|---|---|---|---|
| Depression | Negative view of self, the world, future; feeling hopeless, helpless; reduced activity | Beck *et al* (1979)[4] | Blackburn *et al* (1996)[5] | Major role in treating depression |
| Panic disorder and agoraphobia | Catastrophic misinterpretation of bodily symptoms; feeling vulnerable, escalation, unable to cope | Clark (1986)[37] | Clark *et al* (1994)[10]<br>Beck *et al* (1994)[9] | Treatment of choice |
| Generalised anxiety disorder | Feeling worry, uncertainty, unpredictability, uncontrollability | Butler (1991)[13] | Blackburn *et al* (1995)[38] | Treatment of choice |
| Social phobia | Feeling threatened, fear of negative evaluation; avoidance | Heimberg (1990)[39] | Taylor (1996)[14] | Less effective in generalised problems |
| Monophobia | Feeling excessive threat or danger in avoidable situations | Beck *et al* (1985)[40] | Cottraux (1993)[41] | Treatment of choice |
| Post-traumatic stress | Imaginal and actual exposure to all relevant cues; reappraisal of event, personal vulnerability, and self | Foa *et al* (1995)[11] | Hacker-Hughes *et al* (1994)[12] | Promising but still experimental |
| Hypochondriasis | Conviction in serious medical disorder | Warwick *et al* (1990)[42] | Warwick *et al* (1996)[22] | Positive findings from limited studies |
| Anorexia | Fear of appearing fat; distorted assumptions about body weight; restricted or binge-purging behaviours | Garner *et al* (1985)[18] | Brambilla *et al* (1995)[19] | Superiority to other treatments still unproved |
| Bulimia | Idealised body weight and shape; bingeing, laxative misuse | Fairburn *et al* (1989)[20] | Leitenburg (1995)[43]<br>Wilson (1996)[21] | Effective but long term outcome questionable |
| Obsessive-compulsive disorder | Exposure to fears and preventing ritual response; feeling exaggerated responsibility, control, predicted catastrophe, anxiety | Salkovskis (1996)[44] | James *et al* (1995)[17] | Cognitive methods may enhance behaviour therapy, especially in pure obsessions |
| Psychosis and schizophrenia | Symptoms from normal attempts to make sense of abnormal perceptual experience; behavioural compliance; family work | Fowler *et al* (1995)[23] | Kemp *et al* (1996)[24] | Promising but needs long term assessment |
| Personality disorder | Maladaptive early schemas of autonomy, connectedness, worthiness, and limits or standards | Young (1990)[27]<br>Beck *et al* (1990)[26] | Linehan et al (1993)[28] | Early results promising, controlled trial needed |
| Offenders | Fatalistic recidivism, dependency, misattribution | Cole (1989)[29] | McGuire (1995)[30] | Behaviour therapy enhanced by cognitive techniques but recidivism high |
| Anger | Anger engendering information processing; behavioural analysis | Novoco (1975)[45] | Deffenbacher (1996)[46] | Reduction not elimination; issues of compliance |
| Drug dependence | Stimulus control, attitudes, assertion, preventing relapse | Wright *et al* (1993)[47] | Azrin *et al* (1996)[48] | Modest success; issues of specificity |
| Problem drinking | Monitoring, stress management, controlled *v* abstinence | Jarvis *et al* (1995)[49] | Oei *et al* (1991)[50] | Useful; cognitive models unproved |
| Marital therapy | Misattribution to roles, standards, and events; communication, problem solving, contracting | Baucom *et al* (1990)[51] | Baucom *et al* (1996)[31] | Analysis of cognition enhances behavioural methods |
| Sex therapy | Attitudes and expectations, education, behavioural methods, anxiety | Hawton (1989)[52] | Rosen *et al* (1995)[32] | Useful, but outcome remains unsatisfactory in some areas |
| Pain | Feeling hopeless, helpless, self blame, anger; focus of attention, lifestyle changes | Williams *et al* (1993)[53] | Romano *et al* (1994)[54]<br>Turk (1996)[34] | Consistent evidence of efficacy in assisting pain management |
| Chronic fatigue syndrome | Strong attribution to physical disease; feeling hopeless and helpless | Surawy *et al* (1995)[55] | Sharp *et al* (1995)[56] | Improvements reported, but high refusal; insufficient controlled trails |
| Arthritis | Pain management, activity schedules, behavioural adjustment | McCracken (1991)[57] | Kraaimaat *et al* (1995)[58] | Mixed findings; follow up data discouraging |
| Tinnitus | Distraction, relaxation, cognitive or behavioural management techniques | Davis *et al* (1995)[59] | Kroner-Herwig *et al* (1995)[60] | Few existing studies, but show promise |
| Diabetes | Stress, discrimination training, compliance, self monitoring, diet, control issues | Fonagy *et al* (1989)[61] | Bradley (1994)[62] | Some evidence of improved management |
| Cancer | Disfigurement, control, understanding, adjustment | Moorey *et al* (1989)[63] | Devine *et al* (1995)[64] | Promising results in coping and management |
| Coronary proneness | Risk reduction and managing distress after myocardial infarction | Langosch (1989)[65] | Bennett (1994)[66] | Outcomes variable; more research needed |
| Asthma | Compliance, management strategy, self monitoring | Colland (1993)[67] | Sommaruga *et al* (1995)[68] | Few controlled studies |
| Epilepsy | Stress management, awareness training, relaxation, education | Birbaumer *et al* (1992)[69] | Goldstein (1990)[70] | May reduce seizures; limited data |
| Obesity | Eating behaviours and attitudes, activity, self esteem | Brownell *et al* (1995)[71] | Wilson (1994)[72] | Reduction, but relapse problems |
| Irritable bowel | Diet, stress management, actual exposure to irritants | Blanchard *et al* (1996)[73] | Blanchard *et al* (1996)[74] | Modest results from controlled studies |
| Hypertension | Eating, alcohol and salt intake, exercise, stress management | Johnson *et al* (1989)[75] | Linden *et al* (1994)[76] | Risk reduction, but long term data needed |
| Atopic dermatitis | Habit reversal training, relaxation, stress management | Halford *et al* (1992)[77] | Ehlers *et al* (1995)[78] | May be useful as adjunct to medical care |
| Insomnia | Stimulus control, sleep restriction, relaxation | Espie (1991)[79] | Murtaugh *et al* (1995)[80] | Results encouraging; limited trials |
| HIV infection and AIDS | Emotional distress, maladaptive coping, education and prevention | Oakley *et al* (1995)[81] | Eller (1995)[82] | Benefits widely reported, but limited controlled research |
| Medical procedures | Stress management in preparation and adjustment | Heim (1995)[83] | Johnson *et al* (1990)[84] | Reduces psychological distress |

years, and most research is based on single case studies. Much more evidence of efficacy is needed.[28]

**Offenders**
Numerous studies attest to the efficacy of cognitive behaviour therapy in modifying behaviour and reducing recidivism. The main areas of study relate to sex offenders, violence, juvenile crime, and mentally disordered offenders.[29]

The general conclusion must be that, despite encouraging evidence of the efficacy of cognitive behaviour therapy across a broad spectrum of problems, the jury is still out. The huge scope of this work is beyond the current review and is summarised elsewhere.[30]

**Couples and sex therapy**
Cognitive behaviour approaches focus on behavioural interactions, problem solving, and cognitions related to roles, standards, and specific experiences. In sex therapy cognitive behaviour therapy aims to address sexual anxiety, attitudes, and behavioural skills.

Evidence is slowly emerging that behavioural techniques can be enhanced by understanding and modifying partners' cognitions. However, there is little consensus as to which cognitive variables are the most important in sustaining healthy relationships.[31 32]

**Pain and medically unexplained symptoms**
Studies have shown that the prevalence of psychological problems is three times higher in patients with an undiagnosed problem compared with those with a firm medical diagnosis.[33] Cognitive behaviour therapy is used to help patients to manage their physical symptoms more effectively. The experience of physical illness is a complex, subjective phenomenon unique to each person. Therefore, knowledge of a person's beliefs, attitudes, and coping strategies is essential in planning and evaluating any treatment programme.

Cognitive behaviour therapy emphasises the control of physical symptoms by understanding the interactions of emotion and cognition together with challenging and modifying patterns of thinking and behaviour that are likely to amplify, distort, or maintain patients' suffering.[34]

The application of cognitive behaviour therapy within medicine has undergone a vast expansion in the past two decades, and the related literature continues to grow at a phenomenal rate. The appendix summarises some of the applications of cognitive behaviour therapy in medicine.

## Referral considerations

Despite the great expansion in the application of cognitive behaviour therapy, there are few qualified practitioners. All clinical psychologists trained within the past 20 years will have expertise in cognitive behaviour therapies, and, therefore, the local department of clinical psychology should be the first repository for referrals. Alternatively, a limited number of psychiatrists, psychiatric nurses, and behavioural nurse specialists may have expertise in cognitive behaviour therapy gained through specialist placement or post-qualification training.

With the advent of fundholding, some clinical psychology departments provide services on site in primary care settings. Others will be based in community mental health teams or linked to hospital sites. Treatment is usually brief, consisting of anything between six and 20 sessions, each lasting about an hour. Individual therapy is most common, but group formats may exist for problems such as anxiety, issues of assertion, and some eating disorders.

General practitioners should note the following factors when deciding on patients' suitability for cognitive behaviour therapy:

- Patients should be requesting a practical method of treatment to resolve a specific problem rather than a more nebulous wish for "understanding myself better" or "wanting to be happy"
- Patients must be willing to consider and gradually accept a psychological model that highlights the importance of patients' thoughts and behaviours in the aetiology of conditions (many departments of clinical psychology have introductory handouts or booklets describing cognitive behaviour therapy for various conditions or lists of self help texts, and these may be available to general practitioners on request)
- Patients must actively contribute to the process of therapy by completing assessment forms, keeping diaries, and performing homework tasks.

## Caveats, criticisms, and future directions

For many diagnostic groups, controlled trials indicate that, at best, only about half of patients exhibit clinically important improvement after cognitive behaviour therapy. Many of these studies have been conducted by the original theorists, and there is evidence of allegiance effects whereby less expert practitioners or those from another theoretical base often fail to replicate such positive results from treatment.[35 36]

Some applications of cognitive behaviour therapy remain highly experimental and require considerably more research and more sophisticated theoretical models. Without this increased understanding of what works for whom, and why, we should remain cautious of overenthusiastic claims for efficacy and of the clumsy application of generic cognitive behavioural theory being made to fit increasingly diverse disorders.

A considerable increase in the number of trained practitioners of cognitive behaviour therapy is needed to meet increasing demands. Without this investment the potential benefits of cognitive behaviour therapy will never be fully realised.

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