

# Cognitive Behavior Therapy:

## Basic Principles and Recent Advances

Jesse H. Wright, M.D., Ph.D.

Cognitive behavior therapy (CBT) is a pragmatic, action-oriented treatment approach that has become a widely used psychotherapy for major mental disorders. CBT methods were initially developed for depression and anxiety disorders (1–3), and later they were modified for many other conditions, including personality disorders, eating disorders, and substance abuse; they have also been adapted for use as an adjunct to medication in the management of schizophrenia and bipolar disorder (3, 4–7). This article delineates the core principles of CBT, describes procedures used in clinical practice, and notes some of the recent advances that have been made in this treatment method. The extensive research supporting the efficacy of CBT is briefly reviewed.

### BASIC PRINCIPLES OF CBT

The theoretical structure and basic method for CBT were outlined by Aaron Beck in a classic series of papers published in the 1960s (1, 2) and then elaborated in a treatment manual for depression (8). Beck's early writings focused primarily on pathology in information processing styles in patients with depression or anxiety, but he also incorporated behavioral methods to activate patients, reverse helplessness, and counter avoidance. As CBT matured, contributions from behavior therapy research and studies of cognitive processes in mental disorders enriched the clinical practice of this form of psychotherapy (6, 9, 10).

### THE CBT MODEL

Cognitive behavior therapists typically use an integrative multisystem model to conceptualize patients and plan treatment (10). The assessment centers primarily on cognitive and behavioral observations, but biological, interpersonal, social, spiritual, and other factors are also considered. However, at the most basic level, the simplified model in Figure 1 helps drive specific treatment interventions and is also frequently diagrammed or explained to patients as they are educated on how CBT works.

A two-way relationship between cognition and behavior is posited in which cognitive processes can influence behavior, and behavioral change can influence cognitions.

A brief clinical example of a patient with an anxiety disorder will illustrate how the basic CBT model can be used to understand symptoms and plan treatment.

Mr. A, a 35-year-old computer programmer who lives and works in a suburb of a large city, requested treatment for panic disorder with agoraphobia. He had been symptomatic for at least 5 years. His condition had deteriorated to the point where he was largely housebound, although he was able to drive about half a mile to his workplace, where he worked in a cubicle and had little social contact. When Mr. A considered driving to the city to see an old friend or to a mall near his home, he would have thoughts such as "I can't do it . . . I'll faint or I'll have a heart attack . . . I'll panic and lose control . . . I'll have a wreck and kill everyone in my path." As might be expected, he had intense anxiety and autonomic arousal associated with these thoughts. His behavioral response was to avoid driving anywhere other than work and to avoid going anywhere there might be crowds. Each time he avoided these activities, his basic fears were reinforced, and eventually his symptoms became deeply ingrained.

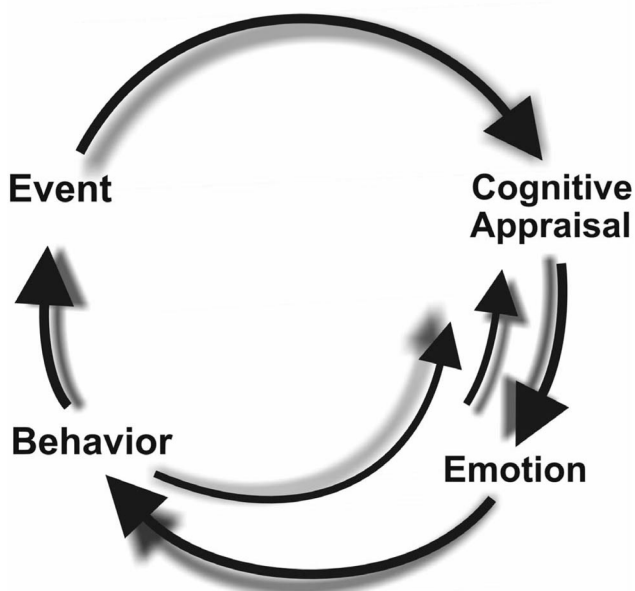
Because cognition and behavior are so closely linked, the clinician can opt to intervene at either the cognitive or the behavioral level, using practical

#### CME Financial Disclosure

Jesse H. Wright, M.D., Ph.D., Professor and Chief of Adult Clinical Psychiatry, Department of Psychiatry and Behavioral Sciences, University of Louisville School of Medicine. President and stockholder, Mindstreet. Dr. Wright may receive a portion of profits, if any, from sales of a computer software program for cognitive behavior therapy cited in this article.

Address correspondence to Jesse H. Wright, M.D., Ph.D., Norton Psychiatric Center, PO Box 35070, Louisville, KY 40232; e-mail, jwright@iglou.com.

Figure 1. Basic Cognitive Behavior Model



Source: From Wright JH, Basco MR, Thase ME: Learning Cognitive-Behavior Therapy: An Illustrated Guide. Washington, DC, American Psychiatric Publishing, 2006, p 5

methods of interrupting the cycle and encouraging more adaptive responses. In the clinical practice of CBT, therapists typically design strategies to influence both cognitive and behavioral pathology. For example, Mr. A's therapist used cognitive techniques such as examining the evidence and thought

records to identify and change maladaptive cognitions. The therapist also selected behavioral methods to reverse the long-standing avoidant behavior, including systematic exposure techniques.

## LEVELS OF COGNITION

Beck and his colleagues have identified three major levels of cognition that are relevant to the practice of CBT: full consciousness, automatic thoughts, and schemas (9). Consciousness is defined as a state in which rational decisions are made with full awareness. In contrast, automatic thoughts are the more autonomous, often private cognitions that flow rapidly in the stream of everyday thinking and may not be carefully assessed for accuracy or relevance. Many of the examples of Mr. A's cognitions noted above in the vignette were automatic thoughts. Everyone has automatic thoughts, but in clinical states such as depression and anxiety disorders, these cognitions are often riddled with errors in logic (6, 8). In depression, automatic thoughts typically center on themes of negativity, low self-esteem, and ineffectiveness. In anxiety disorders, automatic thoughts often include overestimates of risk in situations and underestimates of ability to cope (6).

Schemas, or core beliefs, are the third and deepest level of cognition defined in CBT. Schemas are fundamental rules or templates for information processing that are shaped by developmental influences and other life experiences (see Table 1) (6). Because they play a major role in regulating self-worth and behavioral coping strategies, schemas are a frequent target of CBT interventions. It has been suggested that schema change may account for part of the relapse prevention effect of CBT.

Table 1. Examples of Automatic Thoughts and Maladaptive Schemas

Automatic Thoughts	Maladaptive Schemas
I should be doing better in life.	I must be perfect to be accepted.
I've let him/her down.	I'm a fake.
I always keep messing things up.	If I choose to do something, I must succeed.
I can't handle it.	I'm unlovable.
It's too much for me.	No matter what I do, I won't succeed.
I don't have much of a future.	The world is too frightening for me.
Things are out of control.	Others can't be trusted.
I feel like giving up.	I must always be in control.
I'll never be able to get this done.	I'm stupid.
Something bad is sure to happen.	Other people will take advantage of me.

Source: Adapted from Wright et al. (11)

## KEY BEHAVIORAL CONCEPTS

In the development of modern methods of CBT, findings from basic research on behavioral concepts and techniques have been blended with cognitive theories. The most important of these findings are the following:

1. Depressive behavior, including low energy, lack of interest, helplessness, and other reductions in psychomotor activity, can be successfully modified with behavioral techniques.
2. Exposure therapy and related methods are particularly effective interventions for anxiety disorders.
3. Behavioral interventions can be highly useful in helping patients improve coping, social, and problem-solving skills (10, 12–13).

CBT for depression frequently uses behavioral interventions such as activity scheduling and graded task assignments to reactivate the patient. All CBT protocols for anxiety disorders contain elements of exposure and response prevention to interrupt the avoidant behaviors that play a central role in maintaining the disorder and to desensitize the patient to the physiological symptoms of anxiety. CBT for many axis I and axis II conditions may include efforts to improve coping behavior and other skills.

## CBT APPLICATIONS

Reviews and meta-analyses of the voluminous literature on CBT outcome studies have concluded that this treatment approach is highly effective for depression and anxiety disorders (6, 14, 15). Studies typically show CBT to be as effective as antidepressant medication for the treatment of depression. Studies investigating combined treatment with CBT and medication for depression have had mixed results. Although individual studies of CBT for mild to moderate depression have shown only a trend for an advantage for combined treatment with medication, it has been argued that the sample sizes in these studies were not adequate to demonstrate superiority of using both treatments together (16). Studies with patients who had chronic or severe depression and studies with larger numbers of subjects have found that CBT is an efficacious treatment for more extreme cases of depression and that combined treatment gives better results than either treatment alone (16–18). In the treatment of anxiety disorders, studies show no consistent trend for an advantage for combined treatment (19), but one investigation suggested that adding alprazolam to CBT may decrease effectiveness (13). The overall results of studies of patients with depression or anxiety disorders indicate that CBT may be used alone as an effective treatment for these conditions and that for severe or chronic depression, combined therapy with medication is recommended.

Other conditions for which there is substantial empirical evidence that CBT is efficacious include bulimia nervosa and binge-eating disorder as well as schizophrenia, where it can be used as an adjunct to pharmacotherapy (6–7, 20). CBT has also been shown to reduce the risk of relapse in bipolar disorder (21). Cognitive behavioral formulation and treatment methods have been described for many of the personality disorders (22), and dialectical behavior therapy, which is a modified form of CBT, has been shown to be efficacious in reducing suicidal behavior in patients with borderline personality disorder (4). As with other forms of psychotherapy

Table 2. General Elements of CBT

Collaborative empiricism

Problem-oriented focus

Short-term treatment for uncomplicated disorders

Structured methods

Psychoeducation

Homework

for personality disorders, little empirical research has been conducted. Additional possible indications for CBT include substance abuse disorders (23), fibromyalgia (24), and chronic fatigue (25). CBT has also been found to be useful in helping patients with medical disorders cope with pain and disability (26). One notable recent study (27) found that CBT significantly reduced the frequency of subsequent suicide attempts among patients who had previously attempted suicide.

## CBT METHODS

### GENERAL PROCEDURES

The term collaborative empiricism is often used to describe the therapeutic relationship in CBT (6). A highly collaborative relationship is established in which clinician and patient work together as a team to identify maladaptive cognitions and behavior, test their validity, and make revisions where needed. A principal goal of this collaborative process is to help patients effectively define problems and gain skills in managing these problems. As in other effective psychotherapies, CBT also

Table 3. Cognitive Methods Used in CBT

Socratic questioning

Guided discovery

Examining the evidence

Examining advantages and disadvantages

Identifying cognitive errors

Thought change records

Generating rational alternatives

Imagery

Role play

Rehearsal

Table 4. Behavioral Methods Used in CBT

Activity and pleasant event scheduling
Graded task assignments
Exposure and response prevention
Relaxation training
Breathing training
Coping cards
Rehearsal

relies on the nonspecific elements of the therapeutic relationship, such as rapport, genuineness, understanding, and empathy. Table 2 lists the general elements of CBT.

CBT for uncomplicated depression or anxiety disorders can typically be completed in a range of 5–20 sessions. If axis II disorders are present or if the patient has severe or chronic illness, treatment may need to extend beyond 20 sessions. Booster sessions or continuation CBT can be used to decrease the risk of relapse (28).

CBT sessions are structured to increase the efficiency of treatment to improve learning and combat inertia in the patient and to focus therapeutic efforts on specific problems and potential solutions. Sessions begin with an agenda-setting process in which the therapist assists the patient in selecting items that can lead to productive therapeutic work in a single session. Homework assignments are used to extend the patient's efforts to change beyond the confines of the treatment session and to reinforce learning of CBT concepts. Homework also helps structure therapy by serving as a recurrent agenda item that links one session with the next.

Psychoeducation is another key feature of CBT. When possible, the therapist uses illustrations from the patient's own experiences to demonstrate CBT principles and procedures. For example, if a patient exhibited a "mood shift" (a sudden appearance of a strong emotion suggesting that he or she had just had an outpouring of intense automatic thoughts) early in therapy, the therapist might pause to help the patient identify the automatic thoughts. Material gleaned from this process can then be used to explain the basic cognitive model (the relationship between cognitions and emotions) and to introduce the patient to the concept of automatic thoughts. Readings and other educational aids are also used extensively in CBT. Typically, patients are asked to read self-help books (29–34), pamphlets, or handouts during the beginning phases of therapy. Workbooks can be used for specific problems

such as depression, obsessive-compulsive disorder, other anxiety disorders, and perfectionism. Another useful option for psychoeducation is to recommend that patients use an interactive CBT computer program (see below).

## COGNITIVE METHODS

Table 3 lists cognitive methods used in CBT. The most important and frequently used cognitive technique is the use of questions that encourage the patient to break through rigid patterns of dysfunctional thinking and to see new perspectives. The two terms most often used to describe this form of inquiry are Socratic questioning (asking questions that guide the patient to become actively involved in finding answers) and guided discovery (a series of questions that help the patient explore and change maladaptive cognitive processes). Examples of some of the specific techniques that might be included in guided discovery are examining the evidence exercises and two-column analyses of the advantages and disadvantages of holding a core belief.

One of the most useful cognitive interventions is the thought change record. In the beginning phase of therapy, patients may be introduced to thought recording by asking them to make a note of automatic thoughts that occur in stressful situations and to identify emotions associated with these thoughts. As the patient gains knowledge and experience with CBT, a full five-column thought change record can be used in which the patient identifies cognitive errors in automatic thoughts, generates rational alternatives, and charts the outcome of making these changes (8). Other frequently used cognitive techniques include imagery, role play, rehearsal exercises, and homework assignments to put modified cognitions into action.

## BEHAVIORAL METHODS

Table 4 lists behavioral methods used in CBT. Activity and pleasant event scheduling are commonly used to help depressed patients reverse problems with low energy and anhedonia. These techniques involve obtaining a baseline of activities during a day or week, rating activities on the degree of mastery and/or pleasure, and then collaboratively designing changes that will reactivate the patient, stimulate a greater sense of enjoyment in life, or change patterns of social isolation or procrastination. Graded task assignments, in which problems are broken down into pieces and a stepwise management plan is developed, are used to assist patients in coping with situations that seem especially challenging or overwhelming.

Some of the most useful behavioral methods for treating anxiety disorders are hierarchical exposure to feared stimuli, relaxation training, and breathing training. Exposure protocols can be either rapid or gradual. Typically, a hierarchy of exposure experiences is developed, with sequential increases in the degree of anxiety provoked. Patients are encouraged to expose themselves gradually to these stimuli until the anxiety response dissipates and they gain a greater sense of control and mastery. Progressive relaxation and breathing exercises may be used to reduce levels of autonomic arousal and support the exposure protocol. These techniques also may be used alone to help manage panic attacks or other symptoms of anxiety disorders.

One particularly useful way to encourage the patient to use behavioral skills learned in therapy sessions is to develop a coping card. Key elements of a coping strategy or management plan—typically including both behavioral and cognitive strategies—are recorded on a small card that the patient carries at all times. Coping cards might contain, for example, antisuicide plans detailing what to do if suicidal thoughts return, strategies for coping with critical remarks from a spouse, or specific ideas for combating procrastination at work. Coping methods that are generated and rehearsed in therapy sessions are then carried out with the help of coping cards in real-life situations.

## COMPUTER-ASSISTED CBT

One of the newest and most interesting methods of conducting CBT is through computer-assisted psychotherapy (35). Multimedia software has been shown to be effective in the treatment of depression (36, 37), and innovative multimedia programs using virtual reality have been developed for exposure therapy for anxiety disorders (38, 39). In one study, a computer-assisted therapy software program (37) was shown to be superior to standard CBT in helping patients acquire knowledge about CBT and in reducing maladaptive cognitions. Computer programs are typically combined with the human elements of therapy in an integrated treatment package. Computer-assisted CBT can be used to decrease the amount of clinician time required for effective therapy, provide stimulating psychoeducational experiences, and offer engaging alternatives to standard treatment.

## SUMMARY

CBT is based on the concept that mental disorders are associated with characteristic alterations in cognitive and behavioral functioning and that this

pathology can be modified with pragmatic problem-focused techniques. CBT is well established as a treatment for depression, anxiety disorders, and eating disorders. There is growing evidence that it can play an effective role in the clinical management of a large range of other disorders, including schizophrenia, bipolar disorder, and axis II conditions.

## REFERENCES

1. Beck AT: Thinking and depression. *Arch Gen Psychiatry* 1963; 9:324–333
2. Beck AT: Thinking and depression, II: theory and therapy. *Arch Gen Psychiatry* 1964; 10:561–571
3. Beck AT: The current state of cognitive therapy: a 40-year retrospective. *Arch Gen Psychiatry* 2005; 62:953–959
4. Linehan MM, Armstrong HE, Suarez A, Allmon D, Heard HL: Cognitive-behavioral treatment of chronically parasuicidal borderline patients. *Arch Gen Psychiatry* 1991; 48:1060–1064
5. Fairburn CG, Norman PA, Welch SL, O'Connor ME, Doll HA, Peveler RC: A prospective study of outcome in bulimia nervosa and the long-term effects of three psychological treatments. *Arch Gen Psychiatry* 1995; 52:304–312
6. Wright JH, Beck AT, Thase ME: Cognitive therapy, in *Textbook of Clinical Psychiatry*, 4th ed. Edited by Hales RE, Yudofsky SC, Talbott JA. Washington, DC, American Psychiatric Publishing, 2003, pp 1245–1284
7. Turkington D, Dudley R, Warman D, Beck AT: Cognitive-behavior therapy for schizophrenia: a review. *J Psychiatric Pract* 2004; 10:5–16
8. Beck AT, Rush AJ, Shaw BF, et al: *Cognitive Therapy of Depression*. New York, Guilford, 1979
9. Clark DA, Beck AT, Alford BA: *Scientific Foundations of Cognitive Theory and Therapy of Depression*. New York, Wiley, 1999
10. Wright JH, Basco MR, Thase ME: *Learning Cognitive-Behavior Therapy: An Illustrated Guide*. Washington, DC, American Psychiatric Press, 2006
11. Wright JH, Wright AS, Beck AT: *Good Days Ahead: The Multimedia Program for Cognitive Therapy (Professional Edition)*. Louisville, Mindstreet, 2004
12. Meichenbaum DH: *Cognitive-Behavior Modification: An Integrative Approach*. New York, Plenum, 1977
13. Marks IM, Swinson RP, Basoglu M, Kuch K, Noshirvani H, O'Sullivan, et al: Alprazolam and exposure alone and combined in panic disorder with agoraphobia: a controlled study in London and Toronto. *Br J Psychiatry* 1993; 162:776–787
14. Gaffan EA, Tsasousi I, Kemp-Wheeler SM: Researcher allegiance and meta-analysis: the case for cognitive therapy for depression. *J Consult Clin Psychol* 1995; 63:966–980
15. Butler AC, Beck JS: Cognitive therapy outcomes: a review of meta-analyses. *J Norwegian Psychol Assoc* 2000; 37:1–9
16. Hollon SD, Jarrett RB, Nierenberg AA, Thase ME, Trivedi M, Rush AJ: Psychotherapy and medication in the treatment of adult and geriatric depression: which monotherapy or combined treatment? *J Clin Psychiatry* 2005; 66:455–468
17. DeRubeis RJ, Gelfand LA, Tang TZ, Simons AD: Medications versus cognitive behavior therapy for severely depressed outpatients: mega-analysis of four randomized comparisons. *Am J Psychiatry* 1999; 156:1007–1013
18. Keller MB, McCullough JP, Klein DN, Arnow B, Dunner DL, Gelenberg AJ, Markowitz JC, Nemeroff CB, Russell JM, Thase ME, Trivedi MH, Zajecka J: A comparison of nefazodone, the cognitive behavioral-analysis system of psychotherapy, and their combination for the treatment of chronic depression. *N Engl J Med* 2000; 342:1462–1470
19. Wright JH: Combined cognitive therapy and pharmacotherapy, in *Contemporary Cognitive Therapy*. Edited by Leahy R. New York, Guilford, 2004, pp 341–366
20. Rector NA, Beck AT: Cognitive behavioral therapy for schizophrenia: an empirical review. *J Nerv Ment Dis* 2001; 189:278–287
21. Lam DH, Watkins ER, Hayward P, Bright J, Wright K, Kerr N, Parr-Davis G, Sham P: A randomized controlled study of cognitive therapy for relapse prevention for bipolar affective disorder: outcome of the first year. *Arch Gen Psychiatry* 2003; 60:145–152
22. Beck AT, Freeman A, et al: *Cognitive Therapy of Personality Disorders*. New York, Guilford, 1990
23. Thase ME: Cognitive-behavioral therapy for substance abuse disorders, in *American Psychiatric Press Review of Psychiatry*, vol 16. Edited by Dickstein LJ, Riba MB, Oldham JM. Washington, DC, American Psychiatric Press, 1997, pp 145–171
24. Goldenberg DL, Burckhardt C, Crofford L: Management of fibromyalgia syndrome. *JAMA* 2004; 292:2388–2395

25. Deale A, Husain K, Chalder T, Wessely S: Long-term outcome of cognitive behavior therapy versus relaxation therapy for chronic fatigue syndrome: a 5-year follow-up study. *Am J Psychiatry* 2001; 158:2038–2042
26. Sensky T: Cognitive-behavior therapy for patients with physical illnesses, in *Cognitive-Behavior Therapy*. Edited by Wright JH. Washington, DC, American Psychiatric Publishing, 2004, pp 83–121
27. Brown GK, Ten Have T, Henriques GR, Xie SX, Hollander JE, Beck AT: Cognitive therapy for the prevention of suicide attempts: a randomized controlled trial. *JAMA* 2005; 294:563–570
28. Jarrett RB, Kraft D, Doyle J, Foster BM, Eaves GG, Silver PC: Preventing recurrent depression using cognitive therapy with and without a continuation phase: a randomized clinical trial. *Arch Gen Psychiatry* 2001; 58:381–388
29. Barlow DH, Craske MG: *Mastery of Your Anxiety and Panic*. San Antonio, Tex, Psychological Corporation, 2000
30. Basco MR: *Never Good Enough*. New York, Free Press, 1999
31. Burns DD: *Feeling Good: The New Mood Therapy*, revised edition. New York, William Morrow, 1999
32. Foa EB, Wilson R: *Stop Obsessing! How to Overcome Your Obsessions and Compulsions*. New York, Bantam, 1991
33. Greenberger D, Padesky CA: *Mind Over Mood*. New York, Guilford, 1995
34. Wright JH, Basco MR: *Getting Your Life Back: The Complete Guide to Recovery From Depression*. New York, Touchstone, 2002
35. Wright JH: Computer-assisted cognitive-behavior therapy, in *Cognitive-Behavior Therapy*. Edited by Wright JH. Washington, DC, American Psychiatric Publishing, 2004, pp 55–82
36. Proudfoot J, Goldberg D, Mann A, Everitt B, Marks I, Gray J: Computerised, interactive, multimedia cognitive behavioural therapy reduces anxiety and depression in general practice. *Psychol Med* 2003; 33:217–227
37. Wright JH, Wright AS, Albano AM, Basco MR, Goldsmith LJ, Raffield T, Otto MW: Computer-assisted cognitive therapy for depression: maintaining efficacy while reducing therapist time. *Am J Psychiatry* 2005; 162:1158–1164
38. Rothbaum BO, Hodges L, Smith S, Lee JH, Price L: A controlled study of virtual reality exposure therapy for the fear of flying. *J Consult Clin Psychol* 2000; 60:1020–1026
39. Kenwright M, Liness S, Marks I: Reducing demands on clinician's time by offering computer-aided self help for phobia/panic: feasibility study. *Br J Psychiatry* 2001; 179:456–459

## NOTES

[illegible]