CHAPTER 1

Historical and Philosophical Bases of the Cognitive-Behavioral Therapies

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Cognitive-behavioral therapy (CBT) is the most well-established evidence-based psychotherapy and has been described as "the fastest growing and most heavily researched system of psychotherapy on the contemporary scene" (Prochaska & Norcross, 2010, p. 332). CBT is widely disseminated worldwide in professional training programs, conventions, and workshops, and hundreds of clinician and self-help CBT manuals and books have been published. Research supports the use of CBT in children, adolescents, adults, couples, and families for various psychiatric and medical disorders (cf. Beck & Dozois, 2011; Dobson & Dobson, 2017; Hofmann, 2013). CBT's return on investment is substantial; an economic analysis estimated that the costs of treating anxiety and depression using evidence-based procedures, such as CBT, in 36 countries between 2016 and 2030 is $147 billion USD (Chisholm et al., 2016). However, scaling up treatment would lead to 43 million additional years of healthy life over this period, with a net economic gain of $310 billion.

Mahoney (1977) noted that, whereas psychology had generally undergone a "cognitive revolution" in the 1960s, the same theoretical focus was brought to bear upon clinical psychology somewhat later. CBT first emerged in the early 1970s and only gradually gained traction among clinicians and researchers. It was not until the middle and later parts of the 1970s that the first major texts on "cognitive-behavior modification" appeared (Kendall & Hollon, 1979; Mahoney, 1974; Meichenbaum, 1977). The intervening period was one of considerable interest in cognition and in the application of cognitive

theory to behavior change, during which different theorists and practitioners created a number of models for cognitive and behavior change, as well as a veritable armamentarium of clinical techniques.

This chapter reviews the major developments in the history of CBTs. We define the scope of cognitive-behavioral therapies and their essential nature and then review the historical bases of CBT. Six major reasons for the development of CBTs are discussed. The chapter then summarizes the major philosophical underpinnings of the various forms of CBTs, with a view to the principles that each of these therapies share as well as those that vary from approach to approach. The last section of the chapter presents a formal chronology of the major CBT approaches. This section also describes contemporary approaches within the field of CBT in terms of the historical developments for each approach and the behavior change principles each approach encourages.

DEFINING COGNITIVE-BEHAVIORAL THERAPY

At their core, CBTs share three fundamental propositions:

1. Cognitive activity affects behavior.
2. Cognitive activity may be monitored and altered.
3. Desired behavior change may be affected through cognitive change.

Although he used a slightly different title, Kazdin (1978) advanced a similar implicit set of propositions in his definition of cognitive-behavior modification: "The term 'cognitive-behavior modification' encompasses treatments that attempt to change overt behavior by altering thoughts, interpretations, assumptions, and strategies of responding" (p. 337). Cognitive-behavior modification and CBT are thus nearly identical in their assumptions and treatment methods. Perhaps the one area in which the two labels diverge is with respect to treatment outcomes. Whereas cognitive-behavior modification seeks overt behavior change as an ultimate outcome (Kazdin, 1978; Mahoney, 1974), some contemporary forms of CBT focus their treatment effects on cognitions per se, in the belief that behavior change will follow. Ellis's (1962, 1979a; DiGiuseppe & Doyle, Chapter 8, this volume) efforts on belief change, for example, constitute a type of therapy that Kazdin's (1978) definition would not incorporate as a form of cognitive-behavioral modification. The term "cognitive-behavioral therapy," therefore, is a broader term than "cognitive-behavior modification" and subsumes cognitive-behavior modification within it (see also Dobson, Backs-Dermott, & Dozois, 2000).

The first of the three fundamental propositions of CBT, that cognitive activity affects behavior, is a restatement of the basic mediational model (Mahoney, 1974). Although early cognitive-behavioral theorists had to document the theoretical and empirical legitimacy of the mediational proposition

(e.g., Mahoney, 1974), there is now overwhelming evidence that cognitive appraisals of events can affect the response to those events and that there is clinical value in modifying the content of these appraisals (e.g., Beck & Dozois, 2014; Dobson et al., 2000; Dozois & Beck, 2008; Hollon & Beck, 1994). Although debate continues about the degree and exact nature of the appraisals an individual makes in different contexts (cf. Coyne, 1999; Held, 1995), the fact of mediation is no longer strongly contested.

The second CBT proposition states that cognitive activity may be monitored and altered. Implicit in this statement are the assumptions that we may gain access to cognitive activity and that cognitions are knowable and assessable. There is, however, reason to believe that access to cognitions is not perfect and that people may report cognitive activities based on the likelihood of their occurrence, rather than actual occurrence (Nisbett & Wilson, 1977). Most researchers in the area of cognitive assessment, however, continue to attempt to document reliable and valid cognitive assessment strategies, usually with behavior as the source of validational data (Merluzzi, Glass, & Genest, 1981; Segal & Shaw, 1988; Dunkley, Segal, & Blankstein, Chapter 4, this volume). Thus, although reports of cognition are often taken at face value, there are reasons to believe that in some cases there are biases to cognitive reports, and further validation of cognitive reports are required (Dunkley et al., Chapter 4, this volume; Rnic & Dozois, 2017).

Another corollary of the second CBT proposition is that assessment of cognitive activity is a prelude to the alteration of cognitive activity. Although it makes conceptual sense that we ought to measure a construct before we begin to manipulate it, one does not *necessarily* follow from the other. In the arena of human change, the measurement of cognition does not necessarily assist change efforts. As has been written elsewhere (Brown & Clark, 2015; Dunkley et al., Chapter 4, this volume; Rnic & Dozois, 2017), most cognitive assessment strategies emphasize the content of cognitions and the assessment of cognitive results rather than the cognitive process. Examining the process of cognition in the context of treatment, as well as the interdependence among cognitive, behavioral, and affective systems, on the other hand, will most likely advance our understanding of change. This form of cognitive monitoring remains relatively underdeveloped compared to the assessment of cognitive content.

The third CBT proposition is a direct result of the adoption of the mediational model. It states that desired behavior change may be affected through cognitive change. Thus, although cognitive-behavioral theorists accept that overt reinforcement contingencies can alter behavior, they are likely to emphasize that there are alternative methods for behavior change, one in particular being cognitive change. Due to the statement that cognitive change may influence behavior, a lot of the early effort of cognitive-behavioral researchers was to document the effects of cognitive mediation. For example, Bandura (1977, 1997) employed the construct of self-efficacy to document that a participant's perceived ability to approach a fearful object strongly predicted actual

behavior. Many studies have documented the role of cognitive appraisal processes in a variety of laboratory and clinical settings (Bandura, 1986, 1997).

It remains difficult to document the assumption that changes in cognition mediate behavior change. In order to do so, the assessment of cognitive change must occur independent of behavior (see Clark, 2014). For example, if a person with a phobia approaches within 10 feet of a feared object, is treated using graduated exposure, and is then able to predict and demonstrate a closer approach to the feared object, it remains a challenge to infer that the behavior change was cognitively mediated. On the other hand, if the same individual is treated with some form of cognitive intervention (e.g., imagined approach of the feared object) and then demonstrates the same behavior change, then cognitive mediation of that behavior change is much more plausible. Moreover, if that same person demonstrates changes in his or her behavior toward objects that were previously feared but not specifically treated, then the cognitive mediation of that behavior change is essential, in that there must be some cognitive "matching" between the treated object and the other object of generalization. Numerous studies have found evidence for cognitive mediation in depression and anxiety, although studies of session-by-session change have produced mixed results for the temporal precedence of cognitive change (see Clark, 2014).

WHAT CONSTITUTES COGNITIVE-BEHAVIORAL THERAPY?

A number of treatment approaches exist within the scope of CBT as it is defined above. These approaches share the theoretical perspective that internal covert processes called thinking or cognition occur, that cognition influences how an individual feels and behaves, and that cognition can be altered to mediate behavior change. At the same time, these approaches argue that behavioral change does not have to involve elaborate cognitive mechanisms. In some forms of therapy, the interventions may have very little to do with cognitive appraisals and evaluations but may be heavily dependent upon client action and behavior change. However, a cognitive conceptualization of the disorder and the individual client is still necessary. The actual outcomes of CBT will naturally vary from client to client, but in general the two main indices used for change are cognition and behavior. To a lesser extent, emotional and physiological changes are also used as indicators of change in CBT, particularly if emotional or physiological disturbance is a major aspect of the presenting problem in therapy.

Although CBT targets both cognition and behavior as primary change areas, there are certain types of desired change that would clearly fall outside of the realm of CBT. For example, a therapist who adopts a classical conditioning approach to the treatment of self-destructive behavior in a child with autism spectrum disorder is not employing a cognitive-behavioral framework; such an approach might instead be called "behavioral analysis" or "applied

behavioral therapy." In fact, any therapeutic regimen that adopts a stimulus–response model is not a CBT. Only therapies that employ cognitive mediation as an important component of case conceptualization and treatment can be labeled as "cognitive-behavioral." Just as strictly behavioral therapies are not cognitive-behavioral, strictly cognitive therapies are also not cognitive-behavioral. For example, a therapeutic model that states that memories of a long-past traumatic event cause current emotional disturbance and that consequently targets those memories for change is not a CBT. Finally, therapies that lack a mediational model of change, despite recognition of cognitive mediation in the etiology of problems, are not cognitive-behavioral. These include therapies that base their theories in the expression of excessive emotions, such as cathartic models of therapy (Janov, 1970).

HISTORICAL BASES OF THE COGNITIVE-BEHAVIORAL THERAPIES

Two historical strands serve as the historical bases for the CBTs (Beck & Dozois, 2014). The dominant strand relates to behavioral therapies, which are often viewed as the primary precursors to CBTs. To a lesser extent, CBTs also grew out of psychodynamic models of therapy. These two historical themes are discussed in turn in this section.

Behavior therapy was an innovation from the radical behavioral approach to human problems (Bandura, 1986). It drew on the classical and operant conditioning principles of behaviorism and developed a set of interventions focused on behavior change. The strong emphasis of the behaviorists on empiricism, both to inform treatment models and to assess outcome, was an important shift from earlier forms of therapy and is one of the enduring legacies of early behavior therapy. In the 1960s and 1970s, however, a shift began to occur in behavior therapy, which made the development of cognitive-behavioral theory possible and CBT, more broadly, a logical necessity. First, although the behavioral perspective had been dominant for some time, it was becoming apparent by the end of the 1960s that a nonmediational approach was not expansive enough to account for all of human behavior (Breger & McGaugh, 1965; Mahoney, 1974). Bandura's (1965, 1971) accounts of vicarious learning defied traditional behavioral explanation, as did the work on delay of gratification by Mischel (Mischel, Ebbesen, & Zeiss, 1972). Similarly, children were learning grammatical rules well out of the ability of most parents and educators to discriminatively reinforce (Vygotsky, 1962), and behavioral models of language learning were under serious attack. Yet another sign of dissatisfaction with behavioral models was the attempt to expand these models to incorporate "covert" behaviors (i.e., thought; Homme, 1965). Although this approach met with some limited optimism, criticisms from behavioral quarters made it apparent that extensions of this sort were not consistent with the behavioral emphasis on overt phenomena.

Another factor that facilitated the development of CBT was the fact that the very nature of some problems, such as obsessional thinking, made noncognitive interventions irrelevant. As was appropriate, behavior therapy was applied to disorders that were primarily demarcated by their behavioral correlates. Where disorders were multifaceted, behavioral therapists targeted behavioral symptoms for change (e.g., Ferster, 1974), which provided an increase in therapeutic potential over past efforts but was not fully satisfying to therapists who recognized that entire problems or major components of problems were going untreated. CBTs helped to fill a void in the clinician's armamentarium.

Third, the field of psychology was changing in general, and cognitivism, or what has been called the "cognitive revolution," was a major part of that change. Numerous mediational concepts were being developed, researched, and established within experimental psychology (Neisser, 1967; Paivio, 1971). These models, of which the most influential perhaps was the information-processing model of cognition, were explicitly mediational and received support from cognition laboratories. One of the natural developments was the extension of information-processing models to clinical constructs (e.g., Hamilton, 1979, 1980; Ingram & Kendall, 1986).

Even beyond the development of general cognitive models, a number of researchers in the 1960s and 1970s conducted basic research into the cognitive mediation of clinically relevant constructs (e.g., anxiety and stress; Lazarus, 1966; Lazarus & Averill, 1972; Lazarus & Folkman, 1984; Monat, Averill, & Lazarus, 1972). Taken together, the two research areas of general cognitive psychology and what may be termed "applied cognitive psychology" challenged behavioral theorists to account for the accumulating data. That challenge included a need for behavioral models to redefine their limits and incorporate cognitive phenomena into the models of behavioral mechanisms. Perhaps one of the earliest signs of this attempt at incorporation can be seen in the self-regulation and self-control literature, which developed during the early part of the 1970s (Cautela, 1969; Goldfried & Merbaum, 1973; Mahoney & Thoreson, 1974; Stuart, 1972). All of these various attempts to delineate self-control perspectives shared the idea that the individual has the capacity to monitor his or her behavior, to set internally generated goals for behavior, and to orchestrate both environmental and personal variables to achieve behavioral self-regulation. Several cognitive processes were hypothesized to develop these self-control models, including attempts to define self-control strategies largely in terms of internal "cybernetic" components of functioning (e.g., Jeffrey & Berger, 1982).

Just as there was growing dissatisfaction with strict behaviorism, there continued to be challenges to its strongest alternative perspective, the psychodynamic model of personality and therapy. Early work in the area of CBT (e.g., Beck, 1967; Ellis, 1973, 1979a) included statements that summarily rejected psychoanalytic emphases on unconscious processes, review of historical material, and the need for long-term therapy that relied on the development of

insight regarding the transference–countertransference relationship. It is an interesting fact that Aaron Beck and Albert Ellis, who both developed CBT models, were each trained as psychodynamic therapists. Beyond the philosophical disagreements with some of the basic tenets of psychodynamic models, reviews of the outcome literature suggested that the efficacy of traditional psychotherapy was not particularly impressive (Eysenck, 1969; Luborsky, Singer, & Luborsky, 1975; Rachman & Wilson, 1971, 1980). It should be noted, however, that research has since found effect sizes for psychodynamic therapy that are, in some instances, comparable to those of CBT (e.g., Driessen et al., 2017; Shedler, 2010). An emphasis on short-term symptom relief and problem solution was one of the themes that diverged from psychodynamic therapy seen in the early cognitive-behavioral therapists.

As is true for any social movement, a critical aspect of the early formation of the CBTs was the development and identification of theorists and therapists who identified themselves with this movement. Some of the people to explicitly begin this process were Aaron Beck (1967, 1970), Joseph Cautela (1967, 1969), Albert Ellis (1962, 1970), Michael Mahoney (1974), Mahoney & Thoreson, (1974), and Donald Meichenbaum (1973, 1977). The establishment of several key proponents clearly had the effect of creating a *zeitgeist* that drew the attention of others. In addition, the creation of a journal specifically tailored to the emerging cognitive-behavioral field helped to further this trend. Thus the establishment in 1977 of *Cognitive Therapy and Research,* with Michael Mahoney as the inaugural editor, provided a forum "to stimulate and communicate research and theory on the role of cognitive processes in human adaptation and adjustment" (from the cover of the journal). The existence of a regular publication in the area of cognitive-behavioral theory and modification allowed researchers and therapists to present provocative ideas and research findings to a wide audience.

A final important historical factor that contributed to the interest in the cognitive-behavioral perspective was the publication of research studies that found treatment outcomes for cognitive-behavioral treatments equally or more effective than strictly behavioral approaches. In a critical review of cognitive-behavior modification, Ledgewidge (1978) reviewed 13 studies that contrasted cognitive-behavioral with behavioral therapies and found no demonstrated superiority for either, although he noted that the studies he reviewed were based upon analogue populations and that clinical trials were required for a more summative judgment. His mainly critical review prompted a reply (Mahoney & Kazdin, 1979) that largely dismissed Ledgewidge's criticisms as "premature." After this early controversy about the efficacy of CBTs, a number of reviews clearly demonstrated that CBTs have a clinical impact (Berman, Miller, & Massman, 1985; Dobson & Craig, 1996; Dush, Hirt, & Schroeder, 1983; Miller & Berman, 1983; Shapiro & Shapiro, 1982). Indeed, the CBTs are notable for their presence among the list of empirically supported therapies (Chambless et al., 1996; Chambless & Hollon, 1998; Chambless & Ollendick, 2001) and represent a critical segment of

evidence-based practice (Dozois, 2013). It is important to note, however, that meta-analyses of therapeutic effectiveness continue to question the extent to which cognitive-behavioral treatments are superior to strictly behavioral treatments (Cuijpers, 2017; Ougrin, 2011). As the database is further enlarged, more definitive statements will become possible (Dobson, McEpplan, & Dobson, Chapter 2, this volume). What will hopefully emerge from continued research will be not only specific conclusions about the overall efficacy of CBTs but also specific statements about the relative efficacy of different types of CBTs with specific types of clinical problems and populations.

The preceding review summarizes several compelling reasons for the development of cognitive-behavioral models of dysfunction and therapy. These reasons include dissatisfaction with previous models of therapy, clinical problems that emphasize the need for a cognitive-behavioral perspective, the research conducted into cognitive aspects of human functioning, the *zeitgeist* phenomenon that led to an identified group of cognitive-behavioral theorists and therapists, and the growing body of research that supports the clinical efficacy of cognitive-behavioral interventions. With this general trend in mind, this chapter now turns to providing more in-depth summaries of the historical developments behind the large number of specific CBTs that have evolved over the past 50 years or so.

MAJOR COGNITIVE-BEHAVIORAL THERAPIES

CBTs represent the convergence of behavioral strategies and cognitive processes with the goals of behavioral and cognitive change. However, even a cursory review of the therapeutic procedures subsumed under the heading of CBT reveals a diversity of principles and procedures. The diversification in the development and implementation of the cognitive-behavioral approach may be explained, in part, by the differing theoretical orientations of those who generated intervention strategies based on this perspective. For example, whereas Ellis and Beck came from psychoanalytic backgrounds, Goldfried, Meichenbaum, and Mahoney were trained originally in the principles of behavior modification.

Mahoney and Arnkoff (1978) organized the CBTs into three major divisions: (1) cognitive restructuring, (2) coping-skills therapies, and (3) problem-solving therapies. Therapies included under the heading of cognitive restructuring assume that emotional distress is the consequence of maladaptive thoughts. These clinical interventions examine and challenge maladaptive thought patterns in an effort to establish more adaptive patterns. In contrast, coping-skills therapies focus on the development of a repertoire of skills designed to cope with a variety of stressful situations. The problem-solving therapies may be characterized as a combination of cognitive restructuring techniques and coping-skills training procedures. Problem-solving therapies emphasize the development of general strategies to deal with a broad range

of personal problems and stress the importance of an active collaboration between client and therapist in the planning of the treatment program. In the sections that follow, the evolution of the major therapies associated with the cognitive-behavioral tradition are described. This review is not intended to be exhaustive and therefore excludes therapies that have not stimulated a significant amount of research or clinical application.

Rational Emotive Behavior Therapy

Rational emotive behavior therapy (REBT) is regarded by many as the premiere example of the cognitive-behavioral approach. The basic theory and practice of REBT was formulated by Albert Ellis over 50 years ago. Following extensive training and experience in psychoanalysis, Ellis began to question the efficacy and efficiency of the classical analytic method. He observed that patients tended to remain in therapy for considerable periods of time and frequently resisted psychoanalytic techniques such as free association and dream analysis. Moreover, Ellis (1962) questioned whether the personal insight resulted in durable changes in behavior.

Discouraged by the limitations of the analytic method, Ellis experimented with more active and directive treatment techniques. Through a process of clinical trial and error, he formulated a theory of emotional disturbance and a set of treatment methods that emphasized a practical approach to dealing with life problems. Although advocates of analytic theory considered Ellis's methods heretical, the advent of behavior therapy in the 1960s and the growing acceptance of the role of cognitions in understanding human behavior eventually fostered the acceptance of REBT (formerly called rational emotive therapy; RET) as a potentially valid alternative to the more traditional models of psychotherapy.

REBT assumes that human thinking and emotion are significantly interrelated. According to Ellis's ABC model, symptoms are the consequences (C) of a person's irrational belief systems (B) regarding particular activating experiences or events (A). The goal of therapy is to identify and challenge the irrational beliefs that are at the root of emotional disturbance. REBT assumed that individuals possess innate and acquired tendencies to think and behave irrationally and that, by substituting unrealistic, overgeneralized demands with realistic desires, preferences, or wishes, major changes in emotions and behaviors can occur. However, because individuals tend to forcefully preserve their irrational thought patterns, significant and durable changes require forceful methods of intervention.

REBT employs a multidimensional approach that incorporates cognitive, emotive, and behavioral techniques. Nevertheless, the major therapeutic tool remains a "logico-empirical method of scientific questioning, challenging, and debating" (Ellis, 1979a, p. 20) designed to assist individuals in surrendering irrational beliefs. In addition, REBT therapists selectively employ a broad variety of techniques, including self-monitoring of thoughts, bibliotherapy,

role playing, modeling, rational emotive imagery, shame-attacking exercises, relaxation methods, operant conditioning, and skill training (DiGiuseppe & Doyle, Chapter 8, this volume; Ellis, 1979b).

Cognitive Therapy

Aaron Beck was originally trained in psychoanalysis, but he also began to question psychoanalytic formulations of the neuroses, particularly with respect to depression (see Beck & Dozois, 2014, for a historical review). In 1963, Beck observed that cognitive factors associated with depression were largely ignored in favor of the psychoanalytic emphasis on motivational–affective conceptualizations. However, based on an investigation of the thematic content of the cognitions of psychiatric patients, Beck was able to distinguish consistent differences in the ideational content associated with common neurotic disorders, including depression. He also found that patients exhibited systematic distortions in their thinking patterns.

A 5-year research project at the University of Pennsylvania culminated in the 1967 publication of *Depression: Causes and Treatment,* in which Beck outlined his cognitive model and therapy of depression and other neuroses. A second book, *Cognitive Therapy and the Emotional Disorders* (Beck, 1976), presented in more detail the specific cognitive distortions associated with the neuroses and described the principles of cognitive therapy, with specific reference to depression. In 1979, Beck coauthored a comprehensive treatment manual for depression that presented cognitive interventions developed over the previous decade of clinical work and inquiry (Beck, Rush, Shaw, & Emery, 1979). *Cognitive Therapy of Depression* has served as the treatment manual for a considerable number of outcome studies and remains a key reference in the field. From the early emphasis on depression, Beck's model (Beck, 1970) was extended to other disorders and difficulties, including anxiety (Beck & Emery, 1985), bipolar disorder (Basco & Rush, 2005), marital problems (Beck, 1988), personality disorders (Beck, Davis, & Freeman, 2015; Layden, Newman, Freeman, & Morse, 1993; Linehan, 2014), substance use problems (Beck, Wright, Newman, & Liese, 1993), crisis management (Dattilio & Freeman, 1994), anger (Beck, 1999), and psychosis (Beck, Grant, Rector, & Stolar, 2008).

The cognitive model emphasizes that distorted thinking and unrealistic cognitive appraisals can negatively affect one's feelings and behavior. Appraisals are shaped by schemas, which are cognitive structures that organize and process incoming information and are acquired early in an individual's development. Whereas the schemas of well-adjusted individuals allow for the realistic appraisal of life events, maladjusted individuals may engage in distorted perceptions and faulty problem solving (Beck, 1976; Dozois & Beck, 2008). For example, the schematic processes of depressed individuals can be characterized by a negative cognitive triad, in which the views of the self, the world, and the future are disturbed (Hollon & Beck, 1979).

The principal goal of cognitive therapy is to replace the client's presumed distorted appraisals of life events with more realistic and/or adaptive appraisals. Treatment is based upon a collaborative, psychoeducational approach, which involves designing specific learning experiences in order to teach clients to (1) recognize the relations among cognition, affect, and behavior, (2) monitor automatic thoughts, (3) test the validity of automatic thoughts, (4) substitute more realistic cognitions for distorted thoughts, and (5) identify and alter underlying beliefs, assumptions, or schemas that predispose individuals to engage in faulty thinking patterns (Kendall & Bemis, 1983). Beck's cognitive theory of psychopathology and cognitive techniques have been subjected to a substantial degree of empirical scrutiny (Clark, Beck, & Alford, 1999; Ingram, Miranda, & Segal, 1998). Cognitive therapy of depression is now considered to be a viable alternative to behavioral and biochemical interventions (Cuijpers, 2017; Hollon, 2016), and cognitive therapy for anxiety disorders, in fact, has superior efficacy to pharmacotherapy.

Self-Instructional Training

The first self-instructional training (SIT) program was designed to treat impulsive children (Meichenbaum & Goodman, 1971). The goals of SIT were fourfold: (1) to train impulsive children to generate verbal self-commands and respond to them appropriately; (2) to strengthen the mediational properties of children's inner speech in order to bring their behavior under their own verbal control; (3) to overcome any comprehension, production, or mediational deficiencies; and (4) to encourage children to self-regulate their behavior appropriately. The specific procedures employed were designed to replicate the developmental sequence of self-instruction outlined by Luria (1961) and Vygotsky (1962): (1) a model performed a task talking aloud while a child observed; (2) the child performed the same task while the model gave verbal instructions; (3) the child performed the task while instructing him- or herself aloud; (4) the child performed the task while whispering the instructions; and (5) the child performed the task covertly. The self-instructions employed in the program included questions about the nature and demands of the task, answers to these questions in the form of cognitive rehearsal, self-instructions in the form of self-guidance while performing the task, and self-reinforcement.

Meichenbaum and Goodman (1971) found that SIT significantly improved the task performance of impulsive children across a number of measures relative to attentional and control groups. SIT places a procedural emphasis on graduated tasks, cognitive modeling, directed mediational training, and self-reinforcement and provides a flexible treatment paradigm that may be modified to suit the special requirements of a particular clinical population. Clients are trained in six global skills related to self-instruction: problem definition, problem approach, attention focusing, coping statements, error-correcting options, and self-reinforcement (Kendall & Bemis, 1983). The flexibility of SIT is one of its most attractive features and, not surprisingly, a large literature

has accumulated on the utility of SIT for a variety of psychological disorders, including schizophrenia, speech anxiety, test anxiety, and phobias (Mahoney, 1974). In recent years, the primary use of SIT appears to be primarily in youth, with intellectually disabled individuals, and in some areas in which specific skill training is needed, such as athletics. It does not appear to often serve as a stand-alone therapy but is often employed in the context of a broader set of methods, to develop and foster a broader sense of self-efficacy and capability.

Stress Inoculation Training

Stress inoculation training assumes that clients who learn ways to cope with mild levels of stress are "inoculated" against uncontrollable levels of stress. This approach emphasizes to clinicians the need for flexibility, sensitivity to individual differences, the need to use provocative stimuli to encourage the use of the skills, and progressive exposure to threatening situations (Meichenbaum, 1977). The systematic acquisition of coping skills and the importance of learning to cope with small, manageable amounts of stress as a means of facilitating treatment maintenance and generalization are also major tenets of stress inoculation training.

Stress inoculation training involves three stages (Meichenbaum & Cameron, 1973). The first stage is educational and involves didactic training about the nature of stressful reactions. The second stage involves the presentation of behavioral and cognitive coping skills, including relaxation exercises, coping self-statements, and self-reinforcement. In the final stage of application training, the client is exposed to a variety of stressors to rehearse his or her newly acquired coping skills.

Researchers have applied stress inoculation training to a variety of problems including anxiety, anger, and pain (Meichenbaum & Deffenbacher, 1988; Meichenbaum & Jaremko, 1983; Meichenbaum & Turk, 1976). These studies led to a detailed clinical guidebook (Meichenbaum, 1985), and a large body of studies (see Meichenbaum, 1993, 2007, for reviews). As with other multicomponent programs, there remains a need for dismantling studies to demonstrate the utility of the individual treatment components employed in stress inoculation training. Nonetheless, stress inoculation training has been widely employed as a therapeutic approach for the development of generalized coping skills (Meichenbaum, 2007).

Problem-Solving Therapy

Problem-solving therapy is a form of self-control training aimed at facilitating "generalized" behavior change. It emphasizes the importance of training the client to function as his or her own therapist. Its authors summarize the rationale underlying this approach as follows:

> Ineffectiveness in coping with problematic situations, along with its personal and social consequences, is often a necessary and sufficient condition for an

> emotional or behavior disorder requiring psychological treatment; . . . general effectiveness may be most efficiently facilitated by training individuals in general procedures or skills which would allow them to deal independently with the critical problematic situations that confront them in day-to-day living (D'Zurilla & Goldfried, 1971, p. 109).

According to D'Zurilla and Goldfried, "problem solving" refers to an explicit cognitive process that makes available a variety of effective response alternatives to cope with problem situations and to increase the likelihood of selecting the most effective response available (p. 108). D'Zurilla and Goldfried identified five overlapping stages in the problem-solving process: (1) general orientation or "set," (2) problem definition and formulation, (3) generation of alternatives, (4) decision making, and (5) verification. Training in problem solving involves teaching clients these basic skills and guiding their application in actual problem situations.

The clinical intervention objectives recommended by D'Zurilla and Goldfried stimulated the development of a number of problem-solving therapies (Mahoney & Arnkoff, 1978). Problem-solving therapies have now been developed in areas as broad as stress management and prevention, depression, anger management, and cancer (see Nezu & Nezu, 2014). A general problem-solving approach (D'Zurilla & Nezu, 1999) also exists, and the flexibility and pragmatism of this approach continues to attract the attention of clinicians in search of comprehensive treatment programs.

"Third-Wave" Cognitive-Behavioral Therapy

The "third wave" is a recent trend within the field of CBT. This group of therapies is most often associated with acceptance and commitment therapy (ACT; Hayes & Strosahl, 2004), dialectical behavior therapy (DBT; Linehan, 2014), and mindfulness-based cognitive therapy (MBCT; Segal, Williams, & Teasdale, 2012). ACT and related models focus not so much on the accuracy of perception as on the functional utility of different ways to think and behave. The emphasis is on the process of interacting with the world, rather than the content of what is being thought about or done. That said, the originator of ACT, Steven Hayes, argues that this approach is radically behavioral in that it emphasizes taking action to maximize mental health and adaptation in the world (Hayes, 2004a). Thus there is a focus on both thought and action, as is true for the other CBTs.

One of the ways in which ACT differs from many of the other CBTs is that the cognitive focus is not just on specific situations or the appraisal and meaning attached to different experiences; it is also on the process of appraisal itself. There is thus a focus on the "metacognitive" processes, such as worry about worry, or distress about depression. Associated with the focus on metacognition is a concomitant focus on mindfulness—being aware of the process of appraisal for events, emotions, and other thoughts (Hayes, 2004b; Roemer & Orsillo, 2003).

Another aspect of the third-wave models is that the process of change can take place in different ways. Whereas problem-solving, self-control, and cognitive restructuring approaches to CBT emphasize the need to assess cognition and behavior and to correct these phenomena when they are associated with emotional distress or problems, the third-wave approach suggests that sometimes the needed "change" is simply to recognize metacognitive processes, but without need for direct cognitive or behavioral change. The focus shifts to acceptance of the current distress or situation and a change in the metacognition from something like "This experience is intolerable; I must do something about this problem" to "This experience is a part of life; I can watch this experience, but I do not have to try to change it directly." The latter acceptance orientation arguably reduces the pressure to try to solve chronic or repetitive problems and frees clients to make purposeful and creative choices in their lives. ACT explicitly reinforces the processes of acceptance of difficult situations, even while making a commitment to do what the patient wants to fulfill his or her life. A common question is "What would you do if you were not _____?", followed by the provision of assistance to help the patient do just that. It is further argued that the chosen behavior will be positively reinforced by the patient's experience and that the need to "solve the problem" is eliminated by this process.

As described by Hayes (2004a) and others (e.g., Fruzzetti, McLean, & Erikson, Chapter 11, this volume), the third-wave therapies are a part of the cognitive-behavioral tradition, due to their emphases on cognitive appraisal and behavioral change. It is clear, however, that the approach these treatments take to symptoms, distress, and problems is radically different from other cognitive-behavioral treatments, and so their relationship to "mainstream" CBT remains a matter of discussion (see Dozois & Beck, 2012). These approaches are relatively transdiagnostic, they challenge psychiatric nosology and the pathologizing of human suffering, and they do not emphasize the direct detection, challenging, or changing of cognition (Hayes, 2016). Further, the evidence base related to outcome for these treatments, although encouraging, is relatively sparse. Nonetheless, there is considerable interest in this approach (see Fruzzetti et al., Chapter 11, this volume; Öst, 2008).

SIMILARITY AND DIVERSITY AMONG THE COGNITIVE-BEHAVIORAL THERAPIES

As the preceding chronology of cognitive-behavioral models of psychopathology and therapy suggest, there are a large array of cognitive-behavioral approaches. These approaches share the three fundamental assumptions discussed earlier in this chapter related to the mediational position. Beyond the preceding central assumptions regarding the mediated nature of therapeutic change, there are commonalities that occur between limited sets of CBTs. The Beck Institute (2017) posits that the essential components of CBT are

a cognitive conceptualization, a strong therapeutic alliance, goal setting, agenda setting, action plans (homework), a problem-solving orientation, evaluation of thoughts and beliefs, behavioral change, and relapse prevention. Similarly, Kendall and Kriss (1983) have proposed a helpful model to examine five dimensions that characterize various CBTs. These include the theoretical orientation of the therapeutic approach and the theoretical target of change, various aspects of the client–therapist relationship, the cognitive target for change, the type of evidence used for cognitive assessment, and the degree of emphasis on self-control on the part of the client. Other commonalities exist. For example, the various CBTs are typically time limited in nature. In clear distinction from longer term psychoanalytic therapy, CBTs attempt to effect change rapidly, and often with specific preset lengths of therapeutic contact. Many of the treatment manuals that have been written for CBTs recommend treatments in the range of 12–16 sessions (Dobson & Dobson, 2017).

The problem-focused nature of cognitive-behavioral interventions in part explains the time limitations that are commonly set in these approaches to therapy. Indeed, the use of these therapies for specific disorders and problems is a heritage from the behavior therapy emphasis on the collection of outcome data and the focus on the remediation of specific, predefined problems. Thus, rather than being a limitation of CBTs, the application of these therapies to specific problems demonstrates the continuing desire to document therapeutic effects. The focus on specific problems and goals also allows the measurement of the therapeutic limits of these various approaches and the potential to select the most efficacious therapy for a given patient's problem.

An additional commonality among the cognitive-behavioral approaches is the belief that patients have control over their thoughts and actions and therefore have control over their presenting problems. This assumption is reflected in the type of patient problems that are most often recommended for cognitive-behavioral interventions. The most frequently cited appropriate problems include the "neurotic" conditions (e.g., anxiety, depression, and anger problems), self-control problems (e.g., overeating, behavioral management difficulties, child dysfunction), and general problem-solving abilities. These types of problems make the assumption of patient control tenable, as they emphasize the individual as the active agent in his or her own life.

Another element shared by a number of the CBTs is their explicitly or implicitly educative approach to treatment. Many of these models encourage the therapist to teach the therapeutic model to the patient and share the case conceptualization, and they may also involve the explication of the rationale for any interventions that are undertaken (Dobson & Dobson, 2017). This type of educative interaction between the therapist and patient is shared among many CBTs, and it again sets them apart from other schools of therapy. Compare traditional psychoanalytic therapy, in which the therapist offers interpretations to the client (Blanck, 1976; Kohut, 1971), or strategic family therapy, in which the therapist may even dictate that the client do the opposite

of what the therapeutic goal is in a "paradoxical" intervention (Minuchin & Fishman, 1981).

Directly related to the educative process seen in CBT is the implicit goal that the patient not only will overcome the referral problem during the course of therapy but will also learn something about the process of therapy. In the event that patients suffer a recurrence of their problem, they will therefore have some therapeutic skills to deal with the problem themselves. In some of the CBTs, the desire to have patients learn about the process of therapy is taken to its logical conclusion, so that time is spent in therapy reviewing the therapeutic concepts and skills that the patient has learned over the course of therapy and that they may later employ in a maintenance or preventive manner (Beck et al., 1979; Dobson & Dobson, 2017).

It may appear that CBTs have so many commonalities that distinctions between them are more illusory than real. In contrast, Kendall and Kriss (1983) provided an excellent framework for identifying differences among the specific approaches. Further, even the brief overview of the various CBTs provided in this chapter demonstrates a diverse set of models and techniques that have been developed by cognitive-behavioral therapists. It is thus no more appropriate to state that there is really a single cognitive-behavioral approach than it is to state that there is one monolithic psychoanalytic therapy. As the chapters in this volume demonstrate, there are many different facets of cognitive-behavioral processes that may be monitored, identified, and altered within the overarching definition of the cognitive-behavioral approach. The diversity of the CBTs, while undeniably present, does argue for further definitional and technical discussion between the proponents of the various approaches. There are at least two areas in which further theory and research are required to differentiate among the CBTs, including the targets of therapeutic change and the modality specificity of intervention techniques.

Although CBTs share the mediational approach, and, therefore, all target "cognitions" for change, the variety of specific labels and descriptions of cognitions in the literature is truly overwhelming. A partial list of terms that have applied to cognitive constructs and processes includes: *cognitions, thoughts, beliefs, attitudes, ideas, assumptions, attributions, rules for living, self-statements, cognitive distortions, expectancies, notions, stream of consciousness, script, narratives, ideation, private meanings, illusions, self-efficacy predictions, cognitive prototypes,* and *schemas*. Adding further to the confusion, a number of these constructs were developed in a purely clinical context (e.g., self-efficacy predictions) and therefore have relatively clear definitions, whereas others are employed in other areas of psychology.

Where terms are shared across disciplines of psychology, the usage may not be identical, and semantic confusion may ensue. The use of the "schema" notion, for example, is fraught with potential difficulty, because the concept was first developed within cognitive psychology (Neisser, 1967), was later applied to social cognition (Markus, 1977), and has also been applied to clinical problems (Clark et al., 1999; Dobson, 1986; Dozois & Dobson, 2001;

Goldfried & Robins, 1983; Ingram et al., 1998; Turk & Speers, 1983). The various applications of the term reveal that although the essence of the schema concept is intact throughout its various uses, there are several idiosyncratic applications. Thus, although the elaboration of cognitive processes and constructs is useful, theorists need to define constructs precisely, and others in the field need to adopt these definitions. This increase in precision would help to clarify the terrain of cognitive-behavioral theory and might also assist the efforts of researchers whose interest is cognitive assessment. In this latter regard, it is clear that cognitive assessment is severely hampered by a lack of clear definitions of cognitive phenomena, and it is equally clear that further efforts in the area of cognitive assessment are required to be able to fully document the nature and process of change during CBT (Brown & Clark, 2015; Clark, 1997).

Clearly, the field of CBT has developed dramatically since its inception in the 1960s and 1970s. There are now a number of identifiable cognitive-behavioral models, and the efficacy of these methods is generally strong (Chambless et al., 1996; Dobson, Backs-Dermott, & Dozois, 2000; Dobson et al., Chapter 2, this volume). The continuing emphasis on the outcome research has enabled cognitive-behavioral theorists and therapists to make steady progress in research and practice and will certainly lead to continued improvements in the future. Some of the most pressing areas that require further conceptualization and research include the definition of cognitive phenomena (both at construct and process levels), mechanisms of change in therapy, and improving treatment accessibility (Reid & McHugh, Chapter 19, this volume). Recent advances in the field have begun to address some of these issues. We now turn to a discussion of CBT's more recent, and continually evolving, history.

RECENT ADVANCES IN THE COGNITIVE-BEHAVIORAL THERAPIES

Transdiagnostic and Modular Approaches

The increasing number of CBT protocols for myriad and specific problems reflect the field's maturity. There are now CBT protocols for many DSM-5 disorders, couples' distress, fibromyalgia, and sexual difficulties, among many others (see Hofmann, 2013). However, new issues have arisen as a result of the burgeoning number of evidence-based interventions. For example, there are now at least six evidence-based CBT protocols to treat generalized anxiety disorder (i.e., Dugas & Robichaud, 2007; Fresco, Mennin, Heimberg, & Ritter, 2013; Newman et al., 2011; Roemer & Orsillo, 2009; Rygh & Sanderson, 2004; Wells et al., 2010), making it difficult for clinicians to choose among treatments and to access adequate training and supervision for a particular protocol. Moreover, the procedural overlap among the variety of current CBTs, with some representing little more than a repackaging of strategies, renders the proliferation of manualized CBTs excessive and unnecessary.

In response to the influx of protocols, the last decade has seen the advent of modular transdiagnostic CBT treatments that are designed to treat a broader array of presenting problems, thereby simplifying the process of treatment selection and clinician training. Examples include the unified protocol for emotional disorders (Barlow et al., 2011), MATCH-ADTC (a treatment for youth with depression, anxiety, trauma, or conduct problems; Chorpita & Weisz, 2009), the Coordinated Anxiety Learning and Management (CALM) Tools for Living program (a treatment for anxiety disorders; see Craske, 2012), and enhanced cognitive behavior therapy for eating disorders (Fairburn, 2008). Modular transdiagnostic treatments are not unlike the flexible, case-formulation-driven approach (Persons, 1989, 2008) that many clinicians employ. This approach involves a case conceptualization of the mechanisms that cause and maintain the patient's various problems based on an assessment, a treatment plan (or set of modules) that targets each of these mechanisms, and monitoring case progress to both test the case formulation and make decisions in light of the patient's progress, or lack thereof. Research about the effectiveness of modular approaches speaks to the case formulation approach and reflects how clinicians in the community deliver treatments.

A further advantage of modular transdiagnostic treatments is that they can be offered to groups of patients with different, but related, diagnoses (e.g., patients with internalizing disorders) without going beyond the limits of the extant empirical evidence. These treatments may also provide an evidence-based approach to treat patients with particular patterns of comorbidity, as these treatments are validated for a wider array of problems. This more generalized approach to treatment may aid clinicians who would otherwise be faced with the dilemma of deciding which problem(s) to prioritize, a decision for which the literature often cannot provide an evidence basis.

Although transdiagnostic treatments represent an exciting development in the field of CBT, the dissemination and uptake of these treatments ought not to precede the science. Research on the efficacy and effectiveness of these treatments is presently limited, and it remains unclear whether these treatments are as effective as protocols for particular disorders and patterns of comorbidity. Although many modular treatments emphasize the development of a case formulation to guide the selection of modules and interventions within modules, there is a risk that the overly rigid use of transdiagnostic treatments, without appropriate attention to case conceptualization, may result in patients being required to complete modules with limited relevance to their own problems (e.g., requiring all patients to complete behavioral activation, regardless of their current activity levels). This approach has the potential to alienate patients and could result in higher dropout rates. Moreover, it is important that the term *transdiagnostic* not be taken too literally, as may happen if therapies are used with groups of patients for whom the treatment has not yet been validated. Transdiagnostic treatments are certainly not a panacea, and both their strengths and limits need to be evaluated thoroughly.

Transdiagnostic protocols provide clinicians with flexibility and decisional

guidance when they use an evidence-based approach to treat patients with multiple comorbidities and complex problems. This is an excellent alternative to parsing together multiple interventions from several protocols that have never been tested together. In support of this work, we hope functional analysis and single-case studies can be published, to examine the use of modular and/or case conceptualization approaches in patients with multiple, complex, and comorbid problems in clinical practice settings. Such studies can test novel hypotheses about symptom–mechanism relationships and mechanisms of change in therapy (Persons, 2016). They can also shed light on unusual symptom presentations or focus on patients who do not adequately benefit from existing evidence-based treatments. Single-case studies allow clinicians to share their novel hypotheses and results so that larger groups of patients can benefit from this underappreciated form of knowledge generation. In a similar vein, progress monitoring data collected by clinicians can vastly expand the evidence base, particularly if the same methods and measures are made accessible and used, resulting in large datasets that can be shared collaboratively (Craske, 2017). Moreover, the collection and dissemination of such data would promote practice-based evidence and would represent empirical research of high relevance to those who actually administer CBT. Altogether, these efforts would allow researchers to examine whether treatments help patients to accomplish their goals in more generalizable samples, rather than only investigating nomothetic symptom change in patients with only a single disorder who fit neatly into diagnostic criteria. Such research has huge potential to inform mechanisms of change and treatment for various problems and would serve to help close the gap between science and practice.

Improving Outcomes

Although CBT outcomes are generally positive, even for severe disorders (see Craske, 2018), there is room for improvement. Many individuals drop out of therapy (about 15% of those being treated for depression or anxiety; Loerinc et al., 2015), do not achieve remission (estimates are 45–50% for anxiety disorders and depression; Loerinc et al., 2015; Shinohara et al., 2013) or suffer a relapse after treatment has ended (e.g., 40% of individuals treated with CBT for depression; Layard, 2006; see Cuijpers, 2017). Researchers continue to look for answers to the question: "What treatment, by whom, is most effective for this individual, with that specific problem, under which set of circumstances, and how does it come about?" (Paul, 1969, p. 62).

A greater focus on treating mechanisms or processes of psychopathology is likely an important way forward in the pursuit of personalized and optimized treatment. Rather than targeting disorders or groups of disorders, some protocols already focus on critical processes and transdiagnostic mechanisms, such as perfectionism (e.g., Egan, Wade, Shafran, & Antony, 2014) and experiential avoidance (ACT; Hayes, Strosahl, & Wilson, 1999). Fortunately, transdiagnostic mechanisms are encouraged by the National Institute of

Mental Health's Research Domain Criteria (RDoC; Insel et al., 2010), which funds researchers to assess different areas of functioning. While RDoC moves away from heterogeneous DSM-defined syndromes, it has been criticized for a biological emphasis, which potentially misleads some to equate mental disorders with brain disorders. Hayes (2016) argues that its use of the medical model to define psychopathology is toxic to the science of CBT and represents a "mad scramble to come up with some kind of post hoc biological rationale for psychosocial methods" (Hayes, 2016, p. 448). It is important to avoid reductionist studies of psychopathology and instead examine biological endophenotypes that have practical utility for treatment selection. For example, recent work in this area using functional magnetic resonance imaging (fMRI) has found that baseline hypoactivation of the right anterior insula predicts remittance from depression with CBT, whereas hyperactivation of this area of the brain predicts remittance with antidepressant medication (McGrath et al., 2013). These exciting results need to be tempered by the fact that fMRI is not economically scalable for clinical practice and will not be in the foreseeable future. Other preliminary research has also found that response to CBT versus antidepressant medication can be predicted using a polygenic score (Carrillo-Roa et al., 2015).

Process-oriented research is also uncovering strategies for clinicians to improve treatments. For example, Zuroff (2017) found that therapists who grant their patients greater autonomy, such as giving them choices wherever possible, have better outcomes. Emergent processes at the cognitive, interpersonal, and behavioral levels of analysis that have predictive value should also be examined. Randomized controlled trials examining outcomes of therapy do not need to be black boxes. These studies can measure critical processes at numerous time points before, during, and after treatment to inform moderators and mediators of change and to develop profiles of moderators that predict outcomes (e.g., DeRubeis et al., 2014).

Dissemination

Although CBT is disseminated widely, efforts need to continue to make training more available to clinicians and treatment more accessible to patients. Technology has made a marked contribution to these efforts. Programs and websites are now available for clinician training in motivational interviewing (e.g., Motivational Interviewing Skills for Health Care), treating depression (Beck Institute, 2017), anxiety (Beck Institute, 2017; Kobak, Wolitzky-Taylor, Craske, & Rose, 2017), personality disorders (Beck Institute, 2017), and eating disorders (see Fairburn & Patel, 2017), among others. Similarly, Internet- or app-based CBT (e.g., Andersson, 2014; Ly et al., 2014; Pots et al., 2016) has made CBT accessible to a much greater range of people, including individuals living in rural areas and those without the funds or insurance coverage to see a therapist. Online CBT also makes prevention efforts more scalable, such that large groups of vulnerable individuals can now engage in CBT

and learn cognitive and behavioral skills and strategies before mental health issues emerge. Internet-based treatments vary in the degree of therapist contact involved, with some involving regular Web-based chat or telephone contact and others involving no therapist interaction. It is noteworthy that those programs incorporating some clinician involvement have better outcomes (see Spurgeon & Wright, 2010).

Craske (2016) has argued that Internet-based CBT could increase its effectiveness by assessing patients for critical processes that underlie psychopathology in order to match patients to therapeutic interventions that specifically target their vulnerabilities. Given the disparity between the number of therapists and the number of individuals with mental health disorders (Craske, 2016), online CBT-based prevention and intervention will be instrumental to reducing the incidence and prevalence of disorders.

Beyond increasing access to CBT, technology also has the potential to improve treatment effectiveness. For example, smartphone apps and websites that provide a platform to record and complete action plans (e.g., activity scheduling, thought records, recording subjective units of distress for exposures) are now available. Furthermore, smartphones and wearable devices can provide continuous monitoring of critical processes underlying psychopathology, such as physical activity levels, sleep, radius of travel from the home, voice tone, and psychophysiological data (Abdullah et al., 2016; Faurholt-Jepsen et al., 2015; Saeb et al., 2015; see Craske, 2016). They can also prompt patients to regularly provide self-report data on frequency of social contact or subjective emotional status. If there are sudden or consistent changes in data values, the device can prompt patients to alter behavior (e.g., remind a patient with depression to engage in behavioral activation when the patient has been staying home for a prolonged period of time or to seek mental health services for assessment or intervention). This technology could optimize the timing of interventions and may allow for treatment personalization, as the data can indicate what critical processes are currently dysregulated. Prompts could also help to better prevent relapse. Finally, collected data can inform basic psychopathology research by indicating how behavioral, emotional, and physiological mechanisms cluster, their trajectories of change (Craske, 2016), and how they predict the onset or maintenance of disorder.

Although Internet- and app-based CBT will increase access to care, well-trained therapists remain vitally important, particularly for patients with severe and complex problems. The United Kingdom's Improving Access to Psychological Therapies (IAPT) model provides an excellent example of the provision of stepped care on a mass scale with high levels of quality control, progress monitoring, and transparency. Such a model provides individuals with access to evidence-based therapy at an appropriate level of intensity. Those with less severe issues are given access to self-help resources (i.e., "low intensity" treatment), such as online CBT, whereas individuals with more complex problems see a highly trained therapist (i.e., "high intensity" treatment). Given the enormous economic burden of mental disorders, IAPT is

highly cost-effective (e.g., Radhakrishnan et al., 2013). We hope other health care systems will adopt similar models for providing accessible evidence-based treatment matched to patient's needs.

The science and practice of CBT have come a long way since its emergence in the 1960s, but there remain many challenges to enhance treatment effectiveness and access. Nonetheless, there have been many exciting advances in recent years as researchers work to elucidate mechanisms of action and moderators of treatment response to better individualize and optimize treatment.

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