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Cognitive Clinical Assessment

Contributions and Impediments to Progress

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The cognitive revolution in clinical psychology and psychotherapy, launched in the 1970s and early 1980s by pioneers such as Aaron T. Beck, Albert Ellis, Donald Meichenbaum, Michael Mahoney, and Philip Kendall, has long since come of age. Cognitive-behavioral therapy (CBT) is now recognized as an empirically supported therapy and first-line treatment for a variety of psychological disorders, especially anxiety and depression, and has been included in the practice guidelines of the American Psychiatric Association (e.g., American Psychiatric Association, 2010) and the British National Institute for Health and Clinical Excellence, now the National Institute for Health and Care Excellence (e.g., National Institute for Health and Clinical Excellence, 2005). Moreover, it continues to be endorsed as an empirically supported treatment for many clinical disorders by the American Psychological Association (see Chambless & Ollendick, 2001) as well as other professional psychology organizations such as the Australian Psychological Society and the Canadian Psychological Association. Although practitioners consider CBT the most influential of the psychotherapies for adults (Cook, Biyanova, Elhai, Schnurr, & Coyne, 2010), it has achieved low levels of penetration as a fully implemented evidence-based treatment in real-world clinical practice delivered by fully certified CBT therapists (Stewart & Chambless, 2007). Thus, from one perspective the cognitive revolution has been hugely successful in spawning highly effective treatments for

the anxiety disorders, major depression, and eating disorders in particular, but the problem of limited access to effective treatment for mental health consumers is only beginning to be addressed (McHugh & Barlow, 2010). It is therefore incumbent upon those working in the area to continue to develop forms of CBT treatment that are compatible with the exigencies of health care delivery systems.

The last 30 years have also seen significant progress in cognitively based theoretical models and research on psychopathological conditions. A comparison of the early cognitive theories of anxiety and depression to more recent refinements and elaborations reveals considerable advance in ecological validity, integration, and predictive utility. We have seen substantial progress in elucidating the underlying cognitive structures and processes involved in the etiology and maintenance of clinical disorders. Findings from experimental clinical psychology have been incorporated into more recent cognitive-behavioral theories that better map the common and specific contributory processes to the etiology and maintenance of anxiety and depression (Clark & Beck, 2010; Gotlib & Joormann, 2010).

In contrast to these undeniable advances in theory, research, and treatment, the question needs to be asked: What has cognitive assessment contributed? Have our assessment approaches kept pace with the evolution of CBT, or has development in cognitive assessment stalled, so that we are left stuck in the methodology and perspectives of the pioneering days of CBT? Have we overcome barriers and challenges in cognitive assessment that could thwart innovation and development? Does cognitive assessment even matter to the day-to-day clinical service provided by those who consider themselves cognitive-behavioral therapists? And what are the critical issues for future research that could advance the case for cognitive assessment? These are some of the questions we begin to address in this chapter and that will continue to emerge throughout subsequent chapters in this volume. But before we begin, let's take a historical look at the critical role played by cognitive assessment in the early years of the paradigmatic shift in clinical psychology from a strictly response-based behavioral perspective to a stimulus-oriented information-processing paradigm.

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BOUNDARIES AND ORIGINS OF COGNITIVE CLINICAL ASSESSMENT

It could be argued that the term "cognitive assessment" is an all-encompassing concept that refers to all attempts to measure any aspect of information processing. From this perspective, any research on the cognitive basis of psychopathology would by necessity involve

assessment methodology, and any treatment that targets cognitive change would require some method to measure this change. Given such breadth, it is important to define the boundaries of cognitive clinical assessment for the purposes of the present volume. Thus, in the current context, the term "cognitive clinical assessment" refers to *systematic empirically derived protocols, procedures, or instruments intended to measure the frequency, intensity, and salience of meaningful information comprising the thoughts, images, and beliefs that characterize psychopathological states*. This definition focuses on the measurement of "cognitive products," which according to the earlier taxonomic classification proposed by Ingram and Kendall (1986), are the thoughts, images, self-statements, or internal dialogue that represents output from the information-processing system, and cognitive propositions that are the content of underlying beliefs or schemas. Moreover, a diverse set of methodologies used to assess thought and belief content fall under our definition of cognitive clinical assessment, such as recording, production, sampling, and endorsement methods. However, for purposes of the present discussion we exclude various experimental paradigms derived from cognitive experimental psychology that assess the structure and operation of the information-processing system, such as dot-probe tasks, emotional Stroop color-naming tasks, the Implicit Association Test (IAT), the Self-Referent Encoding Task, and the like. Although these information-processing methodologies clearly fall under the rubric of "cognitive assessment" and account for much of the innovation and advance seen in cognitive clinical research in the last two decades (see Dunkley, Blankstein, & Segal, 2010, for review), their impact and implication for cognitive-behavioral treatment and practice is not as evident as cognitive assessment of content or products. Since our objective is to review cognitive assessment with more direct implications for both research and practice, restricted focus on the content of cognitive clinical assessment predominates in the present volume.

The advent of cognitive clinical assessment can be traced to an article published by Kendall and Korgeski (1979) in *Cognitive Therapy and Research*, followed in quick succession by two edited volumes that appeared in the same year (Kendall & Hollon, 1981a; Merluzzi, Glass, & Genest, 1981). In the last 30 years, review articles (e.g., Clark, 1988) and chapters (e.g., Dunkley et al., 2010) have appeared on cognitive assessment as well as special issues in the *Journal of Consulting and Clinical Psychology* (Haaga, 1997) and *Journal of Rational-Emotive Cognitive-Behavior Therapy* (McDermut & Haaga, 2009). There have also been major conceptual (e.g., McFall & Townsend, 1998) and methodological (e.g., Chamberlain & Haaga, 1999; Hunsley & Meyer, 2003) papers specific to cognitive clinical assessment or psychological assessment more generally.

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What progress has been made in cognitive clinical assessment is reflected in the scores of published empirical articles over the years (1) describing the development of new assessment instruments for an expanding number of cognitive-emotive constructs, (2) establishing the psychometric properties of existing cognitive clinical measures, (3) determining treatment sensitivity and clinical utility of cognitive measures, and (4) introducing new statistical methodologies for determining construct validity. Despite these noteworthy gains, the momentum evident in the early years of cognitive clinical assessment appears to have evaporated. Compared to the substantial changes evident in cognitive clinical research and treatment, the advances in cognitive clinical assessment seem tepid. Why we have seen less progress in cognitive clinical assessment will be addressed in the chapters that follow in this volume.

In the early years of CBT, assessment issues were considered integral for further advances in theory, research, and treatment. Kendall and Korgeski (1979), for example, argued that progress in cognitive theory and treatment would be impeded without concomitant advances in the assessment of cognitive constructs. Kendall (1981) noted that advances in cognitive assessment are critical to research on (1) the role of cognition in emotion and behavior, (2) the cognitive basis of etiology and maintenance of psychological disorders, (3) the effects of treatment, and (4) the manipulation of cognitive processes in experimental research. And yet it has always been recognized that the assessment of cognition presents special challenges to researcher and practitioner alike. The most obvious is the private, internal, unobservable nature of cognitive content. Kendall (1981) argued that although the unobservable nature of cognition makes it "troublesome to assess," this does not make it any less important in understanding psychopathology and its treatment. Related issues raised by Kendall (1981) concern accuracy and accessibility. "Accuracy" refers to whether individuals report the actual cognitions they experienced, whereas "accessibility" refers to whether individuals have access to, that is, can report on the cognitions requested in the assessment. As seen in the following chapters, these core issues of cognitive clinical assessment (i.e., internality, accuracy, and accessibility) are confronted again and again whenever we attempt to measure cognitive content. Furthermore, the issues of reliability and validity are no less relevant for cognitive clinical assessment than they are for measurement of behavior, intellectual performance, or physical response. Admittedly, it is more challenging to demonstrate validity and reliability in measures of cognition due to the private nature of cognition, but its necessity is no less diminished by the challenges we face.

Kendall and Hollon (1981b) proposed a methodologically based system for organizing measures of cognitive content that has proven most

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useful over the intervening years. It is an organization that is followed by many of the authors in this book. Cognitive content can be assessed by "recording methods," which involve audiotaping and subsequent content analysis of an individual's spontaneous or task-related verbalizations. "Production methods" instruct individuals to retrospectively produce, either in oral or written form, their thoughts during a preceding time interval (e.g., engage in a role play and then write down all thoughts that occurred during the role play). "Thought-sampling procedures" instruct individuals to report their current thought whenever cued by a device, usually delivered on a random basis. Finally, "endorsement methods" provide individuals a predetermined list of cognitions (i.e., in questionnaire format) and instruct them to indicate the frequency of occurrence or some other characteristic of the cognition, usually over a specified time period. By far the most common method to assess cognitive content has been via questionnaire, that is, endorsement methodology. As we will see, this method of assessment has also been subject to the most intense criticism by cognitive clinical researchers.

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RECENT DEVELOPMENTS IN CBT

To determine whether cognitive clinical assessment has kept pace with the changing face of CBT research and treatment, it is important to recognize some of the major developments that are occurring in the field. Several of these innovations and developments are discussed in greater depth by the chapter authors.

CBT Expansion to a Wide Array of Conditions

Cognitive-behavioral theory and treatment has now been applied to an ever expanding variety of psychological conditions and disorders such as personality disorders, anger and stress management, psychosis and schizophrenia, mania, addictions, obesity, relationship problems, parent management, and the like. Although much of the CBT research and treatment development continues to focus on the emotional disorders (anxiety and depression), each time the model is applied to a new problem it necessitates the development of a new suite of cognitive clinical measures. To date, there has been a tendency to utilize the same assessment methodologies as we've seen in the measurement of cognitive content in anxiety and depression. That is, research in these new areas has primarily carried on the tradition of developing new retrospective self-report measures of cognitive content that seek to provide an adequate representation of the key cognitive features of the new psychological condition.

More Elaborated but Inaccessible Cognitive Constructs Proposed by Newer CBT Formulations

More recent iterations of CBT theory and treatment emphasize "deeper," more complex cognitive constructs that are probably more inaccessible to awareness, representing an even greater challenge for cognitive clinical assessment. For example, Cartwright-Hatton and Wells (1997) developed the Meta-Cognitions Questionnaire (MCQ; see also Wells & Cartwright-Hatton, 2004, for a shortened version) to assess key constructs of Wells's metacognitive theory, including beliefs about worry, cognitive confidence, and cognitive self-consciousness. The latter two constructs refer to individuals' self-efficacy beliefs in their memory and attentional functioning, and the extent that they focus on their own thinking (Cartwright-Hatton & Wells, 1997). Both constructs are metacognitive in nature; that is, they assume insight into how one thinks—the very cognitive processes that Nisbett and Wilson (1977) so long ago questioned as accessible to the introspective process.

Another example is the long form of the Young Schema Questionnaire, Third Edition, a 205-item self-report questionnaire that asks individuals the degree of self-descriptiveness of item statements assumed to represent early maladaptive schemas (Young & Brown, 2003). Some of the statements refer to behavioral responses, others self-referent beliefs, and still others specific emotion states. However, early maladaptive schemas (EMSs) are construed at the deepest cognitive level and are thought to emerge from childhood adverse or traumatic experiences (Martin & Young, 2010). They are the earliest and most central schemas that are automatic, temporally stable, affect-laden, and highly resistant to change, representing an interaction between temperament and early environmental experiences and reinforced by subsequent life experiences (Young, 1990). Martin and Young (2010) noted that EMSs are major determinants of thought, feeling, and behavior, are generally accepted as a priori truths, and are outside of awareness. Given these characteristics, how accurately can highly conscious, deliberate responses to questionnaire items tap into deeply embedded core structures like EMSs? Other cognitive clinical researchers have focused on assessing specific characteristics of thought that transcend content, such as the Perseverative Thinking Questionnaire (Ehring et al., 2011). We can assume that individuals have even less awareness of "how they think" (i.e., process) than "what they think" (i.e., content).

Greater Emphasis on Case Formulation

In recent years CBT clinicians have emphasized the importance of developing a cognitive case formulation as a guide to the treatment process

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(J. S. Beck, 2011; Kuyken, Padesky, & Dudley, 2008; Persons, 2008). However, empirical support that case formulation has a significant impact on treatment outcome has not been demonstrated (see Key & Bieling, Chapter 10, this volume), while others have argued for a more standard, manualized approach to CBT that does not place as much emphasis on individualized case conceptualization. Moreover, current cognitive assessment methods may not map onto the various models of case formulation since their development has not been driven by case formulation concepts. Even though proponents of case formulation advocate use of psychometrically sound cognitive measures, the utility of these for individualized cognitive case formulation remains unsubstantiated.

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Development of Low-Intensity CBT

Efforts to bridge the gap between research and the limited availability of evidence-based treatment in health services has led to the development of brief, therapist-limited CBT protocols for mild psychological disturbance (Bennett-Levy, Richards, & Farrand, 2010). Low-intensity CBT encompasses a fairly broad range of interventions, such as self-help books, Internet-based CBT, group psychoeducation programs, entry-level intervention in stepped care programs, and so on (Richards, 2010). Within low-intensity treatment, access to specialized mental health professionals may be limited to one or two contacts, so there is little scope for individualized case formulation. At most, assessment may be reduced to a structured clinical interview and a couple of brief standardized symptom ratings or questionnaires. Specific measures of cognitive content will be rarely employed due to time constraints. Moreover, it is not at all clear that existing cognitive clinical measures, which were developed for moderate to severe distress, would be valid in a downward extension to milder forms of emotional disturbance (see Hawkes & Brown, Chapter 11, this volume). It is likely that new measures of cognitive content will be needed to meet the distinctive demands of low-intensity CBT.

Transdiagnostic CBT

Recently, a number of prominent CBT clinical researchers have advocated transdiagnostic or unified treatment protocols as complementary to disorder-specific manualized treatment. Barlow and colleagues developed the unified treatment protocol for treatment of emotional disorders (Barlow, Allen, & Choate, 2004; Barlow et al., 2011); Norton introduced a transdiagnostic CBT for anxiety disorders (Norton, 2012; see Smith, Ratcliff, & Norton, Chapter 9, this volume); and Fairburn, Cooper, and Shafran (2003) developed transdiagnostic CBT for

anorexia and bulimia nervosa. These approaches transcend the diagnostic boundaries of psychiatric classification systems such as the *Diagnostic and Statistical Manual of Mental Disorders* (DSM) and focus treatment on the common or shared features of psychological disorders (Mansell, Harvey, Watkins, & Shafran, 2009; McManus, Shafran, & Cooper, 2010). The rationale is that transdiagnostic protocols may be more effective in cases of multiple co-occurring disorders and eliminate the unrealistic expectation that therapists gain expertise in multiple disorder-specific treatment protocols, especially in rural or general mental health settings where practitioners deal with a wide range of conditions (see Smith et al., Chapter 9, this volume). In these treatment approaches, the case conceptualization is framed in terms of common and specific processes, with the former being the primary focus of treatment (Mansell et al., 2009).

Interestingly, our current measures of cognitive content may be easily applied to transdiagnostic treatments. Psychometric research on many of the most popular cognitive content measures has demonstrated good convergent validity but low discriminant validity. For example, measures of depressive and anxious cognitive content always correlate positively (see Baranoff & Oei, Chapter 8, this volume), which suggests they are tapping into the common or shared features of anxiety and depression. Even though unintended, if our current cognitive measures are highly saturated with common variance items, they may be more relevant for transdiagnostic interventions and easily adapted into transdiagnostic treatment protocols. Whether cognitive content measures have even greater treatment utility and predictive validity in transdiagnostic CBT compared to disorder-specific interventions remains to be seen.

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PAST ISSUES AND CURRENT CHALLENGES

Many of the problems and challenges facing cognitive clinical assessment raised in the early years of CBT are as applicable today as they were in past decades. Many of these issues are taken up in greater detail in the following chapters. In this section, we highlight some of the more prominent concerns and whether progress has been made in the intervening years.

Insufficient Construct Validity

Without question, the most critical issue for any assessment measure is its "construct validity"—that is, the accuracy of judgments about a

psychological phenomenon on the basis of test scores (American Psychological Association, 1999). For cognitive clinical assessment, construct validity depends to a greater degree on whether we can infer that responses on a measure reflect the individual's actual thought content (for a discussion of validity and veridicality, see Brown & Clark, Chapter 2, this volume).

Only a few cognitive clinical measures have been subjected to sufficient psychometric research to provide a firm evidence base for their construct validity. One of these measures is the Dysfunctional Attitude Scale (DAS). A 100-item version originally developed by Weissman and Beck (1978) to assess relatively stable prepotent schema content that Beck's cognitive model hypothesized as vulnerability to major depression has since been abbreviated to parallel 40-item versions (Cane, Olinger, Gotlib, & Kuiper, 1986) and an even briefer 9-item short form (Beevers, Strong, Meyer, Pilkonis, & Miller, 2007). Various factorial analyses conducted on the DAS-40 have found two highly reliable dimensions, need for approval from others (i.e., social dependency concerns) and performance evaluation/perfectionism (de Graaf, Roelofs, & Huibers, 2009), whereas the factorial structure for the 100-item DAS is less stable, depending on whether clinical or nonclinical samples are utilized (Beck, Brown, Steer, & Weissman, 1991; Calhoon, 1996). Generally the underlying dimensions of the DAS map onto the primary themes of Beck's cognitive model of depression.

In most studies, the DAS-40 has good internal consistency, and the perfectionism/performance factor in particular has a strong association with depressive symptoms (e.g., de Graaf et al., 2009; Dobson & Breiter, 1983). To determine the psychometric performance of individual DAS items, Beevers et al. (2007) conducted an item response theory analysis on the DAS-40 based on 250 patients with major depressive disorder. Twenty-two items failed to make sufficient discriminations, leaving 18 items that made adequate discriminations. The authors then divided these items into parallel 9-item DAS short forms. Further analysis of the 9-item and full 40-item DASs indicated that all versions significantly declined with treatment, correlated with other measures of depressive cognition, and higher pretreatment scores predicted less change in depression at posttreatment. In an earlier study, Zuroff, Blatt, Sanislow, Bondi, and Pilkonis (1999) employed structural equation modeling to show that the DAS-40 Need for Approval and Performance/Perfectionism dimensions exhibited both change and stability over the course of treatment for depression, and that high pretreatment DAS predicted poorer response to treatment. Moreover, depressive symptoms and dysfunctional attitudes tended to rise and fall together over the course of treatment. The authors concluded that dysfunctional attitudes are neither

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fixed nor enduring or mere consequences of the depressive state, but rather a mixed state–trait attribute that is entirely consistent with a vulnerability model. Hill, Oei, and Hill (1989) investigated the sensitivity and specificity of the DAS-40 and Automatic Thoughts Questionnaire (ATQ) in clinical and nonclinical samples representing a broad range of diagnostic groups. They concluded that the ATQ was more specific and sensitive to depression than the DAS-40, with the latter measure actually showing a far degree of nonspecificity. Other studies have also found that the DAS does not discriminate major depression from other diagnostic groups (e.g., Silverman, Silverman, & Eardley, 1984). Nevertheless, the DAS-40 has been used as a cognitive vulnerability measure in behavioral high-risk designs and shown to predict first onset of major depression (Alloy, Abramson, Keyser, Gerstein, & Sylvia, 2008). Moreover, increased DAS scores when primed by negative mood induction was shown to predict depressive relapse (Segal et al., 2006), although in a subsequent study posttreatment unprimed but not primed DAS scores predicted relapse over a 20-month follow-up period (Jarrett et al., 2012).

The DAS, then, provides an excellent example of a research literature building the case for construct validity through a variety of research methodologies involving psychometric analysis, clinical experimental research, and treatment outcome trials. In recent years, more sophisticated statistical tools such as structural equation modeling and item response theory analysis indicates that only a few DAS items possess sufficient discriminatory power and that dysfunctional attitudes possess both state and trait properties. Newer methods of analysis outlined by Naragon-Gainey and T. A. Brown (Chapter 12, this volume), such as the trait–state–occasion technique (e.g., LaGrange et al., 2011), hold promise for providing further clarification on this elusive but central issue of the relationship between constructs such as those measured by the DAS and symptoms over time.

The somewhat adequate sensitivity but poor specificity suggests that the DAS may be tapping into the more common features of emotional disorders, rather than structures specific to depression. As well, it is unclear whether the DAS requires priming (i.e., activation) in order to examine its effects. Nevertheless, we can infer that DAS responses do reflect schematic content that is characteristic of depression, given that these responses behave in ways predicted of cognitive vulnerability constructs; that is, they predict depressive onset, relapse and recurrence, and response to treatment. Thus, over the years progress has been made on the DAS, ensuring that clinical researchers will continue to use this instrument to assess cognitive vulnerability. It is hoped that the same sustained program of research can be conducted with other cognitive assessment measures in order to determine their construct validity.

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Low Multimethod Convergence

An important aspect of construct validity is *convergent validity*, that is, confirmation of validity by different testing procedures (Campbell & Fiske, 1959). In the case of cognitive clinical assessment, a measure of, for example, negative self-referent thoughts of loss and failure should correlate with other measures of depressive cognition but also with measures of behavioral, emotional, somatic, and other characteristics of depression. Moreover, the various assessment methods of cognitive clinical assessment that differ along temporal and structural dimensions afford a special opportunity to investigate convergent validity (Dunkley et al., 2010).

Generally speaking, cognitive measures tend to exhibit moderate to high convergent validity with other measures of the same cognitive phenomena using the same methodology. For example, endorsement methods involving retrospective self-report responses to predetermined item statements tend to correlate well with other endorsement measures. The ATQ and DAS, for example, are strongly correlated with each other, and depression symptom measures (e.g., Hill et al., 1989). However, the correlations drop substantially when different methodologies of the same cognitive phenomena are compared in a multitrait–multimethod matrix (Campbell & Fiske, 1959). In their review, Chamberlain and Haaga (1999) concluded that the correlations between endorsement (i.e., self-report questionnaires) and production (i.e., articulated thoughts during simulated situations) methods tend to be quite low (see also Haaga & Solomon, Chapter 3, this volume; Clark, 1988). This low correlation, of course, raises concerns that endorsement, production, recording, and thought-sampling methods may be assessing different cognitive constructs (Dunkley et al., 2010). In their chapter, Haaga and Solomon suggest a number of ways that production methods can still be helpful in cognitive assessment, despite low convergent validity with self-report questionnaires.

Mumma (2004) provides an excellent example of utilizing items from standardized self-report measures of cognition and a structured clinical interview of core beliefs to construct an individualized daily questionnaire of cognitions that was then evaluated for convergent, discriminant, and incremental validity against variability in distress ratings and predictions of cognitive content specificity. The analysis was conducted on 90 days of data collected from an individual with major depressive disorder and demonstrates how nomothetic and idiographic methods of cognitive assessment can be integrated and used to validate cognitive case formulation in clinical practice (see Brown & Clark, Chapter 2, this volume, for a further discussion). It would be interesting

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to use Mumma's construct validation approach to compare the convergent and discriminant validity within individual cognitive case formulations for various types of assessment (i.e., thought sampling, production, endorsement methods). It would be informative to determine which of these assessment methods exhibits the most utility in validating the idiosyncratic core schemas featured in individual cognitive case formulations.

Overreliance on Questionnaire Methodology

It has been noted in earlier reviews there has been an overreliance on retrospective self-report questionnaires in cognitive clinical assessment (e.g., Clark, 1997). In the intervening years, little has changed in this regard. Endorsement methodology still continues to overwhelmingly dominate cognitive clinical assessment. Although the reasons for this are quite obvious (see Brown & Clark, Chapter 2, this volume), Glass and Arnkoff (1997) warn against the dangers of leaning so heavily on self-report cognition questionnaires given the lack of verdicality of retrospective cognitive self-report. Of course retrospective questionnaires are susceptible to the problems of selective memory biases and forgetting. After all, no one assumes that people keep track of their cognitions on a daily basis, except for the most fervent cognitive therapist. So, when an anxious individual endorses a self-statement like "I have thoughts of threat and danger," does that endorsement reflect frequent occurrence of that thought or the individual's sense that he or she frequently feels apprehensive and anxious?

These issues are elaborated further in subsequent chapters of this volume (Brown & Clark, Chapter 2; Hawkes & Brown, Chapter 11). In the meantime, it would be beneficial for clinical researchers and clinicians alike to place greater emphasis on collecting real-time cognitive content in the naturalistic setting (i.e., thought sampling), especially in light of the new opportunities afforded by apps and smartphone technology.

The Vulnerability Issue

Because cognitive theories postulate that particular cognitive structures, processes, and content play a causal role in emotional and behavioral disorders, the assessment of cognitive vulnerability is of paramount importance in empirical research on these models. In Beck's cognitive theory of depression (Beck, 1987; Clark, Beck, & Alford, 1999), for example, prepotent dysfunctional self-referent schemas derived from adverse childhood experiences, remain dormant until activated by a congruent negative life event. Once activated the schemas dominate the

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information processing system, creating a schema-congruent negativity bias in attention, memory, reasoning, and conscious thought. According to this diathesis–stress perspective, depressogenic schemas would remain undetected in vulnerable individuals until primed by an activating trigger.

In order for an instrument to qualify as a measure of vulnerability, certain parameters must be met by that measure. It must show temporal stability by reflecting a trait rather than state characteristic, although Ingram and Price (2010) suggest that having temporal stability does not mean the vulnerability factor is unchanging. They note that corrective experiences (i.e., treatment) could weaken the vulnerability factor, whereas certain life experiences might strengthen it. In addition to endurance, Ingram and Price (2010) include endogenous process (i.e., latent) and susceptibility to an activating stimulus as related characteristics.

One of the questions that have occupied cognitive clinical researchers for the past three decades is whether purported measures of schemas, such as the DAS, satisfy the criteria for vulnerability. Early studies comparing pretreatment to posttreatment of depression, or remitted and depressed patients, indicated that DAS scores returned to near normal levels once the depression remitted (e.g., Hamilton & Abramson, 1983; Hollon, Kendall, & Lumry, 1986), leading to the conclusion that the DAS, and possibly schemas themselves, do not satisfy the most basic requirement of vulnerability (i.e., stability) and so are probably a consequence rather than a cause of emotional disturbance (Barnett & Gotlib, 1988). However, cognitive theory predicts that vulnerability will not be evident unless underlying schemas are primed or activated. In fact, research over the last 20 years has generally supported this supposition. When measures of cognitive vulnerability (e.g., the DAS) are primed by an activating stimulus such as negative life event, negative mood state, and so on, they do tend to conform more closely to the parameters expected of vulnerability (see Evraire, Dozois, & Hayden, Chapter 5, this volume).

Although there are several important issues for cognitive assessment of vulnerability, two that are particularly important are highlighted by Evraire et al. (Chapter 5, this volume). One concerns the accuracy of self-report measures of vulnerability, with their proposal that inference-based experimental procedures like the Self-Referent Encoding Task or the IAT (see Roefs, Huijding, Smulders, Jansen, & MacLeod, Chapter 13, this volume, for a critical evaluation of the IAT) might prove more helpful in assessing vulnerability. The second issue concerns the necessity of priming. Although some have argued that priming is needed to adequately assess cognitive vulnerability (Ingram, Miranda, & Segal,

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1998), it is not at all clear this is the case. Dozois (2007) demonstrated that schemas can be accessed without priming, and Jarrett et al. (2012) found that unprimed DAS predicted depressive relapse, whereas primed DAS was not a significant predictor. Thus two critical issues in cognitive vulnerability assessment are which method of assessment is most accurate and whether or not priming is necessary to determine the presence of vulnerability.

Incremental Validity and Treatment Utility

"Incremental validity" refers to the extent that "a measure adds to the prediction of a criterion above what can be predicted by other sources of data" (Hunsley & Meyer, 2003, p. 446). Within the context of cognitive clinical assessment, incremental validity would be the extent that a standardized measure of cognition would improve assessment of thoughts, beliefs, and other cognitive processes beyond what can be ascertained from a clinical interview or treatment process. The importance of incremental validity is readily apparent in the validation of new measures (Hunsley & Meyer, 2003). Cognitive clinical researchers are imaginative, energetic creators of an ever-expanding array of self-report cognition measures. Do we really need another measure of depressive cognitions? Instead of relying on our personal theoretical biases to answer this question, empirically based researchers should ask whether the new measure has incremental validity over existing depressive cognition measures. If the new measure significantly improves on the prediction of depression onset, relapse, response to treatment, cognitive reactivity, and so on, over existing cognitive measures, then it has sufficient incremental validity to justify its adoption in clinical research and practice. At the broader level, we could ask whether inclusion of an endorsement, production, or thought sampling method improves on clinical decision making, case formulation, or treatment outcome over clinical deductions drawn from unstructured interviews or inferences drawn from psychotherapy sessions (Hunsley, 2003). If incremental validity is demonstrated, then a stronger case could be made for incorporating more formalized cognitive clinical assessment in an evidence-based practice (see Hunsley & Elliott, Chapter 6, this volume). To date, however, cognitive clinical assessment research and development have tended to pay insufficient attention to incremental validity. Hunsley and Meyer (2003) made a number of recommendations that researchers could follow to rectify this deficiency, while acknowledging that for the practitioner there is no guidance on how incremental validity might be applied to individual cases.

"Treatment utility" refers to "the degree to which assessment is shown to contribute to beneficial treatment outcome" (Hayes, Nelson,

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& Jarrett, 1987, p. 963). Typically, the treatment utility of assessment has been researched by determining whether assessment leads to treatment selection that results in a better client outcome or whether providing clinicians with assessment information leads to better outcomes (Nelson-Gray, 2003). In her review, Nelson-Gray (2003) concluded there is empirical evidence that functional analysis has treatment utility in linking behavioral assessment and treatment. Moreover, she speculated that use of diagnosis and semistructured interviews might have treatment utility if they are useful in accessing empirically supported treatments for particular disorders.

Studies employing specific measures of cognition or behavior have found that low scores, that is, individuals with a higher level of function, were associated with better treatment response (e.g., Jarrett et al., 2012; Rude & Rehm, 1991). This suggests that treatment utility of cognitive clinical assessment might operate contrary to expectations where low rather than high scores (i.e., having fewer negative cognitions) are predictive of more successful client outcome. (We might expect the opposite, that low measurement scores would be associated with less treatment change because of a more limited range of possible cognitive change.)

Unfortunately, little is known about the actual treatment utility of specific cognitive clinical measures in comparison to treatment outcome associated with a single clinician making clinical decisions based on monomethod assessment (i.e., clinical interview). Even though it is well-known that certain assessment methods such as self-monitoring can contribute to therapeutic change, it is likely that most clinicians expect that formal cognitive clinical assessment has low treatment utility, making it too inefficient and costly for real-world clinical practice. Thus, research demonstrating treatment utility could be helpful in persuading CBT practitioners to be more mindful of cognitive clinical assessment in the therapy setting.

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Implications for Practice and DSM-5

A final issue concerns the low dissemination rate of empirically based cognitive clinical assessment among CBT practitioners. Historically, there has been a divide between treatment and assessment, with therapists utilizing limited systematic assessment when providing psychotherapy (Nelson-Gray, 2003). Butcher (2006) noted that the use of formal psychological testing, especially personality testing, in mental health settings declined with the advent of behavior therapy in the 1970s and then again in the 1990s with the rise of managed care and its concern with reducing mental health service costs. Although a small up-tick in formal assessment usage may be seen in certain sectors of clinical practice (such

as court or some personnel settings), the reality is that the psychological tests developed in the 1940s—the Minnesota Multiphasic Personality Inventory and the Rorschach and Thematic Appreciation Tests—are still the most widely used today (Butcher, 2006). Despite evidence that psychological test validity is comparable to medical test validity and that single clinicians using single methods, like an interview, to obtain patient information will draw incomplete and biased conclusions about the patient (Meyer et al., 2001), assessment continues to be downplayed in clinical practice.

In a comparison of the 2010 survey of 549 clinical psychologists of the American Psychological Association's Division 12 membership with past membership surveys dating back to 1986, Norcross and Karpiak (2012) found a continuing decline in the proportion of clinical psychologists who routinely conduct diagnosis/assessment from 75% in 1986 to 58% in 2010. Moreover, the most popular theoretical orientations of respondents were cognitive (31%), eclectic/integration (22%), psychodynamic (18%), and behavioral (15%), with clinical interviews accounting for approximately half of all assessment time. Weiner (2012) in his commentary noted that the perceived decline of psychological assessment in clinical practice has led to reduced course offerings and assessment competency standards in many clinical psychology graduate programs.

It is increasingly recognized that therapist competency in evidence-based treatment does have a significant effect on patient outcome (Rakovshik & McManus, 2010), and CBT experts continue to emphasize assessment and case conceptualization in their training manuals (e.g., Antony & Barlow, 2010). However, given the rather dismal state of assessment in clinical practice, assessment competency may be deemphasized relative to therapy competency skills. As well, it is likely that the most common assessment methods employed in CBT practice are brief symptom measures like the Beck Depression Inventory, a clinically based self-monitoring form like the Daily Record of Dysfunctional Thoughts (Beck, Rush, Shaw, & Emery, 1979), and possibly a variant of a structured clinical interview. It is likely that few CBT practitioners routinely utilize the more empirically based cognitive clinical measures reviewed in this volume. Research is needed to (1) determine the current status of cognitive clinical assessment in CBT practice, (2) establish the policy and procedures needed to improve dissemination and training in cognitive clinical assessment, (3) develop standards of competency in cognitive clinical assessment and case formulation, and (4) demonstrate incremental validity and treatment utility of empirically grounded cognitive clinical assessment methods.

The publication of DSM-5 (American Psychiatric Association,

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2013) has rekindled discussion of the role of diagnosis in assessment and treatment. Most CBT practitioners routinely utilize DSM diagnoses, if for no other reason than to meet administrative requirements or receive third-party compensation for clinical service. However, the link between psychiatric diagnosis and cognitive clinical assessment has remained tenuous at best. Diagnosis is often employed to determine the criterion-related validity of cognition measures, and cognitive measures are often developed with specific diagnostic groups in mind. However, actual measurement development in cognitive clinical assessment has been guided more by cognitive theory than diagnostic criteria. Thus, the implications of DSM-5 for cognitive clinical assessment may be minimal. Nevertheless, research is needed to determine if cognitive clinical assessment could be used to improve differential diagnosis, such as the inclusion of specific measures of thought content (see Baranoff & Oei, Chapter 8, this volume). Once again, the ultimate question for CBT clinical researchers and practitioners alike is whether empirically based cognitive clinical assessment can improve the accuracy of diagnosis and patient outcomes.

A GLANCE FORWARD

Many of the assessment issues touched on in this chapter are elaborated in the chapters that follow. We selected topics that are germane to the construct validity of cognitive assessment and its application to clinical practice. We asked the chapter authors to provide background information, a critical review of relevant empirical research, an overview of advances and impediments to progress, and implications for cognitive assessment research and practice.

In Chapter 2, on endorsement methods, we (Brown & Clark) tackle the thorny issue of retrospective questionnaire validation, setting out the parameters that should be met before a cognition questionnaire can be considered valid and incorporated into clinical practice. Subsequent chapters focus primarily on methodological or clinically based issues in cognitive assessment. Chapters 3, 7, and 11 through 14 deal with issues of measurement theory, with a particular emphasis on construct validity. Chapter 3, by Haaga and Solomon, discusses production-based cognitive assessment, noting how these methodologies could be modified to increase their clinical utility and improve convergent validity with other cognitive assessment methodologies. In Chapter 7, Uliaszek, Alden, and Zinbarg consider the perennial trade-off between dimensional and categorical assessment, the potential contribution of CBT to helping resolve the debate, and the implications for DSM-5. In Chapter 11, Hawkes

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and Brown consider whether and in what way a strict application of the general validity standards might help advance CBT assessment. In some instances, solutions to long-standing issues in research and practice depend on the development of suitable analytic techniques. In Chapter 12, Naragon-Gainey and T. A. Brown survey the latest development in structural equation modeling and item response theory and consider how these can be applied to issues of interest in CBT. Experimental paradigms are frequently held up as a more valid rigorous approach to the phenomena of interest in CBT research as an alternative to reliance on self-report scales. Roefs and colleagues focus on a particular experimental paradigm widely used in the field, the IAT, and consider their promise and their limitations in Chapter 13. Finally, in Chapter 14, Guller and G. T. Smith place CBT research within the historical context of developing conceptions of validity in the broader field.

Cognitive assessment issues pertinent to clinical practice are discussed in several chapters. In Chapter 4, Hales and colleagues provide a pragmatic guide to assessment of imagery, an area in which new ground is being broken and in which interventions such as imagery rescripting are being developed. Evraire, Dozois, and Hayden consider in Chapter 5 how cognitive assessment must be modified in order to deal with the unique features of vulnerability constructs such as their relative inaccessibility and inactive or latent state during asymptomatic time periods. In Chapter 6, Hunsley and Elliott provide a set of guidelines for establishing an evidence-based approach to cognitive assessment in clinical practice, with an illustrative reference to Dugas's CBT model for generalized anxiety disorder. Chapter 8 by Baranoff and Oei provides a comprehensive, critical review of empirical evidence for cognitive content-specificity, concluding that weak evidence for specificity, especially for anxiety, may be primarily due to measurement limitations, although weak conceptualization cannot be ruled out. A. H. Smith, Ratcliff, and Norton provide a broad conceptual and empirical overview of transdiagnostic CBT in Chapter 9, using a case illustration to highlight the transdiagnostic approach to cognitive assessment and case formulation. In Chapter 10, Key and Bieling discuss the pros and cons of cognitive case formulation including its limited empirical basis, while at the same time setting forth a series of recommendations that could improve its clinical utility and adaptation to "third wave" CBT.

The volume concludes with Chapter 15, which addresses two overarching questions that define the current state of cognitive clinical assessment: *What have we learned about cognitive assessment in the last 30 years? What are the impediments or challenges to further progress in CBT assessment, treatment, and its evaluation?* Answers to these questions, drawn from the preceding chapters, can set a course for cognitive clinical assessment in the coming years.

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KEY POINTS

FOR PRACTITIONERS

- Reconsider the important role that cognitive assessment can play in strengthening an evidence-based cognitive-behavioral practice.
- Utilize cognitive assessment measures with high construct validity, especially methods that contribute to case formulation and that offer incremental treatment utility.
- Employ a greater mix of assessment methods that include production and sampling methodology as well as retrospective endorsement instruments. Thought sampling has greater potential for clinical use with the introduction of self-monitoring apps for smartphones.
- Priming methods can be adapted to the clinical setting in order to obtain a more accurate assessment of cognitive vulnerability.

FOR RESEARCHERS

- More research is needed at the item level using structural equation modeling and item response theory analysis to determine the veridicality of individuals' responses to item statements. It's at this more "microscopic," as opposed to "macroscopic" (i.e., total score), level that we will determine the validity of responses to cognitive assessment measures.
- The issue of low convergent validity between different methods of cognitive assessment is a critical problem in the field that has received scant research attention. Discovering the parameters of convergence could lead to the development of a more strategic approach to cognitive assessment.
- Most research on cognitive vulnerability has assumed that priming is critical to activate dormant cognitive structures. And yet there are a handful of studies that have demonstrated vulnerability effects without priming. At this point, little is known about the conditions under which priming is or is not necessary.
- New quick and efficient cognitive measures are needed for a whole array of innovative low-intensity CBT programs available over the Internet, as apps, or offered as minimal-therapist-contact self-help.
- Cognitive assessment researchers need to focus more on issues of incremental validity and treatment utility if their findings are to have any chance of significantly impacting clinical practice.

FOR STUDENTS AND EDUCATORS

- Given that training programs are spending less time on assessment more generally, it is likely that CBT training programs need to reconsider the quantity and quality of course content devoted to cognitive assessment.

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- Training in cognitive case formulation should always include a module on cognitive clinical assessment and its role in case conceptualization.
- Competency standards in cognitive clinical assessment should be developed and these should be included in CBT certification programs.

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