

CHAPTER

1



Introduction to Behavioral Assessment and Case Formulation

Clinicians and clinical researchers face many measurement and clinical judgment challenges that emphasize explanation and prediction. Will a client harm himself or others? Can a parent provide a loving and safe living environment for a child? To what degree is a client's daily functioning affected by a traumatic brain injury? What learning environment would be most helpful for an elementary school child with developmental delays? Clinicians must also make judgments focused on determining what intervention strategies can, and should, be used for a particular client. Here, the central question is: What intervention will be most effective for a client's behavior problem and have the greatest impact on his or her quality of life? This latter intervention-focused judgment requires an integration of many lower-level judgments. What are the client's specific behavior problems and intervention goals? What variables affect his or her problems and goals? What variables might affect intervention outcome? How can intervention process and outcome be best measured? The aforementioned judgments are all elements of the clinical case formulation. The clinical case formulation, and the concepts and methods of behavioral assessment upon which it is based, is a major focus of this book.

In the following sections of this chapter, we first consider broader issues of psychological assessment and measurement. We then discuss the

behavioral assessment paradigm, particularly as applied in case formulation and in other applications of psychological assessment. Throughout, we emphasize the importance of a thoughtful, scholarly, science-based approach to clinical assessment.

CLINICAL ASSESSMENT AND PSYCHOLOGICAL ASSESSMENT PARADIGMS

A psychological assessment paradigm is a set of assessment-related principles, beliefs, values, hypotheses, and methods advocated in a discipline or by its adherents. A psychological assessment paradigm includes beliefs and hypotheses about: (a) the relative importance of specific behavior problems (e.g., the relative importance of insight versus behavior change as a focus of assessment for a person who reports experiencing significant levels of depression), (b) the relative importance of a particular response mode subsumed within a behavior problem (e.g., emphasizes on the relative importance of behavioral, cognitive, or emotional aspects of depression), (c) the most important causal variables associated with a behavior problem (e.g., emphasizes on the relative importance of early learning experiences, genetic factors, relationship factors, or contemporaneous cognitive variables as causes of domestic violence), (d) the mechanisms of causal action that are presumed to underlie behavior problems (e.g., learning processes, neurotransmitter systems and functions, intrapsychic processes and conflicts), (e) the importance of assessment in the intervention process (e.g., a diagnostic approach versus a functional approach to intervention design), (f) the best strategies for interacting with clients during the assessment-intervention process (e.g., degree of structured versus unstructured interviewing), and (g) the best assessment strategies and methods for obtaining information (e.g., the extent to which interviewing, self-report inventories, observation, rating scales, projective tests, etc., relevant to particular paradigms are used).

Because psychological assessment paradigms vary in the beliefs and hypotheses outlined above, their assessment goals can also differ. For example, the goals of assessment could include diagnosis, the

identification of neuropsychological deficits, or the identification of personality traits. The goals of behavioral assessment are unique in that they emphasize the specification and measurement of a client's target behaviors¹ in relation to ongoing intraindividual (e.g., internal processes such as cognitive experiences or physiological responses), interindividual (e.g., social relationships), and nonsocial environmental (e.g., temperature, noise levels, etc.) events that can have causal and non-causal relations with them.

There are many psychological assessment paradigms and some assessment methods are congruent with multiple paradigms. *The Handbook of Psychological Assessment* by Goldstein and Hersen (1999) includes chapters on intellectual assessment, achievement testing, neuropsychological assessment, projective assessment, personality assessment, computer-assisted assessment, and behavioral assessment. Books by Butcher (2009), Corsini and Wedding (2010), Hunsley and Mash (2008), and a four-volume series on psychological assessment edited by Hersen (2004) present various psychological assessment paradigms applied to a variety of behavior problems and assessment goals. A comparative review of these paradigms is beyond the scope of this book, but interested readers are referred to these sources.

EVALUATING PSYCHOLOGICAL ASSESSMENT PARADIGMS

It can be difficult to evaluate the relative strengths and weaknesses of psychological assessment paradigms because they differ in the principles, strategies, and criteria used to guide the evaluation. For example, a demonstration that behavioral assessment methods are superior to projective methods in measuring the situational specificity of a client's social anxiety may not be persuasive to adherents of a psychodynamic paradigm who presuppose that dispositional factors, rather than situational factors,

¹ By *target behaviors*, we mean the objects of measurement in behavioral assessment, which can include behavior problems, intervention goals, and the variables that affect them.

are the central determinants of this disorder. Additionally, adherents of a psychodynamic paradigm may not value the more molecular level information (as opposed to more generalized traits) that results from behavioral assessment and may fault behavioral assessment for its failure to sufficiently emphasize critical early learning experiences in parent-child interactions. However, all assessment paradigms can be evaluated in terms of clinical utility and validity—the degree to which they facilitate specific goals of assessment. For example, assessment methods from different paradigms (more specifically, the measures derived from an assessment method and associated instruments) can be evaluated on the basis of predictive validity—the degree to which they are correlated with the future occurrence of relevant behaviors such as tantrums, suicide, panic attacks, manic episodes, or child abuse. Similarly, different assessment methods can be evaluated on the degree to which they help identify important causal variables for behavior problems and/or evaluate the immediate and ultimate effects of intervention. One difficulty with such psychometric evaluations of assessment data, which we discuss in later chapters, is that the utility and validity of a measure can vary according to the goals of assessment (e.g., diagnosis versus risk assessment versus case formulation) and client characteristics.

Selecting an assessment strategy based on the goals of assessment is a key element of the *functional approach to psychological assessment*. That is, the utility and validity of a particular assessment strategy is always conditional. Consequently, an assessment method or instrument can be valid and useful in some assessment contexts and not in others. Additionally, it is important to note that utility and validity evidence applies to the *measure* derived from an assessment process, rather than to the instrument itself. For example, some instruments provide multiple measures that can differ in their utility and validity.

ADOPTING A SCHOLARLY AND SCIENCE-BASED APPROACH TO CLINICAL ASSESSMENT

Because there are important relationships between assessment paradigms and assessment strategies, a clinician should carefully consider the

conceptual implications of any assessment strategy that he or she uses. If, for example, a clinician chooses to use projective assessment instruments, he or she is embracing a paradigm that emphasizes the primacy of unconscious processes in the expression of behavior problems and the need to use highly inferential measures that are interpreted as markers (e.g., responses to ink blots) of these processes. A projective assessment strategy also deemphasizes the importance of the conditional nature of behavior problems and undervalues the identification of specific, minimally inferential, and modifiable behavioral and environmental variables in clinical assessment.

Under some circumstances it can be useful to blend assessment strategies from different assessment paradigms. In 1993, the journal *Behavior Modification* (vol. 17, no. 1) published a series of articles that examined the integration of behavioral and personality assessment strategies. It is clear, for example, that clients often differ in the likelihood that they will exhibit problem behaviors (e.g., social avoidance) that are associated with certain traits (e.g., neuroticism) across settings. Further, there are data indicating that self-report personality inventories can help the clinician identify such behaviors and their corresponding traits. In a further discussion of integration across paradigms, Nelson-Gray and Paulson (2004) discussed how behavioral assessment and psychiatric diagnosis can be used collaboratively. Although diagnosis is based on a syndromal taxonomy (i.e., matching behavioral symptoms and signs to criteria designated in a diagnostic category) and does not address many important aspects of client functioning, the authors argued that psychiatric diagnoses provide a means for systematically organizing and communicating the outcomes of assessment data.

The selection of assessment strategies from conceptually divergent paradigms is sometimes described as an eclectic approach to assessment. However, the use of conceptually incompatible assessment strategies often reflects the clinician's lack of familiarity with the conceptual foundations and underlying assumptions of the assessment paradigm. For all assessment strategies, the assessor should consider "What assumptions about behavior problems and their causes am I making by using this assessment strategy?"

BEHAVIORAL ASSESSMENT, CLINICAL CASE FORMULATION, AND MEASUREMENT

One of the principle challenges faced by clinicians early in the assessment and case formulation process is that many clients have multiple interacting behavior problems. Complicating matters further is the very real probability that each behavior problem is influenced by multiple interacting causal factors. Clinical case formulations, and the assessment strategies upon which they are based, are designed to help clinicians integrate data on these multiple interacting variables. Additionally, clinical case formulations can be used to help the clinician design and evaluate interventions.

As the title of our book indicates, we describe one of several psychological assessment paradigms—the behavioral assessment paradigm—and emphasize its application in clinical case formulation. We also discuss behavioral assessment strategies applied to the monitoring of intervention processes and outcomes that are often based on the clinical case formulation. Because they emphasize the importance of precise multimethod assessment, behavioral assessment principles and strategies are also applicable to psychopathology, the study of the characteristics and causes of behavior problems. Before we discuss the behavioral assessment paradigm, we review the challenges faced by clinicians in making the intervention decisions for their clients.² We review the context in which clinical cases are formulated and consider several models of clinical case formulation in cognitive-behavior therapy (CBT). We also introduce the functional analysis as a useful clinical case formulation model for describing and explaining clients' behavior problems and intervention goals and for guiding intervention decisions. In Chapter 2, we introduce Functional

² We use the term *intervention* rather than *therapy* because the focus and methods of an intervention are often more broad than those considered as therapy. Interventions can focus on meeting a client's positive goals; helping a client change his or her thoughts, behavior, and emotions; and reducing the impairments to a client's more positive quality of life. Interventions can also focus on improving such extended systems as classrooms, psychiatric units, couple and family interactions, systems of treatment supervision, and administration policies at mental/behavioral health centers. The term *client* can refer to an individual, couple, family, group, classroom, hospital, or other extended system that is receiving psychological assessment or treatment services.

Analytic Clinical Case Diagrams (FACCDs) as a strategy for visually organizing and communicating the functional analysis. Subsequent chapters discuss the conceptual foundations of behavioral assessment and case formulation and strategies of behavioral assessment.

THE CONTEXT OF CLINICAL CASE FORMULATION: THE CHALLENGE OF MAKING INTERVENTION DECISIONS

As indicated earlier, one of the most challenging tasks faced by clinicians is to design the best intervention plan for a client. Several factors make intervention planning for persons with behavior problems challenging. In the following section we review these factors.

The first challenge faced by a clinician is that most clients present to a clinician with multiple target behaviors and intervention goals. For example, in Krueger, Kristian, and Markon's (2006) review of comorbidity research, they noted that it is not uncommon for clients to present with three or more behavior disorders. Consider the not-unusual example of a client who comes to a mental health center with a major depressive disorder, excessive alcohol use, and marital discord. Where should the clinician focus his or her interventions? This target behavior selection decision partially depends on the clinician's judgment of the relative importance of each behavior problem. Relative importance, in turn, may be based on the degree of distress associated with each behavior problem or the extent to which each behavior problem affects quality of life. However, this target behavior selection decision can also be based on the interactions among these multiple behavior problems. For example, it may be that the client's depressed mood leads to overuse of alcohol and marital discord. Alternatively, it may be the case that marital discord leads to alcohol use and depressed mood. Notice how the intervention foci and strategies are likely to be different, depending on judgments about relative importance and causal interrelations (i.e., their *functional relations*). These are difficult judgments to make but are essential elements of a clinical case formulation. Importantly, the validity of these judgments depends on the validity of data obtained in clinical assessment. Inadequate assessment

strategies or invalid clinical assessment data will diminish the validity of the case formulation and the consequent benefits of an intervention.

A second challenge to the clinical judgment process is that a client's multiple behavior problems can be influenced by many causal variables. Additionally, a single causal variable can influence a behavior problem through many causal pathways. For example, panic disorder has been associated with a diverse set of causal factors, including genetic influences, family modeling, traumatic life events, social reinforcement, classical conditioning, operant conditioning, threat processing, intrusive thoughts, physiological hyperreactivity, serotonin dysregulation, and medical conditions (Beidel & Stipelman, 2007). As we discuss in Chapter 6, identifying causal variables and the causal relations relevant to a client's target behaviors and intervention goals is an important aspect of behavioral case formulations. This is because behavioral interventions often attempt to modify the variables and pathways hypothesized to influence a client's behavior problems. Thus, behavioral case formulations, particularly the functional analysis model of case formulation, emphasize the identification of important and modifiable causal variables.

From our discussion thus far, it should be apparent that case formulation and the strategies for measuring treatment process and outcome are closely related. For example, if a clinician designs an intervention aimed at decreasing the frequency or intensity of a client's depressive mood states, an intermediate outcome of the intervention and a target of measurement should be changes in the key causal variables contained in the case formulation. Of course, the ultimate outcome variable would be the frequency and intensity of depressed moods. Thus, it is expected that changes in the causal variables identified in a functional analysis (i.e., immediate and intermediate outcomes) will affect the behavior problem (ultimate outcome).

This example illustrates the treatment utility of measuring immediate, intermediate, and ultimate treatment goals in behavioral assessment. If an intervention brings about significant changes in a hypothesized causal variable (an immediate and/or intermediate target of assessment) but not in the ultimate outcome, it is possible that the initial case formulation was incorrect. Suppose for example, a clinician generates a case formulation in which it is hypothesized that presleep worry about negative life events inhibits sleep onset for a particular client. An intervention

targeting presleep worry is subsequently designed and implemented for the client. If preliminary intervention assessment data indicate that presleep worry had decreased as a function of the intervention without a corresponding improvement in sleep onset, it is likely that the case formulation was incorrect or underspecified and that other important causal variables are exerting important effects on sleep onset. We discuss immediate, intermediate, and ultimate assessment goals further in Chapter 7 when we discuss strategies of behavioral assessment.

Figure 1.1 illustrates the characteristics of an assessment paradigm, strategies of assessment, information obtained in a clinical assessment, case formulation, intervention decisions that result from these data, and how additional data on intervention process and outcome can affect a refinement in the case formulation. There are a few additional inferences that can be derived from Figure 1.1. First, measurement is an ongoing process during intervention. Second, the case formulation is informed by idiographic information (i.e., data from a specific client) and nomothetic information (i.e., findings from the research literature). Third, different assessment strategies will produce different types of data, different case formulations, and different intervention decisions.

Thus far we have argued that complex interactions can occur among multiple target behaviors and multiple causal variables for a given client. The complexity of these interactions creates a sizable challenge in judgment and decision making for a clinician. Clinical case formulations are designed to help the clinician organize and communicate complex arrays of assessment data in order to aid in the design of interventions. They also help the clinician assess the processes and the effects of interventions. Although they are principally based on idiographic data, clinical case formulations can and should be informed by relevant research in psychopathology and assessment. Failure to draw from the relevant research can place the client at risk for reduced benefits from the assessment-intervention process.

In addition to important differences between clients in their arrays and interactions among behavior problems, goals, and causal variables, a third challenge faced by a clinician has to do with the notion that clients invariably have differing life contexts. For example, clients with the same behavior problem can differ in the quality of their intimate relationships,

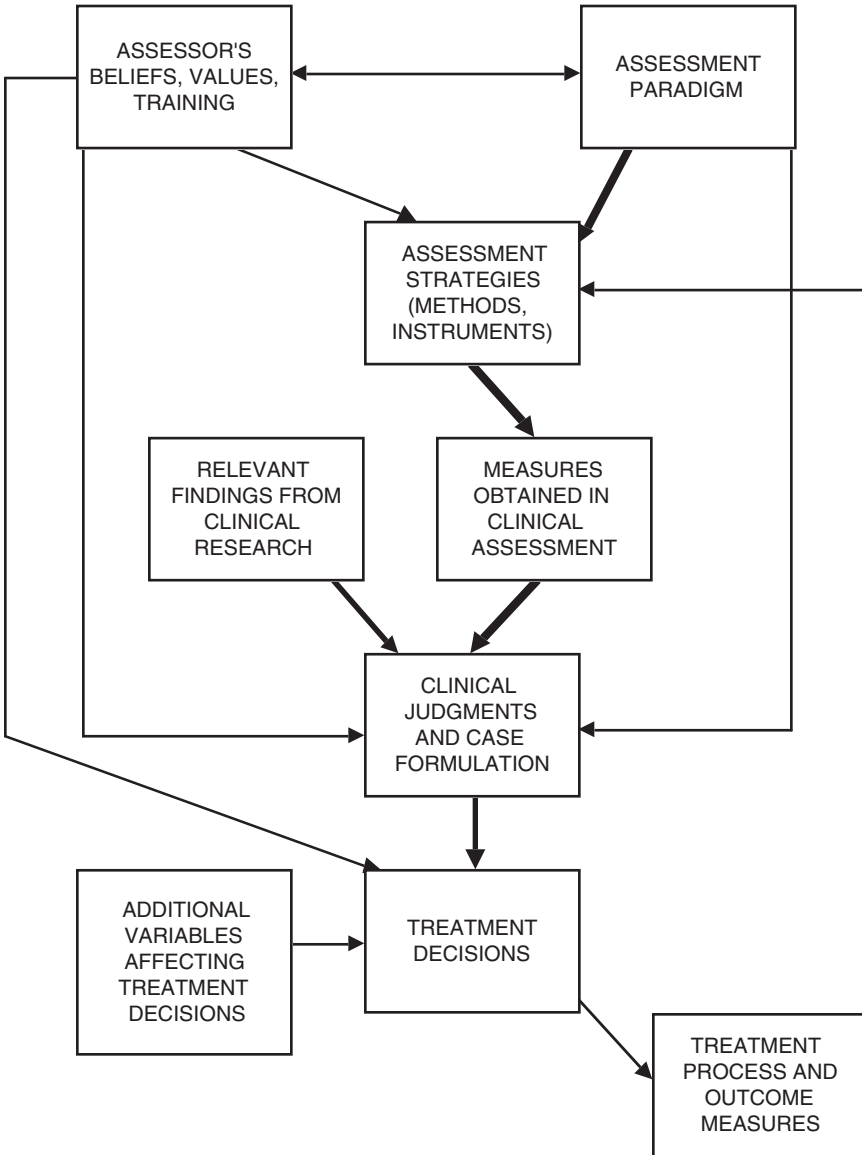


Figure 1.1 The interactions among the clinician’s assessment paradigm, the assessment strategies used in clinical assessment, the measures obtained, the clinical judgments and case formulation informed by these measures and relevant research, intervention decisions, and the impact of intervention process and outcome measures on additional assessment strategies (which can result in a refinement in the case formulation, intervention, and so forth).

Source: Adapted from Haynes and O’Brien, 2000.

cognitive impairments and abilities, physical health problems, level of family support, current exposure to life stressors, verbal expressive skills, cultural beliefs and attitudes, and economic resources. All of these life contexts can affect how well a particular intervention might work and are often elements in a clinical case formulation. Recall our example of a client experiencing depressed mood states. What contextual factors might affect a clinician's case formulation and intervention decision? If the client is a recent immigrant to the United States from Western Samoa, acculturative stressors, such as language barriers and perceived discrimination, might be contributing to his depressed mood and he may be using alcohol to cope with these stressors. A younger client might be affected more strongly by rejection experiences with peers, or a client's economic strains associated with a job loss might be affecting his mood, alcohol use, and marital relationship.

A fourth challenge is that the features of a behavior problem can vary from client to client. For example, one person with a depressive disorder can differ from other persons with the same disorder in the degree to which he experiences fatigue, or difficulty concentrating, loss of interest in pleasurable activities, and sleep disturbance. The causes of the specific depression symptoms, and thus the best intervention, can also be different. A careful examination of Axis I and II disorders in DSM-IV TR (APA, 2004) reveals that most disorders contain multiple and heterogeneous arrays of symptoms and behaviors.

A fifth challenge faced by clinicians has to do with the selection of an intervention for a specific behavior problem, for which there are often several empirically supported interventions strategies. This is particularly true in behavior therapy and cognitive-behavior therapy (CBT)³ where many alternative interventions for a behavior problem may have received empirical support (e.g., Farmer & Chapman, 2008; Gallagher-Thompson et al., 2008; Kazdin, 2001; McKay & Storch, 2009). For example, Chorpita and Daleiden (2009) reported that there were 84 empirically based treatment protocols for children and adolescents with anxiety problems, 68

³ We use the term *behavior therapy* or *CBT* (cognitive-behavior therapy) to refer to a range of behavioral, cognitive-behavioral, cognitive, emotionally focused, behavior analytic, and behavior modification treatment strategies.

for oppositional and aggressive problems, and 39 for delinquent problems. Chorpita and Daleiden (2009) also noted over 40 treatment “elements” and specific foci within treatments (e.g., communication skills, response prevention, stimulus control) that could address the causal relations contained in a functional analysis of a child’s behavior problems.

Even when a clinician selects a specific empirically supported intervention available for a behavior problem, it is likely that the effectiveness of the intervention will vary across persons. For example, Compton Burns, Egger, and Robertson (2002) noted that although there is strong empirical support for CBT with childhood anxiety disorders, 20–40% of children do not evidence clinically significant change. When measures of intervention outcome indicate intervention failure, the clinician must refine the intervention using the empirical literature and a modified case formulation to better address the idiosyncratic aspects of the client’s problems, goals, and life contexts.

These examples illustrate the importance of science-based assessment strategies and clinical case formulations. To develop the best intervention strategy for a client, the clinician must acquire valid and useful data on the client, have a specific understanding of the client’s problems and goals, identify causal relations, and frequently evaluate the effects of the intervention over time and across contexts.

In summary, a clinician’s primary assessment task is to design an intervention that will have the greatest *magnitude of effect* for a client. This task is challenging because there are multiple behavior problems and intervention goals often presented by clients, multiple factors that can lead to and affect those behavior problems, multiple ways in which clients can differ in aspects of behavior problems and in their life contexts, multiple empirically supported intervention strategies available, and variation in treatment response even when the best available interventions are used. All of the decisions and assessment data collected within this complex decisional environment must then be integrated in a clinical case formulation that, in turn, can help the clinician design interventions that will yield the greatest potential benefit for the client.

Because of its central role in intervention decisions, the clinical case formulation is one of the most important products of preintervention assessment. The clinical case formulation is an integrated set of clinical judgments

and hypotheses about the *functional relations*⁴ among target behaviors and the variables affecting them. It reflects data and inferences from clinical assessment with the client and is also guided by empirical research in psychopathology and therapy. Essentially, the clinical case formulation guides the clinician in making the best intervention decision in a challenging clinical context. As we discuss later, the clinical case formulation has other goals, such as indicating areas where additional data are needed, communicating intervention rationales to clients and other professionals, and helping trainees clarify their clinical judgments about a client.

Although it is an important element in the assessment-intervention-evaluation process, the clinical case formulation is only one of many variables that affect intervention decisions. Some of these other important variables include: (a) time limitations of the clinician or client; (b) the cost of intervention; (c) the skills, theoretical orientation, and biases of the clinician; (d) the degree to which the proposed intervention is acceptable to the client, the client's family, or the service delivery agency (e.g., school, mental health center, hospital); (e) the policies within the service delivery agency (e.g., that may restrict or encourage the use of some types of interventions); and (f) the level of cooperation from important persons involved in the care of the client.

In summary, we discussed in this section the many difficult judgments a clinician must make in the assessment process that are essential elements of a clinical case formulation. Most important, the validity of a clinician's judgments about a client's behavior problem depends on the validity of the data obtained in clinical assessment. Inadequate assessment strategies or invalid clinical assessment data will diminish the validity of the case formulation and diminish the ultimate benefits of intervention for the client.

THE ROLE OF CLINICAL CASE FORMULATION ACROSS INTERVENTION PARADIGMS

This book focuses on clinical case formulation in behavior therapy, but the clinical assessment principles we propose are applicable across

⁴ A *functional relation* exists when two variables demonstrate shared variance: Some dimension (e.g., rate, magnitude, length, age) of one variable is associated with some dimension of another.

assessment and intervention paradigms. The most important feature of this approach is the advocacy of a science-based strategy of clinical assessment and clinical case formulation. Clinicians who do not follow a science-based “best practice” model for assessment and intervention place their clients at risk for less-than-optimal benefits. Broadly based scientific foundations of clinical assessment have been presented in Haynes, Smith, and Hunsley (2011) and diverse models of clinical case formulation, some science-based and some not, have been presented in edited books by Eells (2007), Sturmev (2009), and Tarrier (2006).

The presumed clinical utility of case formulations is based on the assumption that they help the clinician focus the intervention on modifiable causal variables and causal relations that exert the strongest effects on target behaviors. Because there are many potential target behaviors and intervention strategies in behavior therapy, the case formulation can also facilitate the selection of target behaviors and interventions that are likely to have the greatest probability of success and the greatest magnitude of effects.

Clinical case formulations are less important for intervention paradigms with a narrower array of intervention strategies. For example, if a clinician operates primarily from a client-centered humanistic framework, the intervention strategy (e.g., supportive and empathic listening, unconditional acceptance) is similar across clients. Although the focus of the therapy sessions will differ as a function of the unique issues raised by each client, the same intervention strategy will tend to be used for all clients, whether they are anxious, depressed, have an eating disorder, experience intrusive thoughts, or are confronted with marital conflicts.

Box 1.1 Behavioral Assessment and the Client-Clinician Relationship

The client-clinician relationship is a central aspect of all behavioral assessments and behavioral interventions. A client’s progress in assessment and treatment, or the benefits he or she receives, is diminished in the absence of a positive relationship between the clinician and the client, parent, staff person, teacher, or spouse. The goal of establishing and maintaining a positive client-clinician relationship is facilitated if the clinician uses Rogerian, person-centered principles and methods

of clinical interactions during the assessment process (e.g., active and empathic listening to the client, respect for the client's values and goals, sensitivity to individual differences among clients).

The assessment data collected, the case formulation based on those data, and intervention outcome can be significantly affected by the interpersonal relationship between the clinician and client (see Howard, Turner, Olkin, & Mohr, 2006 for a treatment example). Rogerian, person-centered strategies can provide an excellent foundation for that relationship. Client dissatisfaction with the clinical assessment process or the clinician, regardless of how well the clinician attends to science-based assessment strategies, can affect the degree to which the client cooperates with the assessment process, feels understood and respected, provides valid information, and even agrees to continue with the assessment-intervention process. A Rogerian, person-centered orientation is also the basis of a collaborative approach to clinical assessment and is consistent with the emphasis in behavioral assessment on respect for individual differences. Carl Rogers forcefully articulated a client-centered approach to clinical interactions in his 1951 book *Client-Centered Therapy: Its Current Practice, Implications, and Theory*. See Leahy (2008) for additional discussion of the therapeutic relationship in behavior therapy.

Similarly, Gestalt-based therapies include a set of strategies that are designed to increase a client's awareness of his or her momentary thoughts and feelings, especially as they occur within the therapeutic relationship. The goal of the therapy, which is consistent across a range of presenting problems, is to identify and remove internal, historically generated "psychological blocks" so that the client can enhance his or her functioning in their current life context.⁵

⁵ One focus of Gestalt therapy is similar to a method in behavioral assessment: The clinicians' monitoring of the client's reactions to discussion topics. In the behavioral interview process (see Chapter 7), the clinician attends to not only the content of the client's verbal responses, but paralinguistic cues such as facial expressions, verbal tone, and body movements that signal possible anxiety responses or avoidance associated with the topics being discussed (see Kohlenberg and Tsai (2007) for a discussion of these strategies in functional analytic psychotherapy).

Clinicians who use humanistic, client-centered, and Gestalt-based interventions are also less likely to conduct formal preintervention assessments. For example, many client-centered clinicians believe that preintervention assessment undermines the client-clinician relationship, results in invalid information, and impedes therapeutic progress. Consequently, clinicians using these approaches are not confronted with the need to formally integrate sometimes-conflicting information from multiple sources on multiple behavior problems and multiple causal variables and functional relations. Further, it is not necessary for them to match these complex arrays of data with the most appropriate interventions. During intervention sessions, they can react “in the moment” to issues raised by the client and to the dynamics of the client-clinical relationship (see Corsini & Wedding, 2010, for an overview of several systems of psychotherapy).

In contrast, a clinician operating within a behavioral paradigm more often relies on preintervention clinical assessment data and nomothetic research, integrated into a clinical case formulation, to select the best intervention foci and strategies for a particular client. Furthermore, a behavioral clinician is less likely to assume that an intervention focus and strategy will be equally effective across clients with the same behavior problems or diagnoses.

CLINICAL CASE FORMULATION IN BEHAVIOR THERAPY

We have already emphasized that formidable challenges confront the behavioral clinician in deriving a clinical case formulation. For example, even a seemingly limited problem, such as difficulty initiating and maintaining sleep, can result from different combinations of multiple causal variables and can be differentially amenable to multiple intervention strategies. Sleeping difficulties can be affected by the client’s sleeping environment (e.g., noise, temperature, bed, lighting, partner’s movements), pain, circadian rhythm disruption, schedule of napping, medication use, alcohol and drug use, ruminative thoughts and worry when in bed, neuroendocrine and neurophysiologic factors, amount and timing

of aerobic conditioning and exercise, diet and eating schedules, physical health problems, and conditional responses associated with the sleeping environment. Given the many potential causal relations associated with a client's insomnia, the clinician can select different intervention strategies, such as relaxation training, aerobic exercise, stimulus-control intervention, modification of medication use, gradual shifts in sleep-wake cycles, and addressing the stressors in the client's life, depending on the most important and modifiable causal variables for a client's sleeping problem (see Savard & Morin, 2002, for discussions about the causes, assessment, and treatment of insomnia).

Further complicating the case formulation tasks is the high likelihood that a client seeking help for a sleep disorder is apt to be concurrently experiencing other problems such as depressed mood, mood shifts, anxiety, panic episodes, nightmares, distress in his or her interpersonal relationships, negative life events, or substance use—all of which may affect sleep, be affected by sleep, and/or be affected by other causal variables. The fact that many clients have multiple interrelated behavior problems, with multiple interacting causal relations, points to the importance of clinical case formulation in organizing data and inferences and in helping the clinician select the intervention strategy that is most likely to benefit the client. Although we advocate for the importance and utility of clinical case formulation in intervention planning, we also understand that there are contexts in which it is not cost-beneficial. We discuss these costs and benefits next.

Within cognitive-behavior therapy, which is the most empirically based intervention paradigm, intervention strategies differ in the degree to which they are individualized across clients with the same behavior problem. In some behavioral intervention protocols, the intervention is similar for all clients with the same behavior problem or diagnosis. This would be illustrated by a 12-week, standardized intervention program for children with anxiety disorders that involved a set sequence of sessions involving gradual exposure, desensitization, and self-talk strategies.

However, in other circumstances, a behavioral intervention for a specified behavior problem can be based on a molar-level (i.e., less detailed or less specific) causal model and still differ across clients in their specific application. For example, interventions for many children with

self-injurious behaviors can be similar in that they attempt to manipulate response contingencies or substitute more adaptive behaviors for the less adaptive behaviors. However, the interventions can also differ in their specific applications, depending on whether the behavior is considered to be maintained by positive reinforcement (such as attention) or by negative reinforcement (such as withdrawal from an unpleasant situation or termination of an aversive task). We refer the reader to Koegel, Valdez-Menchaca, Koegel, and Harrower (2001) for more details about the treatments for persons with autism syndrome behaviors.

THE COSTS AND BENEFITS OF CLINICAL CASE FORMULATION

Although we discuss this issue in greater depth in later chapters, we note here that a clinical case formulation can require many hours on the part of the client and clinician. It is reasonable to ask whether the benefits to the client are worth the time and effort to develop a clinical case formulation. The answer to this question reflects the emphasis in behavioral assessment on the conditional nature of all assessment evidence: "It depends."

Recall that the main goal of the clinical case formulation is to increase the benefits of a clinical intervention. When an empirically supported intervention protocol has been shown to be effective for a substantial majority of clients who present with a specific disorder, the costs of developing an individualized case formulation and designing an individualized intervention for a client may outweigh the potential benefits. Alternatively, if no empirically supported intervention is available, the client presents with a complex array of behavior problems, or the empirically supported interventions have variable outcomes, the benefits of developing an individualized case formulation may outweigh the costs. (For further discussion of intervention research methods, designs, assessments, outcomes, and challenges, see Chambless & Ollendick, 2001; McKay, & Storch, 2009; Sturmey, 2009, Nezu & Nezu, 2008; Steele, Elkin, & Roberts, 2008; see also <http://www.therapyadvisor.com>.)

For example, Mitte (2005) conducted a meta-analysis of cognitive-behavior therapy (CBT) for generalized anxiety disorder. Using data from

65 intervention outcome studies, she determined that CBT was superior to no treatment control conditions (Hedges $g = .86$ for anxiety measures, $.76$ for depression measures) and placebo therapy conditions (Hedges $g = .57$ for anxiety measures, $.52$ for depression measures). These results suggest that CBT can be an effective intervention for anxiety symptoms and depression symptoms. Further, the favorable comparisons with placebo treatments suggest that it confers benefits that exceed common therapy factors. However, it is important to note that the large effect sizes observed in CBT versus no treatment control comparisons and the moderate effect sizes observed for the CBT versus placebo therapy comparisons also indicate that a sizable percentage of clients did not demonstrate a measurable improvement as a function of CBT (approximately 20% in the CBT versus no treatment comparisons and 30% in the CBT versus placebo comparisons). This variation in intervention outcomes suggests that additional causal factors are affecting the anxiety symptoms for some persons with GAD and that these causal factors are not being fully addressed in the standardized programs.

ALTERNATIVE MODELS OF CLINICAL CASE FORMULATION IN COGNITIVE-BEHAVIOR THERAPY

Several models for behavioral clinical case formulation have been proposed. For an in-depth review of these models, we refer the reader to Haynes and O'Brien (2000) and Sturmey (2009). In this section we summarize the models articulated by Nezu and Nezu (2004), Persons (2008), and Linehan (1997). In subsequent chapters, we describe the functional analysis and the importance of scientifically based behavioral assessment strategies for all CBT models of case formulation.

A Problem-Solving Approach to Case Formulation

Nezu and Nezu (2004) outlined a "problem solving" approach to clinical case formulation. From their perspective, the "problem" to be solved by the clinician is to determine what intervention strategy is likely to be the most effective for a client. The offered solution is to use a decisional algorithm similar to those used in problem-solving therapy.

Nezu and Nezu emphasize the important role the clinician plays in clinical case formulation as a problem-solver. They recognize that clinicians operate within different paradigms and that the beliefs, expectations, and values embedded within a given paradigm affect how the clinician approaches the clinical case formulation process. Clinicians also differ in their clinical problem-solving skills—their abilities to solve problems presented by a client. The key problem-solving skills identified by Nezu and Nezu include defining problems, generating possible solutions to problems, identifying the positive and negative outcomes associated with possible solutions, and implementing the solutions.

In Nezu and Nezu's case formulation paradigm, the best intervention strategy for a client is derived from three sequential clinical judgments (i.e., three specific problems to be addressed). Each is outlined below.

1. *Determining what the main problems are and whether they are amenable to intervention.* In this initial component of case formulation, the clinician must translate the client's complaints into specific, measurable problems and intervention goals that can then be used for intervention planning. As we discuss further in the chapters on assessment (Chapters 7 to 10), this first step begins with the process of gathering information about the client's concerns using a "funnel approach"—beginning with a broadly focused assessment across many domains (e.g., home, work, and marital relation) of the client's life and gradually narrowing the assessment focus to more specific factors (e.g., what is happening at work that influences a client's depressed mood).
2. *Analysis of the client's problems and determining intervention goals for the client.* Nezu and Nezu presume that there are multiple possible causal variables for a behavior problem, that the permutations of causal variables can differ across clients with the same disorder, and that there are reciprocal influences among multiple *response modes* (which they label a *general systems approach*). Thus, a major focus of this area of formulation is the identification of the factors that trigger or maintain the client's behavior problems.

In addition to the problem analysis noted earlier, and consistent with the functional analysis discussed later in subsequent chapters, this formulation step also is concerned with the identification of important outcomes for the client. These outcomes can be immediate, intermediate, or ultimate. Immediate and intermediate outcomes can also operate as causal variables for the client's main behavior problems.

3. *Determination of the best intervention strategy.* Decisions about the best intervention strategy are affected by the first two steps in the formulation and are also informed by research on the effects, cost-effectiveness, moderator variables (i.e., variables that can alter the intervention outcomes), and incremental validity and utility of potential intervention strategies. Here is where the clinician needs to integrate assessment data from various sources, which can often be contradictory, with the findings of empirical research. The goal of this integration is to increase the validity of clinical judgments in order to maximize intervention benefits.

Nezu and Nezu recommend that the clinical case formulations be summarized in a *Clinical Pathogenesis Map*. The Clinical Pathogenesis Map is similar to the Functional Analytic Clinical Case Diagrams presented in Chapter 3, in that both illustrate idiographic aspects of client behavior problems and the factors that affect them. Nezu and Nezu also recommend that the clinician generate a *Goal Attainment Map*, which identifies optimal strategies for reaching each clinical goal. The Clinical Pathogenesis Map and the Goal Attainment Map are evaluated and revised as intervention proceeds by examining the degree to which case formulation's predicted outcomes match the observed outcomes.

Persons' Cognitive Behavioral Case Formulation

Persons (2008) presented a rationale and strategy for Cognitive Behavioral Case Formulation, which, like other models of behavioral case formulation, is designed to facilitate decisions about the best intervention strategy for an individual client. Cognitive Behavioral Case Formulations include the attributes of a client's behavior problems, the factors that may

be affecting the behavior problems, and the functional relations among behavior problems and causal factors.

Given Persons' clinical focus on depression and anxiety disorders, CBCF is especially congruent with cognitive models of behavior problems, which emphasize the central importance of core beliefs and the life events that activate those core beliefs as causal factors of behavior problems. Thus, CBCFs can be used to help the clinician understand and explain a client's behavior problems and their relation to situations and events.

According to Persons, a CBCF should include the following seven components:

1. *Behavior problems list*: The clinician generates a specific list of the client's behavior problems.
2. *Core beliefs list*: A list of the client's beliefs about self and the world that may be related to the behavior problems. These core beliefs are considered the primary causal variables and can be suggested by a diagnosis, results from research, or clinical assessment (e.g., a "Thought Record" in which the client self-monitors the situation, behaviors, emotions, thoughts, and responses to the situation relevant to a problem behavior).
3. *Activating events and situations*: These are the external events (e.g., the presence of a teacher) that activate core beliefs (e.g., I'm a failure), which lead to the behavior problems (e.g., poor academic performance).
4. *Working hypotheses*: The clinician generates a model of the interrelations between the client's problems, core beliefs, and activating events.
5. *Other components*: The clinician also identifies and integrates: (a) the origins of core beliefs (the early learning history that explains the core beliefs), (b) the intervention plan, and (c) anticipated intervention obstacles.
6. *Treatment plan*: Although this component is not part of the Cognitive Behavioral Case Formulation, Person includes this component to demonstrate how the working hypothesis is central to treatment planning.

7. *Predicted obstacles to treatment:* Predictions are made, based on the information gathered, regarding problems that may surface during therapy.

The product of these seven components is a written clinical case formulation, designed to guide intervention decisions and intervention strategies. Examples of Cognitive Behavioral Case Formulations are provided in Persons and Davidson (2001).

Dialectical Behavior Therapy Clinical Case Formulation

Linehan (Koerner & Linehan, 1997) outlined a model for the clinical case formulation that is compatible with Dialectical Behavior Therapy. Her clinical case formulation approach focuses on Borderline Personality Disorder but is applicable to other disorders as well. Linehan's case modeling approach integrates a biosocial and learning-based theory of the factors that affect the onset and maintenance of borderline personality disorder and includes behavior problems that are likely to be barriers to effective intervention. Dialectical Behavior Therapy Clinical Case Formulations emphasize the importance of the client's behavior problems in the context of the client's community. They include variables affecting the clinician and presume that the interactions among multiple factors affecting the client are dynamic (see Ebner-Priemer et al., 2007, for recent research on the high level of daily instability in Borderline Personality Disorder clients).

Several aspects of Dialectical Behavior Therapy Clinical Case Formulations emphasize the importance of using an idiographic approach to intervention design, including these seven steps.

1. *Borderline Personality Disorder can result from different permutations of causal factors.* Consistent with the multimodal concepts of causality discussed in Chapter 6, they stress the importance of biological vulnerability, high sensitivity to emotional stimuli, high emotional reactivity, and the *moderating effects* of the client's social environment. A moderator variable such as "an invalidating social environment" (e.g., when other persons teach the individual that their emotional responses are pathological) can help trigger or exacerbate dysfunctional emotional reactions to emotional stimuli.

2. *It is important to identify functional relations relevant to the client's behavior problems.* The clinician and client identify chains of environmental events, thoughts, actions, emotional reactions, and responses by the client and others that precede and follow each problem behavior. This analysis of *causal chains* allows the clinician to identify multiple places where alternative responses by the client might be helpful.
3. *Contexts are important.* The client's responses and capabilities are likely to vary across different settings and contexts. For example, emotional responses to environmental events may be stronger in the context of sleep deprivation or as a function of recent life stressors.
4. *Some causal relations are bidirectional.* There can be reciprocal influences between the client's responses and environmental events. For example, a client with Borderline Personality Disorder might respond frantically to an intimate partner's withdrawal from the room during an argument, and the client's frantic behavior leads the partner to withdraw entirely from the home to escape the situation. Thus, the client plays an active role in shaping his or her contexts and the responses of other persons.
5. *An important causal variable can be the client's insufficient skills in managing environmental challenges.* Among many Borderline Personality Disorder clients, these skills deficits may be a result of several factors such as: (a) a lack of learning key behaviors, (b) a history of reinforcement for dysfunctional behavior, (c) interference in the implementation of skilled responses due to heightened emotionality, and (d) inhibition of skill use by faulty beliefs.
6. *The behavior problems of persons with Borderline Personality Disorder can interact, affect the process and outcome of therapy process, and affect decisions about the best strategy and focus of therapy.* Negative self-statements, inhibited grieving, avoidance of painful thoughts, an inability to control intense emotional reactions, and overly active or passive responses to life events are examples of important behavior problems that are observed among many persons with borderline personality disorder. These problems can, and

oftentimes do, interact. In some circumstances, the interactions among these behaviors can result in high-risk behaviors such as self-injury. They can also produce behavioral patterns that affect how the clinician and client interact during sessions. Finally, they can also affect clinical decision making in that the behaviors that are most urgent or severe will need to be prioritized in treatment.

7. *It is important to conduct task analyses relevant to the client's problems.* Basing judgments on the identification of causal chains for dysfunctional behaviors, the clinician and client construct situation-specific step-by-step sequences of behaviors necessary to acquire desired behavioral responses to environmental challenges.

Dialectical Behavior Therapy Clinical Case Formulations are summarized in a written format and flow chart (see an example of this on page 363 of Koerner & Linehan, 1997) that integrates data collected to highlight antecedents and precipitating events, specific thoughts, contexts, emotional stimuli, actions, causal mechanisms, their “links,” primary target behaviors, and consequent events. Consistent with our discussion of the cost-benefits of clinical case formulation presented earlier, Linehan suggests that a standardized intervention program that addressed all components of the model would result in clinically meaningful benefits for many clients (acknowledging that many other factors contribute to intervention outcome). However, a standardized intervention program would not be as effective or cost-efficient as an individually tailored intervention program that included components that match the most significant behavior problems and associated causal variables for a particular client. For a discussion on the importance of matching intervention mechanisms and causal variables for a client, we refer the reader to Haynes, Kaholokula, and Nelson (1999).

Common Features of Alternative Clinical Case Formulation Models

The models presented by Nezu and Nezu, Persons, and Linehan differ in terms of causal model assumptions and which elements of the clinical case formulation are emphasized. However, they have many commonalities

and are similar in some ways to the functional analysis model of clinical case formulation we present in the next chapter. All the aforementioned models emphasize that:

- Preintervention assessment is critical for clinical case formulation. Further, all assert that the validity and utility of clinical case formulations depend on the quality of assessment data.
- Clinical case formulations are needed to develop the most effective intervention strategy for a client. An associated assumption here is that intervention effectiveness can be enhanced if the intervention targets modification of causal relations that exert significant effects on the client's problems and intervention goals.
- There are important individual differences in the attributes of clients' behavior problems.
- There are multiple interacting causes of behavior problems and individual differences in the organization and influence of such causal variables.
- Behavior problems and causal variables can be multimodal—involving emotions, thoughts, physiology, and actions.
- Careful specification of clients' behavior problems is crucial for a clinical case formulation.
- The clinician's attitudes and beliefs about preintervention assessment can affect assessment strategies and the data acquired in clinical assessment.
- There is utility in providing a written report or visual display of the clinical case formulation to organize and summarize inferences made based on the assessment data.

INTRODUCTION TO BASIC CONCEPTS IN BEHAVIORAL ASSESSMENT

In Chapter 7 we discuss the principles and strategies of behavioral assessment in greater detail. In this section we introduce the basic concepts and principles of behavioral assessment to show how they advance the focus and goals of all models of behavioral case formulation, guide the

measurement of treatment outcome and process, and are applicable to a wide array of settings, populations, and assessment goals.

Applicability of Behavioral Assessment

We have emphasized the applicability of behavioral assessment concepts and strategies in behavioral case formulation. Because it includes an array of science-based assessment strategies, behavioral assessment can be used in many settings, such as mental/behavioral health clinics, hospitals, homes, school settings, and residential and workplace settings. Behavioral assessment can also be applied across many populations (e.g., infants, children, families, dyads, older and younger adults), and across DSM diagnostic categories. Compare the extensive applicability of behavioral assessment with the more restrictive applicability of projective, personality, cognitive, or neuropsychological assessment paradigms—most non-behavioral assessment paradigms can provide valid and useful data, but in a much more limited array of assessment contexts.

Haynes and O'Brien (2000) and Haynes and Kaholokula (2007) outline the numerous research, educational, occupational, institutional, and program evaluation applications of behavioral assessment. Some of these include the following.

Intervention Outcome Research. Behavioral assessment has been used to measure: (a) immediate, intermediate, and ultimate intervention outcome and side-effects of intervention; (b) intervention process variables (e.g., intervention adherence and the client-clinician interactions); (c) moderators and mediators of intervention outcome; (d) the generalizability and transportability of an intervention; (e) temporal factors such as the time-course and maintenance of intervention effects; and (h) postintervention lapse and relapse and functionally related variables.

Experimental Functional Analysis. Because of its emphasis on the use of science-based assessment strategies, particularly behavioral observation, behavioral assessment is the primary measurement paradigm used in *experimental functional analyses*. The experimental functional analysis is rooted in the behavior analytic tradition and involves the systematic manipulation of environmental independent variables (e.g., attention from peers, task avoidance, or tangible rewards) in order to evaluate their

effects on one or more behavior problems. The methodology is typically conducted using a well-controlled within-subject design. Perhaps the most common design in experimental functional analysis is the replication or reversal ABAB design, where phase A is the baseline condition and phase B is the introduction of a key independent variable (e.g., social attention). For a more detailed discussion of the experimental functional analysis, see Hanley, Iwata, and McCord (2003) and Lattal and Perone (1998).

Psychopathology. Psychopathology involves the study of behavior disorders and problems—in particular, the variables that affect their onset maintenance, duration, and severity. Because behavioral assessment emphasizes the use of specific, precise, science-based measures, it is especially useful in psychopathology research. For example, Blechert et al. (2010) tracked eye movements of persons diagnosed with anorexia nervosa and bulimia nervosa in order to investigate attentional bias to self-photos; they found a significant correlation between attentional biases and degree of body dissatisfaction for persons diagnosed with anorexia nervosa. Ditre et al. (2010) acquired observer measures of the smoking behavior of participants (e.g., from video recordings of latency to light a cigarette, number of puffs taken, and total time spent smoking) following a laboratory stressor (a cold-pressor test to elicit pain) in their investigation of a social-cognition causal model of the relations among pain, smoking motivation, smoking-related outcome expectancies, and pain coping behaviors. Trull and Ebner-Priemer (2009) edited a special section in *Psychological Assessment* on the use of ecological momentary assessment (EMA; real-time samples of participants' behavior in their natural environment; see Chapters 8 and 9) in the study of mood disorders and mood dysregulation, anxiety disorders, substance use disorders, and psychosis. Measurement methods consistent with a behavioral assessment paradigm (e.g., observation, self-monitoring, psychophysiological measurement, narrowly focused self- and other-report questionnaires) are included in almost all articles published in the premier journals of psychopathology, *The Journal of Abnormal Psychology* and *Journal of Abnormal Child Psychology*.

The Differential Applicability of the Conceptual Elements of Behavioral Assessment. The behavioral assessment paradigm offers

guiding principles for clinical assessment. The paradigm suggests that examination of particular types of variables and functional relations, using particular measurement strategies and methods, will often result in valid and clinically useful case formulations, intervention selection, and intervention outcome evaluation.

The conceptual and methodological elements of the behavioral assessment paradigm have been widely applied, but differ in the degree to which they are useful across populations, behavior problems, and settings. For example, there is convincing evidence that social response contingencies, such as the immediate responses of parents and teachers to children's behavior, can significantly affect the rate of self-injurious behaviors of many individuals with developmental disabilities (e.g., Kahng et al., 2002). However, it is illogical to presume that response contingencies such as social attention are an important causal factor for all behavior problems or for all persons with the same behavior problem. Consider, for example, Iwata's research on the experimental functional analysis that indicated that 20–35% of clients with self-injurious behaviors are minimally influenced by manipulation of response contingencies, such as social attention (Iwata et al., 1994).

Of course, social response contingencies are often important causal factors for behavior problems and can be used to weaken maladaptive behaviors and to strengthen more positive alternative behaviors. The assessor's mandate is to use the conceptual elements of the behavioral assessment paradigm to guide the assessment focus. For example, when selecting assessment targets, it is important to presume that response contingencies (among other potential causal variables) *may* be an important causal variable for a client's behavior problems and goals. This presumption will guide the assessor toward a careful consideration of the potential role of response contingencies in a client's behavior problem that will frequently, but not invariably, lead to a more clinically useful behavioral case formulation. In Chapter 6, we consider in greater detail the types of causal variables and relations that have often been found useful in clinical assessment.

A frequent conceptual and methodological error, even among behavior therapists, is the adoption of a univariate or excessively narrow causal model of behavior problems. This error is exhibited in some clinicians

who presume that a wide range of behavior problems can be accounted for by causal models that emphasize mostly response contingencies, cognitive processes, genetic predisposition, experiential avoidance, or interpersonal processes. Such a limited view of potential causal factors increases the risk that the clinician will fail to identify important causal factors during clinical assessment, thereby reducing the potential impact of intervention. As we discuss in Chapter 10 and as is outlined in many books on psychopathology, the clinician must be familiar with the multiple possible causal variables, causal paths, and causal mechanisms that can be relevant for a particular behavior problem and for a particular person.

Differential Applicability of the Methods of Behavioral Assessment. A similar caveat applies to the applicability of specific behavioral assessment methods. For example, behavioral observation in analog settings can be a powerful method of assessing social interactions of psychiatric inpatients, dyadic interactions of couples, and other adults with interpersonal difficulties (see review in Heyman, Smith Slep, 2004). However, analog observation may be less useful in the assessment of some persons who are experiencing problems with sleep, worry, or obsessive thoughts because such behaviors are difficult to observe in contrived settings.

We have emphasized that the multiple strategies, methods, and instruments of behavioral assessment paradigm are some of its strengths. However, as with behavioral concepts of causality, the clinical utility of each strategy, method, and instrument differs across behavior problems, assessment goals, populations, and settings. For example, the assessment of social response contingencies for a client's behavior problem might best be approached with analog observation (e.g., using an ABAB strategy) when the focus is on parent- or staff-child interactions of high-frequency behaviors such as communication behaviors, with a parent-report questionnaire when the focus is on parental responses to a child's headaches, and with self-monitoring when the focus is on how a client responds to his or her spouse during the course of a day. The decisions about the best assessment method depend on the characteristics of the client's behavior, assessment setting, goals of assessment, and available resources. The clinician must consider which assessment strategy will provide the most valid and useful data for a particular assessment goal.

The applicability and utility of individual methods of behavioral assessment can be affected by several variables:

- *Developmental level of the client.* For example, Ollendick and Hersen (1993) commented that cognitive abilities affect the applicability of self-monitoring with children; very young children may not be able to accurately track their behaviors.
- *Level of cognitive functioning.* Data from self-monitoring, interviewing, and questionnaire assessment methods can also be affected by a client's medication use, substance use, neurological impairment, attention abilities, and delusional intrusive thought processes.
- *Reactive effects of the assessment method.* When applied to some behavior problems, clients, or in some assessment settings, assessment instruments can affect the variables being measured or affect the behavior of others in the client's environment.
- *Availability of, and cooperation from, persons in the client's social environment.* Behavioral assessment methods often involve cooperation by the clients' spouse, teacher, supervising staff member, school and hospital administrator, or family members.
- *Characteristics of the target behaviors and causal variables.* We commented earlier that some behavior problems and causal variables are more amenable to measurement with some methods than with others. Important characteristics include: (a) whether the variable is currently occurring, (b) the frequency of the variable (e.g., is the frequency sufficiently high that a clinician could observe it), (c) the setting in which the variable occurs (e.g., home, school, social versus nonsocial contexts), and (d) the response mode (e.g., overt activity versus physiological event). For example, early traumatic life experiences can be a powerful causal variable for later behavior problems but can be assessed only through behavioral interviews or self-report inventories. Conversely, some important causal variables can be observed by others but not readily reported by a client. For example, a parent may not accurately recollect and/or report how he or she responds to the oppositional behavior of a teenager, although the responses are observable during an analog naturalistic observation.

- *Costs of an assessment method and resources of the assessor.* As we noted earlier in this chapter, some behavioral assessment methods, such as observation in the natural environment and ambulatory monitoring of psychophysiological responses, can be expensive. For example, the use of a few trained observers to collect data on family interactions in a client's home may require scores of hours for observer training, coding, and data analysis. The expense of some assessment methods may explain their more frequent use in well-funded clinical research settings than in less well-supported clinical settings. However, as we will discuss in Chapter 7, there are strategies to reduce the costs of acquiring data in a client's natural environment.
- *Constraints and contingencies on the assessor.* Sometimes assessment strategies and methods are dictated by contingencies and restrictions operating on the assessor. For example, a comprehensive behavioral case formulation of self-injurious behavior (e.g., to determine if the self-injurious behaviors are affected by social reinforcement, termination of demands, etc.) using systematic manipulation of possible functional variables in a clinic office is difficult in a clinic or school setting where the clinicians are allotted a limited amount of time with the clients or where such methods are not financially reimbursed.

SUMMARY

The clinical case formulation is composed of many judgments, such as the identification of a client's behavior problems and intervention goals and the variables that affect them. Behavioral assessment is a multifaceted, scholarly, science-based conceptual and methodological paradigm designed to aid the clinician in gathering valid and useful assessment data. It is a *functional approach to psychological assessment* in that the best assessment strategy for any occasion depends on the goals of assessment and the characteristics of the client and his or her context.

The clinical assessment process and case formulation are often difficult because clients frequently present with multiple behavior problems

and intervention goals, which can be complexly interrelated, with multiple interacting causal variables influencing each. Interventions based on case formulations can be beneficial because there are important differences among clients in the characteristics and causal relations relevant to their behavior problems and goals, and often there are multiple empirically supported interventions available. A clinician's ultimate task is to design an intervention that will have the greatest *magnitude of effect* for a client.

We focus on the functional analysis in this book but there are alternative models of clinical case formulation within the cognitive-behavioral paradigm. The models presented by Nezu and Nezu, Persons, and Linehan have common emphases: (a) the importance of clinical case formulation for intervention selection, (b) the importance of evidence-based clinical assessment strategies, (c) individual differences in the attributes of clients' behavior problems and intervention goals, (d) multivariate causality and the multiple attributes of causal variables and relations, (e) the role of the clinician's attitudes and beliefs about preintervention assessment, and (f) the importance of providing a record of the clinical case formulation.

We emphasize the applicability of behavioral assessment for intervention outcome evaluation, psychopathology, and experimental functional analysis. Because it is a methodologically diverse system, different methods and elements are differentially applicable across goals and across assessment contexts within those goals.

