CHAPTER 1

The Role of Assessment in Evidence-Based Practice

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Commencing over 2 decades ago, the movement to promote evidence-based practices has spread across countries and across health professions, with the primary goal being to provide people with the most effective health care services (e.g., Institute of Medicine, 2001; Sackett, Rosenberg, Gray, Haynes, & Richardson, 1996). Effective health care services should not be confused with the quantity or the technological sophistication of such services; rather, evidence-based practice is about providing the right health care services—services that have been demonstrated to work—for each client's needs. Although laudable, the dissemination of evidence-based health care faces a number of challenges, not the least of which is the confusion and ambivalence on the part of both clinicians and consumers about what evidence-based care actually entails (e.g., Becker et al., 2018; Carman et al., 2010; Rousseau & Gunia, 2016).

Evidence-based psychological practice (EBPP) is part of the larger evidence-based practice movement that stresses the integration of systematically collected data, clinical expertise, and client preferences by psychologists when considering service options for clients. As science has formed the basis of models of psychology training and psychological service delivery for many years, it is fitting that organized psychology has embraced the concept of evidence-based practice. Both the American Psychological Association and the Canadian Psychological Association have adopted policies on evidence-based practice in psychology (American Psychological Association Presidential Task Force on Evidence-Based Practice, 2006; Dozois et al., 2014). In 2018, the Coalition for Advancement and Application of Psychological Science (CAAPS) convened a multidisciplinary summit of organizations with a mental and behavioral health care focus in order to develop a consensus statement on evidence-based practice decision making. The resulting consensus statement emphasizes (1) the use of the best available basic and applied empirical research evidence in the planning and delivery of services, (2) the necessity of ongoing measurement and evaluation of the effects of these services, and (3) the key role clinicians play in guiding collaborative

decision making with clients about evidence-based service options (*http://caaps.web.unc.edu/?page_id=139*).

In this chapter, our focus is on the multitude of ways that evidence-based assessment (EBA) informs EBPP and, to a large extent, increases the likelihood that the services clients receive are truly evidence based. We begin by discussing the nature of EBPP, including both treatment and assessment, and the critical role that EBA plays in ensuring that treatments received by clients are evidence based. Following a general discussion of the purposes of EBA, we focus on three assessment purposes directly pertinent to treatment: diagnosis, case conceptualization and treatment planning, and treatment monitoring and treatment evaluation. After illustrating some of the key scientific and clinical issues linked to these assessment purposes, we briefly comment on the ways that decision-making aids can serve to reduce the negative effects of biases and heuristics in the provision of psychological services.

Evidence-Based Psychological Practice

Engaging in a truly evidence-based form of practice is a complex and challenging task. As a starting point, psychologists must continually evaluate their knowledge and skills, updating them as necessary in order to remain current with scientific developments. Considerable time and energy must be devoted to continuing education activities, such as reading clinical literature and attending presentations, workshops, and webinars in fields relevant to one's areas of practice. Given the schedules and workloads of most clinical psychologists, it is all too easy for these activities to be given a lower priority than that assigned to addressing the immediate clinical needs of clients and managing myriad administrative tasks associated with clinical practice.

In addition to staying up to date with scientific developments, EBPP requires psychologists to monitor and appraise their decisions critically as they provide clinical services to clients. Clinical experience can not only substantially assist in providing high-quality services but can also result in blind spots and inappropriate habits that negatively affect client care. As we describe later in the chapter, the use of clinical decision-making strategies and aids can help to address such biases and allow psychologists to minimize errors in assessment and treatment. Finally, client characteristics and health service preferences must be at the center of EBPP. Psychological research provides invaluable information about assessment and treatment options, processes, and outcomes. Moreover, an impressive array of assessment instruments and psychological treatments backed by empirical evidence is now available for use with a wide range of disorders and conditions (Hunsley & Mash, 2018; Nathan & Gorman, 2015; Weisz & Kazdin, 2017). Yet empirical evidence on these services is typically at the nomothetic level, in which group comparisons are made or general patterns across research samples are observed. To apply the results of the science to a specific client, a balance must be maintained wherein services are not only firmly based on the empirical evidence but also individually tailored to take into account client characteristics, needs, and resources (e.g., Persons, 2008). Additionally, the empirical evidence on these services is most commonly obtained under different conditions than those in which typical clinical services are provided, and services may need to be appropriately tailored to fit the demands and constraints of real-world clinical practice (Strosahl & Robinson, 2018).

Although EBPP is a relatively new development in the field, some psychologists might argue that it actually brings little that is new to the practice of psychology. After all, training programs are supposed to provide graduate students with knowledge about the science of psychology, and psychology licensing boards typically have continuing education requirements for psychologists. Unfortunately, the centrality of psychological science to the practice of psychology may not be as well established as some may think, and results of several surveys have underscored significant gaps in the use of science in the service of clinical practice. Weissman et al. (2006) found that 44% of PhD clinical psychology programs and 67% of PsyD clinical psychology programs did not require any training in evidence-based treatments (EBTs). In a survey of almost 1,200 graduate students in clinical psychology programs, Luebbe, Radcliffe, Callands, Green, and Thorn (2007) found that the nature of a treatment's empirical support was among the least important factors influencing students' treatment planning decisions. Finally, Wright et al. (2017), in their survey of American Psychological Association members, found that only 39% reported frequently using assessment measures to evaluate patient progress in treatment. In their survey of American Psychological Association-accredited clinical psychology programs, Mihura, Roy, and Graceffo (2017) reported that only half were associated with training clinics or practicum settings in which students routinely used outcome measures to evaluate the effectiveness of treatment. Clearly there is much additional work to be done to ensure that clients routinely receive EBAs and EBTs.

What, exactly, is an EBT? Although multiple answers have been proposed to this key question, two main approaches to defining EBTs are germane to psychological treatments (cf. Youngstrom, 2008). The first approach involves the use of some type of evidence hierarchy to determine the quality of the scientific evidence relevant to the treatment of a disorder or condition. Evidence hierarchies play a central role in efforts to develop practice guidelines for clinicians, policymakers, and the public (e.g., Dozois et al., 2014). Largely on the basis of internal validity considerations, evidence hierarchies place expert opinion and evidence from case studies on the lowest level of the hierarchy, followed by group research designs that have shortcomings in addressing threats to internal validity, group research designs that have a high degree of internal validity, and, at the top of the hierarchy, systematic reviews of well-designed studies (including meta-analyses). No explicit criteria are required for a treatment to be considered evidence based—instead, the concept of best available evidence is used. In other words, the quality of being "evidence based" is treated as a continuum, and the psychologist is encouraged to use evidence available at the highest level in the hierarchy in determining treatment options for a client. In most instances, taking into account the relevance of the research studies in light of the client's characteristics, this means that the best treatment option is the treatment with the greatest amount of supporting evidence. The second approach to defining EBTs is to apply explicit criteria to determine whether a treatment is evidence based. Although the amount and quality of the evidence is pertinent, the main consideration in defining a treatment as evidence based is whether specific methodological criteria have been met in the body of research on the treatment. Building on the frameworks that operationally defined empirically supported treatments (e.g., Chambless & Ollendick, 2001), this has been the dominant approach taken within clinical psychology to the development, dissemination, and use of EBTs (e.g., Silverman & Hinshaw, 2008).

Although EBTs are seen by many psychologists as providing the best options for client care, a number of concerns about their use in routine clinical practice remain. Kazdin (2008) summarized several fundamental issues that must be addressed, such as the variability in methods for designating a treatment as evidence based or empirically supported, the extent of change necessary on psychological measures to indicate that clinically relevant change has been obtained in a treatment study, and variability in the extent of treatment-related change observed across multiple outcome measures used in a treatment study. It is important to note that all of these fundamental issues are essentially matters of measurement and assessment. Moreover, regardless of which approach is taken to define a treatment as evidence based, the decision relies entirely on the use of assessment data to provide the evidence that a treatment worked. Treatment-relevant single-case experimental designs, randomized clinical trials, treatment outcome meta-analyses, and other research designs all require data from psychological measures and other assessment strategies to provide evidence of efficacy or effectiveness. Without scientifically sound assessment data, there can be no EBTs. Moreover, because almost all EBTs are designed for specific disorders and problems, their proper use requires that these disorders and problems are accurately identified, which in turn requires that the instruments and assessment processes used for this purpose are, themselves, well supported by empirical evidence. Inaccurate or incomplete assessment can lead to the inappropriate or ineffective use of an EBT (Weisz & Gray, 2008).

EBPP requires much more from psychologists than simply providing EBTs. In clinical practice, accurate assessment data are essential for determining the psychosocial functioning of clients, monitoring the treatments they receive, and evaluating the impact of these services at termination. Considerable efforts have been made to provide mental health clinicians with psychometrically sound assessment instruments designed for these purposes (e.g., Bickman, 2008; Lambert, 2015). Indeed, it is no exaggeration to say that EBPP requires, and is dependent on, the use of scientifically sound assessment methods, instruments, and strategies (Barlow, 2005).

Until recently, in contrast to the considerable attention devoted to EBTs, questions about the evidence base for psychological assessments had received relatively little attention. The failure to draw upon the scientific literature on psychological assessment in developing and promoting EBTs has been likened to constructing a magnificent house without bothering to build a solid foundation (Achenbach, 2005). As the evaluation and, ultimately, the identification of EBTs rests entirely on the assessment data, ignoring the quality of psychological assessment instruments, and the manner in which they are used, places the promotion of EBPP in jeopardy. Furthermore, if a psychologist desires to practice in an evidence-based manner, it is inappropriate to claim that the treatment a client is receiving is effective simply because it is an EBT—to determine the impact of any treatment, including an EBT, it is essential that accurate data are collected to determine their effects for individual clients (cf. Bickman, 2008). There is an ongoing interplay between assessment and treatment within EBPP, including, but not limited to (1) the ways that initial assessment results influence considerations of what treatment options to pursue, and (2) how the chosen treatment approach will influence what constructs and measures to use in tracking and evaluating the treatment effects. In essence, assessment and intervention are inextricably linked in any form of psychological practice that purports to be evidence based.

Evidence-Based Assessment

EBA is an approach to psychological assessment that is consistent with the principles of evidence-based practice found in a growing number of health professions. At its core, EBA relies on research and theory to guide the selection of constructs to be assessed for a specific assessment purpose, the methods and measures to be used in the assessment, and the manner in which the assessment process unfolds (Hunsley & Mash, 2007; Mash & Hunsley, 2005a; Youngstrom et al., 2017). However, even when psychometrically strong measures are used, the assessment process is inherently a decision-making task in which the psychologist must iteratively formulate and test hypotheses by integrating data that may be incomplete or inconsistent. This means that an evidence-based approach to assessment must incorporate some consideration of the clinical value of this complex decision-making task in light of potential errors and biases in data synthesis and interpretation, the costs associated with the assessment process, and the impact the assessment had on clinical outcomes for the client(s) being assessed. In the following paragraphs, we provide greater detail on the main aspects of EBA.

As a starting point, research findings and scientifically supported theories on human development, normal functioning, and psychopathology should guide the selection of constructs to be assessed and the assessment process. While keeping in mind that most disorders do not come in clearly delineated, neat packages, and that comorbidity is often the rule rather than the exception in clinical practice, EBA must be disorder or problem specific, or explicitly tailored to assess relevant transdiagnostic constructs (e.g., behavioral avoidance, emotion regulation). As illustrated in the second part of this volume, either a problem-specific or a transdiagnostic approach to assessment is consistent with how assessment and treatment research has been conducted and, therefore, allows EBA to be fully integrated into EBTs (cf. Prinstein, Youngstrom, Mash, & Barkley, 2019; Newby, McKinnon, Kuyken, Gilbody, & Dalgleish, 2015; Weisz & Kazdin, 2017). Diagnostic systems provide one common alternative for framing the range of disorders and problems to be considered in assessment and treatment, but commonly experienced emotional and relational problems (e.g., social skills deficits, excessive anger, conflictual relationships) that occur in the absence of a diagnosable disorder may also be the focus of EBAs and EBTs (e.g., Chorpita, 2006; Bernstein, Chorpita, Daleiden, Ebesutani, & Rosenblatt, 2015). Of course, many clinical assessments are conducted to identify the precise nature of the client's presenting problem(s). It is therefore necessary to conceptualize multiple, interdependent stages in the assessment process, with each iteration of the process becoming less general in nature and increasingly problem specific with further assessment (Mash & Hunsley, 2007). In addition, there are generic assessment strategies or tools that have considerable research support across a range of client problems, such as functional analytic assessments (Hurl, Wightman, Haynes, & Virues-Ortega, 2016) and client monitoring systems applicable to different types of interventions (e.g., Barkham, Mellor-Clark, & Stiles, 2015; Lambert, 2015).

A key requirement of EBA is that, whenever possible, psychometrically strong measures should be used to assess the constructs targeted in the assessment. By "psychometrically strong," we are referring to instruments that have consistent empirical evidence of reliability, validity, and, ideally, clinical utility (De Los Reyes & Langer,

2018; Youngstrom et al., 2017). Within the context of EBTs, the question "Which treatments for this condition have the best supporting evidence?" is a very reasonable one; a parallel assessment question—"Which assessment tools for this condition have the best supporting evidence?"—is not particularly meaningful and can potentially be misleading. This is directly attributable to the fact that assessment tools are available for a range of purposes, including screening, diagnosis, case conceptualization, treatment monitoring, and treatment evaluation. As psychometric evidence is always conditional, based on sample characteristics and assessment purpose, the supporting empirical evidence that should be considered when selecting instruments for clinical use must be relevant to the specific purpose for which the instrument will be used. Some indices of validity, such as specificity, sensitivity, positive predictive power, and negative predictive power, are crucial in determining whether a measure will be appropriate for screening purposes (Hsu, 2002). On the other hand, sensitivity to change is arguably the most relevant aspect of validity for measures used for treatment monitoring and outcome evaluation. Regardless of the type of instruments, they must also have available either appropriate norms for norm-referenced interpretation or replicated supporting evidence for the accuracy of cutoff scores for criterion-referenced interpretation (cf. Achenbach, 2005). Furthermore, given the diverse clientele receiving psychological services, there should be supporting evidence to indicate that the EBAs are appropriate for use with those being assessed. This means that careful consideration must be given to the characteristics (e.g., age, gender, and ethnicity) of the samples on which the supporting scientific evidence was derived (Ramirez, Ford, Stewart, & Teresi, 2005; Sonderegger & Barrett, 2004).

Psychological assessment is, however, much more than just the data collected from psychometrically strong measures. At its heart, assessment is inherently a decision-making task in which the psychologist must iteratively formulate and test hypotheses. Data from psychological measures are typically combined with life-history information, observations of client behavior, collateral information, and, in many instances, assessments by other health care professionals. Integrating and synthesizing this wealth of information can often feel like an overwhelming task, and a truly evidence-based approach to assessment must take into account the many ways that error and misinterpretations can occur. We do not yet have clear, evidence-based guidelines on how to best assess common disorders and problems, but there are a growing number of examples illustrating how assessment information can be used in an evidence-based manner (e.g., Doss, 2005a; Jarrett, Meter, Youngstrom, Hilton, & Ollendick, 2018).

Despite the fact that we have only begun to fully develop EBA procedures, considerable progress is evident with respect to evidence-based instruments (EBIs; De Los Reyes & Langer, 2018; Hunsley & Mash, 2014). As a result, there are presently available a large number of EBIs for many assessment purposes across a wide range of client conditions. For example, evaluations of numerous EBIs for the assessment, across the lifespan, of symptoms, general psychosocial functioning, and quality of life are presented in Hunsley and Mash (2018). Additionally, Beidas et al. (2015) and Becker-Haimes et al. (2020) have provided listings of many psychometrically sound mental health measures for youth and adults that are freely available. Resources such as these can provide psychologists with invaluable guides to selecting instruments for conducting "state of the science" assessments.

Purposes of Assessment

Over the past 25 years, much has been written about the dramatic changes in the field of clinical assessment. Some have been brought about by advances made in the science of measurement and assessment, others by alterations in guidelines for the reimbursement of psychological services that increasingly emphasize treatment-relevant assessment services. In general, the changes include (1) a decreasing emphasis on the teaching and use of complex, multidimensional instruments (including projective tests); (2) an increasing emphasis on the development, teaching, and use of brief, focused instruments; (3) the development and use of appropriate instruments for a diverse range of clients (including the availability of culturally appropriate norms and linguistic adaptations); (4) the incorporation of behavioral assessment principles into most areas of clinical assessment; (5) the use of information technology to facilitate the collection, scoring, and interpretation of assessment data; and (6) the use of actuarial-based decision rules to aid in data interpretation (see Haynes, Smith, & Hunsley, 2019; Maruish, 2004; Torous, Nicholas, Larsen, Firth, & Christensen, 2018; Wood, Garb, Lilienfeld, & Nezworski, 2002, for extended discussions of many of these issues). For many psychologists, the net result of these changes is an enhanced focus on how scientifically sound assessment data can meaningfully inform treatment decisions, plans, and processes.

Consistent with our discussion of EBA and the nature of this volume, in the following sections, we focus on specific assessment purposes that are directly pertinent to clinical interventions: diagnosis (including screening issues and the importance of addressing comorbidity), case conceptualization and treatment planning, and treatment monitoring and treatment evaluation. As we illustrate, assessment and intervention activities are inextricably linked in these three assessment purposes, so much so that it is difficult to imagine how any treatment not informed by solid assessment data could be effective.

There is an almost endless series of possibilities in terms of which client characteristics *could* be assessed. The scientific literature is replete with assessment tools designed to assess, among other constructs, behavioral, cognitive, personality, interpersonal, and societal/environmental variables. Conceivably, many of these *might* be relevant to the evaluation of those seeking psychological treatment. However, in this era of accountability, compelling reasons must guide decisions about which constructs *should* be assessed. In most practice contexts, the time spent on assessment activities is greatly influenced by the limits imposed on the number of sessions (or reimbursable amounts) available for services to the client. Furthermore, in addition to time and financial considerations, the trend away from using exhaustive test batteries, especially those involving broad, multidimensional personality measures, is at least partially due to the limited evidence supporting the clinical usefulness of such procedures. Finally, instruments developed for research purposes may not be suitable for clinical use for numerous reasons, including time requirements, the complexity of administration and scoring procedures, the need for specialized training, and the lack of clinically relevant norms (cf. Mash & Foster, 2001).

For these reasons, we focus on the assessment of constructs directly relevant to (1) the client's presenting problems (i.e., assessment targets of greatest relevance based on initial client evaluation and research evidence pertaining to identified presenting

problems); (2) collaboratively developed treatment goals, both intermediate and ultimate; (3) the successful implementation of treatment (e.g., extent of engagement in between-session assignments); and (4) processes empirically demonstrated to affect the outcome of treatment (e.g., therapeutic alliance). Depending on the client's presenting problems, strengths and resources, and current life context (e.g., the presence of marital conflict, unemployment, experience of discrimination), there are likely to be a number of domains that need to be explored and evaluated for their potential relevance to treatment design, planning, and implementation. In many instances, as illustrated in the chapters in the second part of this volume, this information can be obtained via semistructured interviews, self-report measures (symptoms, impairments in functioning, quality of life, interpersonal resources), and self-monitoring forms.

Before moving on to the specific assessment purposes, it is important to note that numerous guidelines aid psychologists in the selection of instruments appropriate to the evaluative tasks at hand. Given the centrality of psychometric considerations to EBA, many of these guidelines emphasize the role of psychometrics in selecting assessment tools, but many other factors should influence instrument selection (Hunsley & Mash, 2018; Youngstrom et al., 2017). For example, Newman, Rugh, and Ciarlo (2004) proposed that procedural, utility, and cost factors must be considered in instrument selection. Procedural considerations include the ease of instrument use, the use of measures with objective referents, and, whenever possible, the use of data from multiple informants. Although it can be challenging to draw conclusions from multiple informant data, the benefits of using such data are substantial: measurement method bias is reduced (McCrae, 2018) and meaningful clinical hypotheses can be derived from both cross-informant concordance and divergence (De Los Reyes, Thomas, Goodman, & Kundey, 2013). Utility considerations include the usefulness of the measure in planning and delivering elements of clinical service (e.g., need for treatment, likely responsiveness to treatment), the ease of data interpretation and feedback to clients and other stakeholders, and how understandable the data are for nonprofessionals. Finally, although rather obvious, cost factors are extremely important—instruments with low costs per use are more likely to be appealing to both practitioners and organizations in which they work. We strongly encourage readers to keep all of these issues in mind when making decisions about EBI selection.

Diagnosis

Accurate diagnoses are essential for EBPP. Although much has been written in the past few decades about the strengths and weaknesses of psychiatric diagnostic systems, the reality is that much of what we know about psychological conditions is dependent on these diagnostic systems. Most importantly for EBPP, diagnostic information allows a psychologist to access relevant research on psychopathology, epidemiology, prognosis, and treatment. Based on knowledge of this research, the psychologist can then proceed to develop and refine plans for subsequent assessment and intervention activities. Keeping all of this in mind, an evidence-based approach to diagnosis requires that the psychologist follow established diagnostic criteria (e.g., the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* [DSM-5], American Psychiatric Association, 2013) and use assessment methods that have been shown to be valid in formulating diagnoses.

Based on diagnosis, the research literature can provide guidance on client characteristics (including common comorbid conditions and other likely health concerns) and social/interpersonal characteristics (including common problems or limitations associated with social networks and intimate relationships, work functioning, and health care utilization) that are likely to merit further evaluation. The following examples illustrate the critical value of such guidance. Many clients with a substance use disorder are likely to use multiple substances, and those who use multiple substances are least likely to benefit from treatment (Rohsenow, 2018). As a result, once a diagnosis of substance use disorder has been established for one substance (e.g., opiates), the psychologist should thoroughly evaluate the possibility of the client's use of other substances (e.g., cocaine, alcohol). With a diagnosis of panic disorder (PD), careful evaluation (typically in collaboration with a physician) is required to determine the possible presence of a range of medical conditions, including abnormal thyroid functioning, cardiac conditions, and hypoglycemia (Sewart & Craske, 2018). Regardless of whether the presence of such conditions "rule out" the PD diagnosis, they typically merit treatment in their own right, and may influence the nature and course of the intervention for PD. As a final example, it is well established in the literature on obsessive–compulsive disorder (OCD) that family factors, including the acceptance of the client's symptoms, emotional overinvolvement, and accommodation, can negatively affect treatment (Antony & Rowa, 2005; Lebowitz, Panza, & Bloch, 2016). Therefore, in the evaluation of clients with OCD, a careful examination of family members' involvement can reveal valuable information that is pertinent to both the maintenance of the disorder and its eventual treatment.

Important advancements have been made in the development of transdiagnostic case formulations and treatments in recent years (e.g., Barlow & Farchione, 2017; Barlow et al., 2018; Frank & Davidson, 2014; Harvey & Buysse, 2017), and this work holds the promise of greatly expanding the options available for clinicians to provide EBTs. Nevertheless, the psychosocial treatment literature is largely organized by diagnostic categories. Widely available print and electronic resources designed to aid psychologists in identifying possible EBTs are structured, for the most part, according to diagnostic conditions (e.g., Nathan & Gorman, 2015). Even exceptions to this diagnosis-driven structure, such as anger problems, social skills deficits, and marital conflict, require accurate evaluations of client-presenting problems in order to access the relevant research literature. Of course, assessment is much more than simply achieving an accurate diagnosis, and additional assessment information is necessary to flesh out a treatment plan based on diagnostic considerations (cf. McLeod, Jensen-Doss, & Ollendick, 2013). However, diagnostic inaccuracy can pose substantial treatment problems, as it may mean that inappropriate and potentially irrelevant treatment strategies are used in attempts to address clients' concerns. Jensen-Doss and Weisz (2008) reported that in community-based services for adolescents, disagreement between clinician-generated and research-based diagnoses were associated with a host of treatment implementation problems, including an increased number of client "no-shows," canceled treatment appointments, and treatment dropouts. Moreover, compared to situations in which there was diagnostic agreement, inaccurate clinician-generated diagnoses were also associated with smaller treatment gains.

Diagnostic evaluation, by its very nature, must address issues of comorbidity. The reason for this is obvious: Comorbidity is ubiquitous. In an epidemiological study, Kessler, Chiu, Demler, and Walters (2005) evaluated the extent of comorbidity

in adults meeting diagnostic criteria for a mental disorder during the preceding 12-month period. Slightly under half of diagnosable respondents met criteria for two or more disorders. When lifetime diagnoses are considered, it appears that comorbidity may be the rule rather than the exception. As an example, Brown, Campbell, Lehman, Grisham, and Mancill (2001) assessed for the lifetime presence of disorders among adults with anxiety and mood disorders who were seeking treatment services. Well over three-fourths of these individuals met criteria for another DSM disorder at some point in their lifetimes. As part of a thorough evaluation, self-report screening instruments can play a role in detecting the possible presence of comorbid disorders, including the presence of personality disorders (Widiger & Samuel, 2005). However, the influence of comorbidity on treatment outcome is far from clear. Many investigators have found no effect due to comorbidity on the treatment for a target condition, some have found less improvement among those with comorbidity, and others have actually found greater improvement among clients with comorbid conditions (Doss, 2005b; Kazdin & Whitley, 2006). This mixed picture underscores the need to assess for possible comorbidity, consult the relevant treatment literature to determine the possible effects of any comorbidity, and consider transdiagnostic EBA and EBT options.

In the process of assessing a client's diagnostic status, the psychologist must be attentive to a range of contextual factors. As indicated previously, the presence of illnesses and medical conditions may cause or exacerbate psychological symptoms. Evaluation of these conditions is essential in generating an accurate diagnosis and, more generally, in alerting the client to potential health-related problems. Developmental factors are also likely to influence symptom presentation. Thus, the psychologist must be aware of normative developmental tasks and age-related functioning throughout the lifespan in order to accurately diagnose and make accurate differential diagnoses. Diagnosing depression in older adults, for example, requires consideration of the nature and extent of any cognitive deficits (Achenbach, Ivanova, Rescorla, & Dumas, 2017). The presence of such deficits may be indicative of depression, dementia, or both; to further complicate matters, some types of cognitive deficits may also indicate a form of depression caused by cerebrovascular damage (Fiske & O'Riley, 2018). Finally, no diagnostic evaluation is complete without an exploration of cultural factors (Yasui & Dishion, 2007). The Cultural Formulation Interview, part of DSM-5 (American Psychiatric Association, 2013), provides an excellent starting point for incorporating cultural factors in diagnostic formulations. Additionally, Ridley and Kelly's (2006) multicultural assessment procedure nicely illustrates the range of cultural aspects that must be considered in the generation of valid diagnoses, including appreciation of the importance of culturally appropriate base-rate data, the influence of culture on client presentation, and differentiation of cultural data from idiosyncratic client data.

Prediction about the client's future functioning, whether explicitly acknowledged as one of the assessment's goals or not, is part of most psychological assessments. Generally speaking, DSM diagnoses have considerable prognostic value, inasmuch as diagnoses are associated with certain likely symptom courses (First & Tasman, 2004). However, an evidence-based approach to assessment necessitates that, as much as possible, we move beyond generalities to have our services informed by current research evidence most relevant to a client's circumstances. For many disorders, there is substantial variability in prognosis for those diagnosed with the same

condition. For example, Koenen, Stellman, Stellman, and Sommer (2003) followed a large sample of Vietnam War veterans over a 14-year period. Although the strongest predictor of the course of their posttraumatic stress disorder was combat exposure, perceived negative community attitudes at homecoming, minority race, and initial anger and depressive symptoms all influenced the chronicity of the disorder. Even when the prognosis for a disorder is typically poor, such as with late-life depression, individual differences, such as gender, can substantially influence the course of the disorder (Schoevers et al., 2003). Once aware of such data as found in these studies, the psychologist is in a much better position to develop individualized, evidence-based intervention plans that have the greatest likelihood of enhancing client functioning.

As a final point, it is important to acknowledge that to be useful for treatment purposes, diagnostic assessment must consider the severity and chronicity of the disorders. Such information is vital in realistically evaluating the extent to which intervention is likely to be successful, as it is well established that both severity and chronicity are negatively associated with treatment outcome (Castonguay & Beutler, 2006). There is considerable value, therefore, in using measures to assess functional impairment and quality of life across a range of domains, such as friendships, close relationships, work, recreation, and health. Although this is the case for all diagnoses, it is particularly true for disorders, such as alcohol use disorder and adult attention-deficit/hyperactivity disorder (ADHD), that have wide-ranging health, social, and employment consequences (Brod, Johnston, Able, & Swindle, 2006; Haeny, Boness, McDowell, & Sher, 2018).

Case Formulation and Treatment Planning

In most psychological assessment situations, the main purpose of the evaluation is to provide direction for plans designed to alleviate, diminish, or eliminate psychological disorders and problems. A central aspect of this task is the formulation of hypotheses about how the conditions developed and the factors responsible for maintaining them. This requires that the psychologist gather, beyond what is necessary for diagnostic purposes, information on the client's functioning, life history, and current life situation. "Case formulation" refers to the task of both describing the client in his or her life context and developing a set of hypotheses that pulls together a comprehensive clinical picture in sufficient detail that viable treatment options can be generated (Thomassin & Hunsley, 2019). A detailed case formulation can assist in tailoring an EBT to the client's specific needs, or when more than one EBT is being considered, in choosing among the available options. For example, given the constellation of the problems of a client who is depressed, should the primary focus be on addressing, with appropriate EBTs, behavioral deficits, cognitive distortions, or interpersonal role conflicts?

Eells, Kendjelic, and Lucas (1998) found that, across theoretical orientations, case formulations tended to include four major components: symptoms and problems, events or stressors that led to the symptoms and problems, predisposing life events or stressors (i.e., preexisting vulnerabilities), and hypothesized causal mechanisms that link all of the foregoing components together to offer an explanation for the development and maintenance of the problems and symptoms. The nature of the causal mechanisms is likely to be linked to the clinician's theoretical orientation—for example, clinicians with a cognitive-behavioral orientation are likely to think

in terms of contemporaneous maintaining or controlling variables, and the hypothesized ways that these variables influence the client's symptoms and problems (Persons, 2008). The causal mechanisms are particularly important, inasmuch as they will be directly targeted for change in many treatment plans. Based on the results of the diagnostic assessment, a review of the relevant research literature, including the literature on EBT options, can facilitate the generation of a list of psychosocial constructs to be assessed as possible causal mechanisms (e.g., personality characteristics, dysfunctional beliefs, social relationships). There are a number of resources available to aid psychologists in developing empirically informed case formulations. Most of these focus on theory-specific and/or disorder-specific approaches to case formulation (Eells, 2006; Persons, 2008; Tarrier & Johnson, 2016), although some emphasize the use of transdiagnostic (e.g., Barlow & Farchione, 2017) and transtheoretical case formulation models (e.g., Beutler, Malik, Talebi, Fleming, & Moleiro, 2004). Regardless of the approach taken, all provide guidance on how to use nomothetically based information (e.g., research on EBTs, psychopathology, or broadband assessment instruments) in developing an idiographic case conceptualization.

With the case formulation providing the foundation, treatment options should focus on available EBTs or common treatment components that are evidence based (Chorpita, Daleiden, & Weisz, 2005). The burgeoning treatment literature is replete with information that is directly relevant to individualized treatment planning. For example, in the treatment of bipolar disorder, there is compelling evidence that receiving psychological treatment, in addition to a mood stabilizer, can greatly enhance client functioning. Most relevant for treatment planning purposes, it appears that treatments that address issues of medication adherence and the recognition of mood changes reduce manic symptoms, whereas treatments focusing on cognitive and interpersonal coping strategies reduce depressive symptoms (Miklowitz, 2008). Thus, depending on specific client needs and resources, a treatment plan can be developed that is optimally informed by these empirical findings.

The development of treatment plans is a complex activity that requires considerable knowledge and flexibility on the part of the psychologist. Ideally, it should be a collaborative undertaking with the client, in order to maximize both the fit between the treatment and the client's needs, and the client's acceptance and involvement in the treatment. Client characteristics (e.g., ethnicity, sexual orientation, religious beliefs), life circumstances (e.g., relationship conflict, constraints due to demands of employment and/or parenting), medical conditions, and so forth may necessitate the adaptation of the evidence-based intervention options in order to ensure that treatment is feasible and acceptable to clients. Additionally, a host of other factors must be considered in formulating the treatment plan (Thomassin & Hunsley, 2019): client priorities, aspects of the client's quality of life (e.g., poor health status, limited ability to function socially), the client's treatment-related beliefs and experiences with previous treatments, the level of difficulty anticipated in altering the various elements (i.e., cognitive, affective, physiological, interpersonal) targeted for change, the presence of causal connections among these elements, and, of course, the possible presence of suicidal ideation or behavior (Millner & Nock, 2018).

The presence of comorbid mental disorders also affects the nature of the treatment plan, and usually requires that an EBT be adapted in some manner. It is essential to ascertain which diagnosis should be considered principal, and therefore be the initial focus of treatment. In some instances, though, an additional diagnosis

may impede efforts to address the principal diagnosis, thus warranting some attention early in treatment. For example, Abramowitz, Franklin, Kozak, Street, and Foa (2000) found that in the treatment of OCD, the presence of depression can diminish the effectiveness of exposure and response prevention (an EBT for OCD). This suggests that it may be helpful to address some depressive symptoms (with an EBT or EBT components) prior to or concurrent with the focus on the obsessive–compulsive symptoms. In many other instances, comorbid conditions may necessitate modifications in treatment parameters. For example, in the treatment of depression in older adults, it is usually necessary to simplify treatment procedures and/or involve significant others if the client also presents with dementia. Similarly, depressed clients who also present with a personality disorder are likely to require an extended treatment duration and additional treatment components targeting specific beliefs, problems in emotional regulation, and interpersonal difficulties (Newton-Howes, Tyrer, & Johnson, 2006).

Despite the centrality of case formulation and treatment planning procedures in the provision of all forms of psychotherapy, the evidence base for these procedures is remarkably limited. As Bieling and Kuyken (2003) argued, in order to develop evidence-based case formulations, several basic empirical questions must be answered:

1. Does the formulation stem from a theory with substantial empirical support?
2. Is the formulation reliable?
3. Is the formulation valid?
4. Is the formulation acceptable to relevant stakeholders?
5. Does consideration of the case formulation enhance the provision and outcome of treatment?

Some advances have been made on these issues (e.g., Flinn, Braham, & das Nair, 2015), but much more remains to be done. Kuyken (2006) offered a number of evidence-based guidelines for generating case formulations that, although intended for cognitive-behavioral formulations, can be easily adapted to any theoretical approach. First, in generating a provisional formulation, alternative formulations must be kept in mind, all of which should be based on using the best available theory and research. Second, the validity of the formulation should be evaluated with behavioral experiments and triangulated by considering multiple sources of information (i.e., client, significant others, observations). Third, the psychologist should be aware of the potential for biases to enter into the formulation process—something we address later in this chapter—and take steps to minimize the impact of any biases. Fourth, as much as possible, the psychologist should incorporate current practice guidelines and EBT procedures into the treatment plan derived from the case formulation. Christon, McLeod, and Jensen-Doss (2015) presented guidelines that are particularly helpful in illustrating how to incorporate scientific knowledge throughout the case conceptualization process. They outlined five stages in case conceptualization: guiding the clinician through the process of identifying presenting problems, assigning diagnoses, formulating the initial case conceptualization, developing the treatment plan and monitoring treatment outcome (with evidence-based tools), and reevaluating the case conceptualization as needed. The complexities and nuances associated with the conceptualization process are nicely incorporated in both of these sets of guidelines.

Treatment Monitoring and Treatment Evaluation

Although the focus of this chapter is on assessment, it is clear that we have been considering assessment not as an end in and of itself but as a means to achieve the most effective treatment possible for clients. In the clinical trials typically adduced as support for EBTs, it is virtually impossible to conceive of providing treatment in the absence of routine collection of assessment data. In randomized controlled trials (RCTs), the outcome of treatment is always evaluated against pretreatment levels of functioning. Moreover, almost all RCTs involve some form of session-by-session evaluation and/or evaluation at selected points during the course of treatment. We contend that the simple fact that treatment is repeatedly monitored is one of the most important contributors to successful treatment outcome in EBTs. After all, the collection of assessment data as treatment unfolds allows the psychologist to make any needed adjustments as they are required. If the client is rapidly making changes in one area of functioning, then less treatment time may be needed in that area in subsequent sessions—on the other hand, limited progress may indicate the need to use a different intervention strategy or to reevaluate the client's problems, motivation, or understanding of what is required in treatment. Indeed, the power of high-quality assessment data to influence treatment outcome is clear: There is extensive, replicated evidence that, regardless of whether clients receive an EBT, providing clinicians with accurate, session-by-session feedback on client functioning can result in increases in client improvement rates and decreases in treatment failures (Fortney et al., 2017; Lambert, Whipple, & Kleinstäuber, 2018; Tam & Ronan, 2017).

Although in this section we address both the evaluation of the process and the outcome of treatment, it is important to recognize that they typically involve related but distinct evaluation procedures. They are related inasmuch as intermediate treatment goals are set in order to progress systematically toward attainment of one or more ultimate treatment goals—thus, evaluation of the intermediate goals directly informs the course of treatment and, accordingly, the eventual determination (i.e., measurement) of whether the ultimate goals are attained. However, the demands of clinical practice (including reimbursement limits on the nature of billable services and the number of treatment sessions) necessitate that evaluation of the process of treatment differs greatly from evaluation of the outcome of treatment. For example, although it may be feasible to use relatively time-consuming procedures, such as semistructured diagnostic interviews or multiscale broadband instruments, to evaluate client functioning at the beginning and end of treatment, such procedures are simply not feasible for monitoring treatment. Monitoring measures must be used repeatedly, without significantly limiting the amount of time devoted in treatment sessions to intervention purposes.

A multitude of constructs may be assessed throughout treatment and at the termination of services. Based on our foregoing discussion of diagnosis and case formulation, and the vast literature on links between therapeutic process and outcome (e.g., Castonguay & Beutler, 2006; Norcross, 2011), we suggest that three specific categories of client and treatment variables should be given particular consideration: (1) treatment targets and goals (intermediate and ultimate), (2) the causal mechanisms believed to maintain client problems, and (3) therapeutic context or process variables that are particularly germane to enhancing treatment services (cf. Mash & Hunsley, 2005b; Persons, Fresco, & Small Ernst, 2018).

The focus on treatment targets and goals is an obvious one. By closely monitoring the client's response to treatment and achievement of intermediate treatment goals, the psychologist is well-placed to determine how to adapt the nature of the treatment as it progresses. Some targets, such as change in diagnostic status, may only be evaluated at the end of treatment or at a follow-up point, whereas other targets, including the frequency, duration, and severity of specific symptoms, thoughts, emotional states, and physiological reactions, may be assessed at every session or every second session. Relatedly, for EBTs that rely on the completion of between-session assignments by the client, it is obvious that close monitoring of the implementation and successful completion of such assignments is essential. Additionally, some types of treatment goals (e.g., enhancing quality of life, reducing role impairment, improving social functioning) may need to be assessed less frequently than on a session-by-session basis, but more frequently than at the beginning and end of treatment. All of this, of course, depends on the precise nature of the treatment plan developed for the client.

The nature of the case formulation also influences the choice of causal mechanisms to evaluate and the timing and frequency of the evaluations. Most causal mechanisms, such as dysfunctional beliefs, personality characteristics, emotional response tendencies, and problematic social relations, are very unlikely to change from session to session. Therefore, it usually is most appropriate to measure these putative mechanisms at the beginning and end of treatment, along with, perhaps, a midpoint assessment. Some therapeutic process variables, such as treatment-related beliefs, motivation to change, and barriers to treatment, can also be assessed at several points during treatment. The evaluation of other therapeutic process constructs, however, may need to be undertaken more frequently. Alterations in the therapeutic alliance, for example, can occur quickly and should therefore be monitored on a regular basis.

Leaving aside for now the precise content addressed by the assessment tools, they must be useful for treatment monitoring purposes. As a starting point, the measure must be sensitive to change—after all, the whole point of evaluating treatment as it unfolds is to determine the extent to which client changes, for better or for worse, are occurring. It must also be reliable, so that the psychologist can be confident that changes in the data are true changes, not just measurement error or the repeated completion of a measure (e.g., Longwell & Truax, 2005). There must be benchmarks to aid in interpreting the meaning and magnitude of any observed changes. Such benchmarks can include both indices of the clinical significance of changes (Bauer, Lambert, & Neilsen, 2004; Wise, 2004) and the client's own pretreatment or baseline scores. As described earlier, monitoring tools must also be practical for psychologists to use. This means that, in particular, they must be brief, inexpensive, and easily scored and interpreted. Although this typically means a reliance on self-report instruments, including symptom rating scales and self-monitoring forms, other options may be appropriate for specific treatment purposes, such as urine toxicology testing strips for monitoring substance abuse treatment effects (Rohsenow, 2018) and behavioral approach tests to evaluate changes in treatment focused on anxiety and avoidance behaviors (Sewart & Craske, 2018). Idiographic assessment strategies, including goal-attainment scaling, can also be used to evaluate changes in unique aspects of client functioning (e.g., Kazdin, 1993; Sales & Alves, 2016; Woody, Detweiler-Bedell, Teachman, & O'Hearn, 2003).

Addressing Potential Problems in Clinical Decision Making

Based on decades of research, it is well established that people's ability to evaluate their own skills and decisions accurately is relatively poor—health care professionals are not immune to this tendency to make inaccurate self-assessments and to make suboptimal decisions (Ægisdóttir et al., 2006; Davis et al., 2006). As we described, the provision of EBAs and EBTs requires the psychologist to continually evaluate clinical hypotheses and then make decisions that guide service delivery. Clinical decision making can be plagued by a host of heuristics and biases, including overconfidence, primacy and recency effects, attributional biases, and availability heuristics (Garb, 1998; Lilienfeld, Ritschel, Lynn, Cautin, & Latzman, 2014), all of which can lead to erroneous decisions and, ultimately, to problems and mistakes in treatment delivery. EBPP demands that treatment be planned and delivered on the basis of the best available research evidence, rather than on the basis of highly memorable but ultimately unrepresentative clients a psychologist may have encountered or heard about in group supervision while in training. Therefore, to minimize the impact of flawed cognitive processes on client care, it is essential that psychologists be aware of the research on clinical decision making and systematically utilize strategies to counter common biases and heuristics. Unfortunately, many psychologists receive very little training in these issues and skills. Harding (2007) found that among American Psychological Association-accredited clinical psychology programs, issues related to decision making were most likely to be covered in nonrequired courses in cognitive psychology, and that only 9% of programs required courses that included material on strategies to improve clinical decision making.

As diagnosis plays a key role in both EBA and EBT, minimizing errors related to the diagnostic process is critical. It is worth reiterating, therefore, that errors in diagnosis have been found to be associated with problems in attendance for treatment sessions, premature termination, and less client improvement (Jensen-Doss & Weisz, 2008). In many instances, it is likely that diagnostic errors are due to inattention to inclusion and exclusion criteria. Indeed, Kim and Ahn (2002) found that when determining a diagnosis, psychologists are more likely to be influenced by their own causal theories than by the actual criteria relevant to the diagnostic category. Although the diagnostic process can be extremely complicated for some clients, many errors, at least in principle, are rather simply addressed: Attention to the criteria required in the diagnostic system and use of diagnostic decision trees included in DSM should go a long way toward reducing many diagnostic errors. Many other relatively simple strategies (e.g., use of decision aids, such as practice guidelines; use of normative and base rate data, actively generating alternative hypotheses to be considered; Garb, 1998) can improve clinical decision making and, therefore, the provision of EBAs and EBTs. In combination with strategies for conducting culturally sensitive assessments (Ridley & Kelly, 2006), consistent utilization of these strategies should be standard practice for all psychologists in offering professional services to their clients.

Summary and Conclusions

EBPP requires that psychologists integrate systematically collected data (from both research and assessment of the client), clinical expertise, and client preferences when

planning and providing psychological services. These three elements of evidence-based practice must be examined and considered not just at the start of treatment but throughout the duration of services delivered to clients. In other words, EBPP is predicated on the assumption that psychologists continually monitor the impact of their services, actively collaborate with their clients throughout the course of treatment, and critically appraise their clinical decisions to optimally match treatment parameters to client needs and resources. Framed in this manner, it is obvious that assessment is a key component of EBPP and, furthermore, that for the services to be truly evidence based, the assessment data informing the services must be evidence based.

In this chapter, we described EBA as an approach that relies on research and theory to guide the selection of constructs for specific assessment purposes, the methods and measures used when assessing clients, and the manner in which the assessment processes unfold. Beyond the use of psychometrically strong instruments (i.e., EBIs), EBA requires psychologists to remain cognizant of the need for assessment data to have clinical utility—that is, the data must have value in directly informing the selection of treatment options and determining the manner in which the planned treatment is implemented and, when necessary, modified. To accomplish this, psychologists must recognize both the strengths and the limits of the data they collect, and should use appropriate decision-making aids to enhance the accuracy and clinical impact of the numerous assessment-driven decisions that invariably are required during treatment.

As indicated in this chapter and, indeed, in the chapters in the second part of this volume, high-quality assessment data are essential in a multitude of ways for the planning and delivery of psychological treatments. Accurate diagnoses allow psychologists to access relevant research literature on psychopathology, assessment, and intervention. Information from these literature in turn guides the selection of relevant assessment targets, assessment instruments, and treatment options. Moving beyond diagnoses, EBA data provide the details necessary for case formulation activities that allow for the individual tailoring of EBTs and use of EBT components. Finally, monitoring the progress of treatment and evaluating its outcome are crucial for ensuring that, session by session, treatment optimally fits client requirements, and that, overall, there is an accurate evaluation of the extent to which the intervention has addressed the client's problems and the factors that served to maintain them. In summary, the entire enterprise of EBPP hinges on the use of appropriate EBIs, assessment methods, and decision-making aids. Thus, by engaging in EBA practices, psychologists are taking a major step toward delivering to their clients the best psychological services that science has to offer.

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