Evidence-Based Assessment Meets Evidence-Based Treatment: An Approach to Science-Informed Case Conceptualization

Lillian M. Christon, University of North Carolina–Chapel Hill
Bryce D. McLeod, Virginia Commonwealth University
Amanda Jensen-Doss, University of Miami

Though case conceptualization is considered to be a component of evidence-based practice, the case conceptualization process is not always guided by scientific findings. Case conceptualization is a collaborative process of generating hypotheses about causes, antecedents, and maintaining influences for an individual client’s problems within a biopsychosocial context. We argue that adopting a scientific approach to case conceptualization informed by research findings and evidence-based assessment tools can help inform clinical decision-making from intake to treatment termination. Our approach to case conceptualization involves 5 stages. In the first stage, a clinician synthesizes and integrates research evidence from various literatures to identify presenting problems and causal and maintaining factors (Stage 1), to classify diagnoses (Stage 2), to inform the development of hypotheses about variables contributing to a client’s problems (Stage 3), and to select a treatment approach and plan (Stage 4). In the final stage, the clinician takes a scientific approach to developing individualized assessment methods that can be used to test and revise hypotheses through the treatment process and to measure outcomes (Stage 5). A case example illustrating practical use of these steps is presented.

We are currently in an era of evidence-based practice (EBP) that places an emphasis on using scientific findings to inform clinical practice. To increase the quality of mental health care, federal agencies funding treatment research (e.g., National Institute of Mental Health [NIMH], 2008), state mental health agencies (e.g., Jensen-Doss, Hawley, Lopez, & Osterberg, 2009), and professional organizations (e.g., American Psychological Association [APA] Presidential Task Force on Evidence-Based Practice, 2006) have all endorsed the use of EBP in community settings. Generally, EBP encompasses both evidence-based assessment (EBA; Hunsley & Mash, 2007) and evidence-based treatment (EBT) practices (APA, 2006).

Despite the push to incorporate EBP into clinical practice, these efforts have faced practical barriers. The literature is voluminous and it can be challenging to apply research findings to specific clients. Further, there is a history of controversy over the extent to which research studies apply to clients seen in practice settings, as these clients may not match the characteristics of participants in research studies (Gonzales, Ringeisen, & Chambers, 2002; Persons & Silberschatz, 1998). Given these challenges, it is not surprising that clinicians have mixed attitudes towards using EBP to inform clinical practice (Nelson, Steele, & Mize, 2006). Another factor that may contribute to clinician ambivalence is that they may regard EBP as simply using manual-guided EBTs (e.g., Addis & Krasnow, 2000). However, EBP involves a great deal more than applying treatment manuals. At its core, EBP integrates the best available research, clinician expertise, and client characteristics and preferences (APA, 2006; www.ebhp.org) to inform clinical decision-making. However, the move toward EBP raises an important question: How can clinicians reasonably integrate research into their clinical practice?

In this paper, we present an approach to case conceptualization that uses scientific findings to guide clinical decision-making. Case conceptualization is defined as developing a complete picture of a client by collecting data that are used to generate hypotheses about the causes, antecedents, and maintaining influences for an individual client’s problems within a biopsychosocial context (e.g., McLeod, Jensen-Doss, & Ollendick, 2013a; Nezu, Nezu, Peacock, & Girdwood, 2004). The ability to develop a case conceptualization informed by scientific findings is a critical therapeutic skill required for EBP (APA, 2006).
Case conceptualization originated with the medical diagnostic approach of Hippocrates and Galen, wherein diagnoses were based on theory and guided by assessment (McLeod et al., 2013a; McLeod, Jensen-Doss, & Ollendick, 2013b). Approaches to case conceptualization in psychology have traditionally relied on etiological theories (e.g., psychoanalytic, behavioral) to guide conceptualization and treatment (McLeod et al., 2013a). Our case conceptualization approach differs in an important way. Instead of adhering to a particular therapy model, we emphasize the importance of (a) incorporating EBA strategies to thoroughly assess factors contributing to and maintaining each presenting problem and to measure outcomes over time; (b) using the theoretical and empirical literature to inform assessment; and (c) accessing the empirical literature to guide treatment selection.

The case conceptualization model presented herein is intended to help guide the treatment process from intake to termination using a hypothesis-testing approach informed by EBA (Hunsley & Mash, 2007). In this paper, the core tenets of EBA are reviewed and advantages of science-informed case conceptualization are discussed. We present clinical guidelines for this approach and, to illustrate its practical use at each stage, a clinical case example.

**EBA: The Foundation of Science-Informed Case Conceptualization**

Case conceptualization is the backbone of therapy, providing structure at every point of the treatment process; EBA fortifies and supports this backbone. Hunsley and Mash (2007, p. 30) define EBA as “an approach to clinical evaluation that uses 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.” EBA methods and measures are used to collect, organize, and integrate data on presenting problems and factors that cause or maintain symptoms (McLeod et al., 2013b) and to test hypotheses about these relationships.

In an EBA framework, various assessment measures and methods are needed to inform a case conceptualization. Assessment focuses on (a) symptoms and functioning, (b) mediators — factors accounting for change in the presenting problem (e.g., cognitions), (c) moderators — factors that might influence the course of treatment (e.g., developmental delays), and (d) therapy process factors — client and/or clinician factors that might influence treatment delivery (McLeod et al., 2013b). Within each category, research evidence and theory should be used to identify what to target and how to assess those targets. A core tenet of EBA is that measures and methods should be selected based on their reliability, validity, and clinical utility for a given client and assessment purpose (Hunsley & Mash, 2007). To inform the treatment process, this often requires the use of measures pulled from nomothetic and idiographic assessment traditions.

**Nomothetic** strategies are associated with diagnostic assessment and involve comparing an individual client to other individuals by using data from assessment instruments administered in a standardized fashion (Haynes, Mumma, & Pinson, 2009; McLeod et al., 2013b). Nomothetic tools (e.g., rating scales, interviews, structured observations) provide global information about how a client’s symptoms and behavior compare to the larger population, or the degree of fit of a client’s problems with diagnostic criteria (Haynes & O’Brien, 2000). Data from nomothetic measures are often used for screening, assessing symptoms, and determining prognosis.

In contrast, **idiographic** strategies involve tailoring assessment tools to the individual client and comparing the client to him/herself (Haynes & O’Brien, 2000). These strategies allow the clinician to identify how variables are uniquely patterned within an individual (Ollendick, McLeod, & Jensen-Doss, 2013). Idiographic tools (e.g., functional analysis, direct observation, self-monitoring) are particularly useful for assessing the influence of context on behavior, judging change in target behaviors, and providing specific information needed to form and test hypotheses. Data generated from idiographic tools can help clinicians translate information from the empirical literature for use with individual clients (Haynes et al., 2009).

In sum, developing hypotheses and then testing them are critical components of a scientific approach to case conceptualization, and it is important to use EBA methods to achieve these goals. For further information about using EBA to inform case conceptualization, see McLeod et al. (2013a, 2013b) and Jensen-Doss, Ollendick, and McLeod (2013).

**Why Should Scientific Findings Inform Case Conceptualizations?**

A case conceptualization informed by scientific findings can help clinicians achieve the goals of EBP by helping to translate research findings into clinical practice for individual clients. Early in treatment, diagnostic information provides access to the psychopathology literature that can help guide assessment (e.g., identify potential risk factors for a given disorder) and treatment planning (e.g., identify potential EBTs). However, a clinician must then determine how to apply information from the empirical literature for use with a particular client. Two clients with the same diagnosis can have distinct symptom profiles that are caused and maintained by different factors. Using EBA, a clinician can build a case conceptualization that takes information...
from the literature (e.g., about the different potential causal factors for a particular disorder) to ultimately identify the unique factors at play for a particular client. In this way, information from the literature can be translated for a particular case via a case conceptualization.

A science-informed case conceptualization also promotes better decision-making (Jensen-Doss, McLeod, & Ollendick, 2013). Clinical judgment and expertise are important components of clinical practice (APA, 2006). However, clinical judgment and decision-making can be impacted by individual biases, attitudes, experiences, and training (Croskerry, 2009; Dawes, Faust, & Meehl, 1989). To help guard against these potential biases, it is important for clinicians to receive feedback about the impact of their clinical decisions (Lambert, Whipple, Hawkins, Vermeersch, Nielsen, & Smart, 2003). A scientific approach to case conceptualization involves collecting and analyzing data throughout treatment in order to test hypotheses about a given client. This creates a feedback loop that can help guard against errors in clinical judgment.

### Practical Guidelines to Science-Informed Case Conceptualization

In this section, we present a model for science-informed case conceptualization. Our approach is applicable to most ages, settings, and diagnostic profiles. Though informed by empirical findings, the approach is atheoretical and does not focus on specific applications of a particular theoretical approach to treatment. The process itself has not been empirically validated. Rather, the term “science-informed” places emphasis on integrating scientific findings. That being said, a solid understanding of behavioral theory and single-case series designs provides the foundation for competently implementing these steps (McLeod et al., 2013a).

Our case conceptualization approach progresses through five stages designed to unfold over the course of treatment (Table 1). Throughout this process, the psychopathology, assessment, and treatment literatures are consulted, and ongoing use of EBA informs the case

### Table 1
Guidelines to Science-Informed Case Conceptualization

<table>
<thead>
<tr>
<th>Stage</th>
<th>Potential EBA methods</th>
</tr>
</thead>
</table>
| Stage 1: Identify and quantify presenting problems, causal/maintaining factors, and historical factors. | • Administer broad symptom rating scales  
• Administer specific symptom rating scales  
• Administer standardized clinical interviews  
• Use idiographic tools to identify presenting problems (e.g., Goal Attainment Scaling, Kiresuk & Sherman, 1968; Top Problems measure, Weisz et al., 2011) |
| Stage 2: Assign diagnoses. | • Review results of rating scales and standardized clinical interviews  
• Consider following the evidence-based medicine approach to diagnosis (Youngstrom et al., this issue) |
| Stage 3: Develop initial case conceptualization. | • Develop specific hypotheses about connections between variables identified in Stage 1  
• Complete figural drawings of relationships between variables (e.g., Figures 2 and 3) |
| Stage 4: Proceed with treatment plan and selection. | • Consult treatment outcome studies and online searchable databases of treatments  
• Consider using Probability of Treatment Benefit charting (Lindheim et al., 2012) |
| Stage 5: Monitor and evaluate treatment outcomes and revise case conceptualization as necessary. | • Administer specific symptom rating scales designed for repeated measurement  
• Conduct mood check-ups in session  
• Ask client to engage in self-monitoring  
• Engage in behavioral observations  
• Use Top Problems measure for tracking outcomes  
• Integrate data using clinical dashboards or graphing  
• At termination, re-administer broad symptom rating scales and standardized clinical interviews to confirm progress and diagnostic status |

**Note:** This aims to be a comprehensive list; not every method listed will be used within a single case.
conceptualization, which then informs selection of EBTs (Figure 1). After treatment begins, EBA is used to test the accuracy of the case conceptualization and monitor treatment outcomes. This process involves identifying presenting problems and their causal/maintaining factors as well as setting treatment goals (Stage 1), generating diagnoses (Stage 2), producing initial hypotheses about influences on a client’s problems (Stage 3), and selecting a treatment (Stage 4). Data are then collected to test and revise the hypotheses (Stage 5). We describe each stage in more detail below and illustrate it with a case example. Our focus is on using assessment data, so we do not describe the assessment process. Rather, we reference scores on measures collected as part of a sample battery designed to be feasible in an outpatient clinical setting.

**Case Example**

Erika Phillips was a 13-year-old female who presented for an initial outpatient intake evaluation in an urban community mental health clinic. Erika and her parents sought services for treatment of her panic attacks and agoraphobia, which began 3 months prior to the November intake session. Erika lived with her biological parents and a 7-year-old brother, in a single-family home adjacent to a low-income housing development in a large city. Mr. Phillips worked as an electrician and Mrs. Phillips was a stay-at-home mother. A month before the intake, Erika had switched from a public school to home schooling due to her panic attacks and refusal to attend school. Mrs. Phillips felt home schooling was necessary to ensure that Erika did not get further behind in her academics.

**Stage 1: Identify and Quantify Presenting Problems, Causal/Maintaining Factors, and Historical Factors**

The goals of this stage are to identify the presenting problem(s), list the presenting problems in terms of treatment priority, and to begin the process of collecting information on the factors that serve to cause or maintain those presenting problems. A main focus is to operationalize presenting problems. To the extent possible, the presenting problems should be described in concrete, observable, and measurable terms (Persons, Davidson, Tompkins, 2001). It is helpful to define the topography of presenting problems (frequency, intensity, and duration) across various response modes (cognitions, affect, behavior). Doing so produces a detailed description of the presenting problems that makes it easier to assess the problems throughout treatment and determine whether treatment is working. Once the presenting problems are identified and defined, they should be ranked in order of treatment priority. Adopting a collaborative approach with the client to complete the ranking can help strengthen the alliance and ensure client preferences are accounted for in treatment planning. Severity and/or level of impairment caused by presenting problems and client preference should be taken into account when ranking them.

EBA strategies that can be used to help identify presenting problems include rating scales and standardized interviews. Broad assessment measures that cover a range of symptoms may be used initially, followed by rating scales that include more in-depth assessment of symptoms endorsed on the broad measures. Relevant modules of standardized interviews can then be administered to

---

*Note.* Case conceptualization is a data-driven cyclical process that forms a feedback loop over the course of treatment. EBA plays a role in generating the initial case conceptualization, which then informs selection of EBTs. After treatment begins, EBA helps to assess the accuracy of the case conceptualization as well as evaluate outcomes.

**Figure 1.** Science-Informed Case Conceptualization.
further flesh out presenting problems (Youngstrom, 2012) and provide important diagnostic information for Stage 2. Idiographic tools can help structure the process of identifying and ranking presenting problems. For instance, Goal Attainment Scaling (Kiresuk & Sherman, 1968), in which client goals for therapy are listed and progress towards these goals is assessed, or the Top Problems measure (Weisz et al., 2011), which identifies the problems that brought the client into treatment and assigns a severity rating to each problem, can facilitate this process. An added benefit of idiographic measures is that they produce information that can be used to monitor treatment outcomes (see Stage 5).

After the presenting problems are defined, data to help build the case conceptualization are gathered, including: (a) contextual information about when and where a presenting problem occurs; (b) historical factors that predispose a client to exhibit a presenting problem via specific causal factors; (c) causal factors that immediately precede and influence the presenting problem (antecedents); and (d) maintaining factors that maintain the occurrence of the presenting problem via conditioning or operant mechanisms (consequences). Causal factors are proximal influences that immediately precede the presenting problems and can be addressed in treatment. Historical factors are distal influences that contribute to the development of causal influences, but cannot be targeted in treatment. The historical factors provide a lens through which to understand causal factors. For instance, knowing that a client presenting with anxiety also has a history of early behavioral inhibition (historical factor) can help a clinician to assess for causal factors linked to behavioral inhibition, such as physiological overarousal or avoidance of social interactions (Fox, Henderson, Marshall, Nichols, & Ghera, 2005). Also, as discussed later, each category is not discrete, and it is possible for a factor to be both a presenting problem and a causal or maintaining factor (see Stage 3). Lastly, a comprehensive case conceptualization also includes assessment of a client’s strengths (Persons et al., 2001) and quality of life (Youngstrom, 2012).

Information about historical, causal, and maintaining variables can be gathered by asking clients about areas such as developmental history, medical history, history of trauma or abuse, family psychiatric history, physical or somatic symptoms, coping skills, cognitive processes surrounding presenting problems, and family factors, such as marital satisfaction or parenting strategies. Nomothetic and ideographic assessment tools such as semistructured or structured clinical interviews, behavioral or symptom rating scales (e.g., the Anxiety Sensitivity Index-3, a measure of physical, cognitive, and social concerns associated with anxiety; Taylor et al., 2007), behavioral observation, or structured measures for obtaining clinical history (e.g., the Structured Developmental History form of the Behavior Assessment System for Children, Second Edition, BASC-2; Reynolds & Kamphaus, 2004) can help to define these variables.

Stage 1: Erika’s Case

Using an idiographic approach, Erika and her parents were asked to identify the Top Problems (Weisz et al., 2011) that brought her into treatment and to provide severity ratings for each problem. They were in agreement that the problems were, in order of importance/severity: (1) panic attacks; (2) fear of leaving her house; and (3) feelings of sadness.

For Erika, the Self-Report of Personality and the Parent Rating Scales of the BASC-2 (Reynolds & Kamphaus, 2004), a broad nomothetic behavior rating scale, yielded clinically significant scores on the Internalizing Problems Scale and the Anxiety and Depression Subscale. Further, Erika endorsed a number of critical items on the BASC-2 (e.g., “Sometimes I want to hurt myself”). Given these findings, it was determined that data from a specific symptom rating scale would be useful. Erika’s scores on the Revised Anxiety and Depression Scale (RCADS; Chorpita, Yim, Moffitt, Umemoto, & Francis, 2000), a nomothetic symptom rating scale, were in the clinical range on the Panic Disorder and Depression subscales and on the Total Anxiety and Total Depression scales. Mrs. Phillips’ scores on the RCADS-P were in the clinical range on the Panic Disorder and Depression subscales and the Total Anxiety scale.

Data on the presenting problems and history was gathered with relevant modules of the K-SADS-PL (Kaufman, Birmaher, Brent, Rao, & Ryan, 1996), a semistructured clinical interview, and supplemented by an unstructured clinical interview. Erika experienced her first panic attack when she was 10 years old. Between ages 10 and 13, she had roughly one to two panic attacks per year (presenting problem). Her parents also reported that as a young child, Erika had a withdrawn temperament and she exhibited behavioral inhibition, or a reticence to approach novel stimuli and situations (historical factor); they noted that she became more open to new experiences as she got older. However, the summer prior to 9th grade, the frequency of Erika’s panic attacks increased to at least one per day on days she had to leave the house (contextual information), and on an almost nightly basis. Erika reported a pervasive concern about having a panic attack in situations where she could not easily escape and endorsed being fearful that something awful might happen to her, that nobody would help her, that she might be going crazy, and that she was going to die (causal factors). Erika was very sensitive to physiological sensations and often noticed her heart beating faster, which made her worry about having a panic attack (causal factor). At intake, returning to school was not a priority for Erika or her parents. However, her parents did want Erika to go other places, as she rarely left the house, had
stopped hanging out with friends, and was hesitant to go anywhere. Erika said she did not want to leave the house because she was worried that she would have a panic attack (maintaining factor), and believed that she was “safe” from these symptoms while at home (maintaining factor).

Erika also endorsed depressive symptoms that had been present to some degree for the past three months (presenting problem). In the two weeks prior to the intake, she reportedly experienced depressed mood for at least a few hours each day, decreased interest in her usual activities most of each day, and difficulty sleeping and concentrating, feeling restless, decreased appetite, and feelings of guilt. She reported intentionally hurting herself (i.e., cutting her upper arm with a razorblade) without any intent to die (presenting problem and maintaining factor) a few times over the past three months. These self-injurious behaviors reportedly waxed and waned and her urges to harm herself did not last for longer than a day at a time. A thorough risk assessment was conducted, and Erika said she engaged in nonsuicidal self-injury (NSSI) to relieve distress and reduce anxiety. She denied having thoughts about wanting to die or about killing herself currently or in the past.

The initial assessment did not reveal any evidence of substance use, trauma, or any other psychiatric symptoms. Erika did not have any notable medical history and her prenatal, birth, and developmental histories were normal. Her family history was positive for depression in her paternal grandfather and unspecified anxiety and panic attacks in her maternal aunt. Erika received As and Bs throughout middle school and appeared to enjoy school. However, her grades declined to Cs and Ds in the fall of her freshman year when her attendance declined.

**Stage 2: Assign Diagnoses**

In this stage, the clinician uses data collected about the presenting problems to determine if the client meets diagnostic criteria for one or more diagnoses. Diagnoses are useful for a number of reasons. First, diagnoses provide access to the assessment literature, which can help to identify assessment targets and tools. Second, diagnoses provide access to the psychopathology literature, which can help generate the hypotheses in the case conceptualization (Nezu et al., 2004; Persons et al., 2001). For instance, if a client is diagnosed with panic disorder, a clinician might use Bouton, Mineka, and Barlow’s (2001) modern learning theory to generate hypotheses about how conditioned anxiety elicited by interoceptive cues (e.g., racing heart) may precipitate panic reactions, furthering the panic cycle. Third, diagnoses provide access to the treatment literature, as most EBTs are developed for specific diagnoses. Finally, diagnoses are a dimension on which to assess treatment outcomes.

Although a number of individuals presenting for treatment have subclinical problems (e.g., Westen, Novotny, Thompson-Brenner, 2004), data suggest that these individuals often have impairments similar to others who exceed clinical cutoffs (e.g., Angold, Costello, Farmer, Burns, & Erkanli, 1999). For individuals who do not meet diagnostic criteria, a case conceptualization should be developed without a diagnosis. Individuals with clinical and subclinical symptoms will likely respond to the same kinds of treatment, and many treatment outcome studies have inclusion criteria of either specific diagnoses or clinically elevated problem levels (e.g., see Weisz et al., 2012). As such, it is important to document subclinical symptoms, both because they can be the focus of treatment and can be used to access the literature.

Several EBA strategies can be used to support diagnosis, including standardized symptom-rating scales and/or standardized diagnostic interviews. Youngstrom, Choukas-Bradley, Calhoun, and Jensen-Doss (this issue) provide detailed discussions of an evidence-based medicine approach to diagnosis, relying on estimating probabilities of diagnoses from risk factors and test results using a Bayesian approach. Other methods for combining diagnostic assessment data are discussed in Jensen-Doss, McLeod, et al. (2013).

**Stage 2: Erika’s Case**

Based on information gathered in Stages 1 and 2, it was determined that Erika met DSM-5 criteria (American Psychiatric Association, 2013) for panic disorder, agoraphobia, and major depressive disorder (MDD), single episode.

**Stage 3: Develop Initial Case Conceptualization**

In Stage 3, the clinician develops working hypotheses about factors that contribute to and maintain a client’s problems (Persons et al., 2001); these hypotheses are modified in later stages as indicated by assessment data. The case conceptualization is a comprehensive picture, roadmap, or story of how the client’s presenting problems are formed and maintained. Each presenting problem identified in Stage 1 is viewed as a dependent variable that the clinician will attempt to change during treatment. Each of the proximal causal or maintaining factors identified in Stage 1 become the variables that will be targeted with specific therapeutic interventions. The core of the conceptualization is the hypotheses about relationships between these variables. Each hypothesis should be grounded in the literature, testable, and based on assessment data. It can be valuable to write out and map the variables and their relationships using figural drawings. Different ways exist to generate a diagram (e.g., the Cognitive Conceptualization Diagram; Beck, 2011). We recommend mapping out presenting problems first (with the top problem in the top row; e.g., Figure 2).

Please cite this article as: Christon et al., Evidence-Based Assessment Meets Evidence-Based Treatment: An Approach to Science-Informed Case Conceptualization, Cognitive and Behavioral Practice (2014), http://dx.doi.org/10.1016/j.cbpra.2013.12.004
Then, identify and place the causal and maintaining factors in corresponding columns, and finally, place historical factors in a column preceding causal factors. This approach represents a flexible variation of the case conceptualization diagram; firm lines are not drawn between each column, allowing some factors to fall under multiple categories. For instance, in Erika’s case (Figure 2), avoidance [6] is both a presenting problem as well as a maintaining factor for her panic attacks, and is thus placed between these two columns. This initial map is a foundation, and is revised throughout treatment.

It is important to share the conceptualization with the client (and in the case of a child client, the child’s family). Sharing the conceptualization and soliciting feedback serves two purposes. First, it helps ensure that the client and clinician have a shared understanding of the client’s problems. Second, it allows the client to give corrective feedback and share relevant information. Open dialogue allows for the client and clinician to enter the treatment-planning phase with a collaborative mindset. Throughout this process, the formation of a genuine, empathic, and collaborative therapeutic relationship that is respectful to the client’s individuality, autonomy, and culture is essential, as is remaining attentive to therapeutic engagement.

Stage 3: Erika’s Case Conceptualization

Erika had a history of panic attacks and behavioral inhibition (historical factors; [1] in Figure 2). Behavioral inhibition was described in her early temperament, so is a historical factor rather than a causal/maintaining factor. Erika reported significant sensitivity to physiological symptoms (internal stimuli) — when she noticed sensations she believed were abnormal (e.g., racing heart), she became anxious about having a panic attack (causal factors; [2] and [3]). This resulted in greater awareness of her physiological state and increased her symptoms of anxiety ([4]), often resulting in a panic attack (presenting problem; [5]). By avoiding situations in which Erika believed she was likely to experience the physiological sensations (both a maintaining factor for her panic attacks, and a presenting problem nominated by Erika and her parents; [6]), she reduced opportunities to experience disconfirming events (e.g., not having a panic attack) and reduced the frequency of her experience of physiological symptoms (maintaining factor; [8]).

Erika’s negative cognitions about her anxiety and her inability to cope maintained her anxiety (maintaining factor; [9]). Erika’s parents unintentionally also maintained her anxiety by allowing her to avoid or leave feared places while her anxiety was at a heightened level (maintaining factor; [6]; negative reinforcement). This avoidance reduced her anxiety in the short term (maintaining factor; [8]), but led Erika to develop the belief that avoidance reduced the likelihood of a negative outcome (maintaining factor; [9]). Erika also relied on her parents as safety objects, a further form of...

Figure 2. Figural Drawing of Erika’s Initial Case Conceptualization ([1]-[10]).
avoidance (maintaining factor; [6]), reinforcing her belief that she could not manage her anxiety independently. Erika’s depressive symptoms were secondary to her anxiety. Her depressed mood resulted from her agoraphobia and self-limiting of pleasurable activities (presenting problem; [7]). Finally, her NSSI reflected poor coping skills and was a means of escape from distress caused by her persistent physiological arousal and depression (presenting problem; [10]). This conceptualization was shared with Erika and her parents, who were in agreement.

Stage 4: Proceed With Treatment Plan and Selection

In Stage 4, the clinician works to identify treatment goals and the treatment approach. First, for each presenting problem that the client and therapist agree should be a treatment priority, a corresponding treatment goal should be identified. These goals are the desired outcome for each presenting problem (or dependent variable) and should be outlined in specific, concrete goal statements (e.g., “Jake will have fewer depressive symptoms”; Persons et al., 2001). Second, treatment goals should be ordered in terms of priority, yielding a treatment plan. Interventions should then target the relationships between the causal, maintaining, and dependent variables in the case conceptualization, with the aim of leading to the desired changes clearly outlined as treatment goals. In general, each variable should be targeted with a specific intervention. For instance, depressive cognitions maintaining a client’s major depressive disorder could be targeted with cognitive strategies.

It is helpful to use a cost-benefit analysis to develop the treatment plan (Nezu et al., 2004). With this approach, the clinician must consider what the likelihood is that targeting a particular causal or maintaining factor will actually yield meaningful changes in presenting problems (e.g., some marital partners may not be able to fully engage in couples work, even if relationship factors seem to be maintaining the client’s problems) and what potential costs there are for particular approaches (e.g., insisting on involving parents in treatment when an adolescent does not want their involvement could lead to a rupture in the alliance; McLeod et al., 2013a). The clinician must also reflect on the feasibility of a particular intervention approach (e.g., time, cost, client skills, and clinician expertise; Nezu et al., 2004).

After treatment planning, the clinician must select a treatment approach. There are a number of factors to consider in this decision. It is beneficial to consult the treatment literature to guide treatment selection. There may be multiple EBTs for a particular disorder (e.g., interpersonal therapy and cognitive-behavioral therapy for depression; David-Ferdon & Kaslow, 2008) or an EBT may not exist for a particular disorder (e.g., various personality disorders). In other words, a perfect fit may not exist. The clinician must therefore use the case conceptualization to make decisions about how to apply the literature to a particular client (e.g., by picking an EBT that focuses on the causal mechanisms that seem most relevant to that client).

Many clients present with comorbid conditions, and clinicians must make decisions about how to apply the literature to those cases. We encourage clinicians to engage in collaborative decision-making with the client around (a) the order in which presenting problems (i.e., those that require a treatment focus) are to be addressed, and (b) the specific goals for each problem. It is possible that there are problem areas identified that may not have corresponding treatment goals, for instance, if the problem area is not nominated by the patient as a priority for treatment. Clinicians may also develop “back-up” treatment goals, for problems that are clinician-identified but are not currently direct client concerns. In the case of comorbid conditions, we recommend that treatment ensue for the primary presenting problem first. It is impractical to address all of the potential problem areas at once, and the empirical literature encourages a more focused approach. For instance, Craske and colleagues (2007) have found that focused CBT for panic disorder in the presence of comorbid disorders yielded more beneficial outcomes than CBT for panic disorder with “straying” to CBT for comorbid disorders. If a comorbid presenting problem becomes urgent or interfering during treatment for the primary problem (e.g., suicidal ideation), or does not ameliorate during treatment for the primary problem, treating these comorbid problems may then become the treatment focus.

Treatment outcome studies provide information on the average benefit clients with particular diagnoses and characteristics may expect to receive from an intervention; however, not all participants have the same likelihood of that benefit. EBA strategies may provide supplementary information to clinicians about whether a client may benefit from a treatment. For instance, one promising approach to generating an individualized likelihood that a client will benefit from a particular therapy approach is Probability of Treatment Benefit (PTB) charting (Lindheim, Koko, & Cheng, 2012). The PTB method must first be applied to clinical trial data (efficacy or effectiveness trials) before individual clinicians can use this tool to make idiographic predictions about their patients. This is an interesting direction of research that can presently be applied to a few problems, and in the future, may yield useful tools for clinicians in treatment selection, although it may not be feasible for all problems.
Online, searchable databases may also help clinicians in the treatment selection process. Some of these databases are available for purchase (e.g., PracticeWise Evidence-Based Services Database [PWEBS], PracticeWise, LLC, 2004–2013a; www.practicewise.com), while others are available free of charge (e.g., Cochrane Database of Systematic Reviews, 2013; www.effectivechildtherapy.com; www.psychologicaltreatments.org). Of note, the PWEBS (2004–2013) database allows clinicians to tailor results to match an individual child client’s characteristics. Published handbooks may also be useful to clinicians for identifying EBTs for clients with particular disorders (e.g., Barlow, 2007; Sturmey & Hersen, 2012).

Clinicians also have to make decisions about how to sequence various treatment components and what the intensity of treatment should be (McLeod et al., 2013a). Efforts have been made to simplify treatment decision-making for clinicians working with child and adults. Distillation of practice elements has helped to identify elements of EBTs (e.g., Chorpita, Daleiden, & Weisz, 2005). Modular treatments based on these elements (which have different modules addressing particular causal and maintaining factors) may be especially useful for clients with comorbid disorders, as different treatment modules may be delivered based on the specific case conceptualization (Weisz et al., 2012). Transdiagnostic treatments, like the Unified Protocol for Transdiagnostic Treatment of Emotional Disorders, a cognitive-behavioral therapy (CBT) program developed to be applicable to a range of adult emotional disorders (Barlow et al., 2011), can also be used with clients with many different types of difficulties.

Stage 4: Erika’s Case

The primary goals that Erika, her parents, and the clinician agreed to target in treatment corresponded to her Top Problems: (a) reduce panic attacks; (b) increase amount of time spent out of the house); and (c) reduce depressive symptoms. Erika and her parents preferred to keep her home-schooled for the time being; to respect their wishes in this area, it was decided that return-to-school would not be an immediate treatment goal. As their main goals were related to panic and agoraphobia, it was mutually decided that the primary treatment approach would address these symptoms; her depressive symptoms would be addressed if they interfered with, or if they remained following, the primary treatment.

Given these treatment goals, the clinician consulted the treatment literature for panic disorder and depression. In general, CBT has been evaluated to be a “well established” treatment for both anxiety and depression in youth (Chorpita et al., 2011). A review of the literature revealed that Panic Control Treatment for Adolescents was a good treatment option (PCT-A; Pincus, Ehrenreich, & Mattis, 2008). PCT-A aims to alter misinterpretational aspects of panic ([2], [3], and [9] in Figure 2), reduce the physiological (hyperventilatory) response ([4] and [5]), and conditioned reactions to hyperventilation ([8]), and decreasing avoidance/escape ([6]) through interoceptive exposures. While PCT was the focused treatment approach, CBT strategies were integrated to address Erika’s depression ([7]) and NSSI ([10]), when these symptoms interfered with panic treatment. Had Erika rated her depression as her primary presenting problem, the clinician would have begun treatment for depression rather than for panic disorder.

Stage 5: Monitor and Evaluate Treatment Outcomes and Revise Case Conceptualization as Necessary

The last stage of case conceptualization is to develop a plan for outcome evaluation and monitoring. A treatment-monitoring plan focuses on repeated assessments collected during treatment designed to test hypotheses and monitor treatment progress. In contrast, the treatment-evaluation plan includes the measures used to assess whether the long-term treatment goals have been accomplished. EBA methods can be used in both plans.

It is critical to collect assessment data during treatment. By collecting data at regular intervals, a feedback loop is created and the clinician can alter or adjust the case conceptualization and treatment approach if needed, which can help improve client outcomes (Lambert et al., 2003). Indeed, some have recommended that if a client does not show clinical improvements on objective measures throughout the first 4 to 8 weeks/sessions, the treatment approach should be reevaluated (Youngstrom, 2012). A specific assessment strategy should be identified for each hypothesis. In addition to conventional psychometric considerations (e.g., reliability, validity, etc.), assessment instruments used for outcome monitoring should be sensitive to change and capable of assessing clinical significant changes, so clinically relevant changes can be detected. Ideally, these assessments should be focused on specific symptoms/presenting problems that are targets of treatment and should be able to be scored quickly (e.g., prior to a session). Some examples include the Outcome Questionnaire (OQ; Lambert et al., 1996) and the Revised Child Anxiety and Depression Scale (RCADS; Chorpita et al., 2000). Both have computer-scoring options, facilitating timely scoring and interpretation. In particular, the OQ may be administered on a computer to a client before a session, scored immediately, and the data is then available to the clinician immediately prior to session.

Idiographic strategies are well suited for repeated measurement and they allow the clinician to develop individualized approaches that can be used to test and revise hypotheses. Self-monitoring strategies such as behavior
tracking charts, daily report cards or mood check-ups in session can be valuable (Haynes et al., 2009; Youngstrom, 2012). Behavioral observations by external observers (e.g., a teacher) about specific behaviors (e.g., number of prosocial initiations by a child client) may also be used (Haynes et al.). Also, as noted before, the Top Problems measure can be used to identify week-by-week trajectories of change and to inform the clinician as to whether client-nominated problems respond to intervention (Weisz et al., 2011).

Gathering data is only the first step—the clinician must be able to draw meaningful conclusions from the data. Making sense of varied idiographic assessment measures and different treatment goals can be done in a variety of ways. Data from idiographic assessment instruments can be tracked and plotted systematically on a clinical dashboard. Such dashboards are available for purchase from organizations such as PracticeWise, LLC (2004-2013b), or clinicians may opt to use Microsoft Excel or a comparable program to graph or chart the data on their own. It can be useful to share these graphs with clients to facilitate transparency in the therapeutic process and aid in discussions about ongoing treatment planning.

Terminating treatment occurs when the clinician and client have agreed that adequate treatment gains have been obtained. This is based both on the client’s subjective perspective of “feeling better,” as well as on ongoing assessment data about resolution of significant presenting problems (e.g., decreased symptomatology). Assessment data can be used to determine if a client has experienced clinically significant change defined as no longer above a clinical threshold (based on standardized norms) on a particular measure. A clinician can also review diagnostic criteria at the end of treatment to decide whether a person still meets criteria for their diagnosis.

Stage 5: Erika’s Case

The treatment plan called for weekly individual sessions with Erika that included regular updates with her parents. Ongoing assessment of Erika’s symptoms and treatment progress took place using the RCADS on a bimonthly basis (a nomothetic assessment tool used in an idiographic fashion). Erika and her parents also each independently completed the Top Problems measure in the waiting room prior to each session (idiographic assessment). Additionally, Erika’s daily anxiety level, daily number of panic attacks, and number of times leaving the house each week were tracked and mood check-ups were conducted at the beginning of each session, with the clinician keeping track of Erika’s self-reported ratings (idiographic assessment). The clinician also asked Erika at the beginning of each session to report on the frequency and context of any NSSI that occurred over the prior week (idiographic assessment). Erika did not engage in NSSI after the second session, where a focus was on safety planning and generating alternative coping activities to replace self-harm behaviors.

Over the first eight sessions of PCT-A, Erika’s panic and agoraphobia symptoms did not decrease. In fact, she reported more panic attacks and she did not show reduction in anxiety ratings in session while completing interoceptive exposures. These findings were reviewed with Erika at the eighth session. At this time, Erika became tearful and asked if she could share something that she had not shared with anyone before. Erika stated that while she had denied any past traumas in the intake, this was not the truth. She reported that in the summer before 9th grade, she had been walking home from a friend’s house and witnessed an unrecognizable person in a mask shooting and killing one of her classmates. She had run home and begun crying, but did not tell her parents or friends for fear of worrying them. When school began the following week, she had to pass by where the incident had occurred on her way to and from school. At this point, her panic attacks began and she began to avoid going to school. She started to have nightmares nightly and began experiencing nocturnal panic attacks. Erika was tearful throughout this discussion and said she had not felt comfortable enough in prior meetings to share this information.

After an assessment and administering the KSADS Post-Traumatic Stress Module, Erika’s diagnosis was revised to posttraumatic stress disorder (PTSD) and the clinician revised the case conceptualization (see Figure 3). It was determined that Erika’s panic attacks (presenting problem; [D]) resulted from activation of her autonomic nervous system (causal factor; [C]) when exposed to trauma-related cues (causal factor; [I]), both internal (cognitions) and external (walking past traumatic event location). Her agoraphobia and NSSI were reconceptualized as avoidance/escape of trauma cues (considered both a maintaining factor for her panic attacks, and a presenting problem nominated by Erika and her parents; [E]), which reduced her symptoms short-term (maintaining factor; [G]), but ultimately maintained negative cognitions about trauma-related cues (maintaining factor; [H]). Her depressive symptoms were hypothesized to result from the trauma (historical factor; [B]), as well as her avoidance ([E]).

A change in the treatment plan was discussed with Erika and her parents. A literature review identified that trauma-focused CBT (TF-CBT) is efficacious for PTSD (Cohen, Mannarino, & Deblinger, 2006) and was therefore selected and implemented. The UCLA Posttraumatic Stress Disorder Reaction Index (UCLA-RI) Adolescent and Parent-Report versions (Steinberg, Brymer, Decker, & Pynoos, 2004) were administered on a bimonthly basis to assess for trauma-symptoms, alternating with the RCADS (nomothetic assessment). Self-monitoring of her anxiety and depressive symptoms on a weekly basis continued (idiographic assessment).
TF-CBT was implemented and, over time, Erika began to report a reduction in her anxiety, panic attacks, and agoraphobia (on idiographic self-monitoring measures). These subjective reports were corroborated with self- and parent-reports on the UCLA-RI and the RCADS (nomothetic assessment). After four months, her symptoms on these measures had reduced significantly. The clinician therefore decided to readminister the broad scale administered at intake: the BASC-2, and the PTSD section of the KSADS-PL (nomothetic assessment). The findings affirmed that Erika no longer met criteria for PTSD. The treatment focus then shifted to addressing Erika’s remaining depressive symptoms until Erika, her parents, and the clinician mutually agreed on termination.

Challenges to Applying Science-Informed Case Conceptualization

With any approach, there may be challenges or barriers to implementation. One potential barrier to our approach is accessing the psychopathology and EBT literature. However, information about treatment options is becoming more widely accessible via the internet (e.g., www.psychologicaltreatments.org). Further, a number of psychopathology books provide information needed to inform case conceptualization and assessment (e.g., Barlow, 2007). Another potential barrier to using EBA may include a lack of time, money, or organizational support (Jensen-Doss & Hawley, 2010). Certain measures are costly or only available in journal articles, which may make them difficult to access. However, free measures are increasingly becoming available for youth and adult psychopathology (see Beidas et al., this issue). There may also be concerns about the availability of measures in different languages, but a growing number of freely available assessment measures have now been translated into different languages (e.g., the RCADS, the Pediatric Symptom Checklist [http://www.massgeneral.org/psychiatry/services/psc_forms.aspx], the Patient Health Questionnaire [http://www.phqscreeners.com/]). Thus, the field is taking steps to address some of these barriers.

Conclusion

In sum, case conceptualization is a critical component of EBP, bridging the gap between the empirical literature and practice with individual clients. We have presented a science-informed case conceptualization model designed to help translate research to clinical practice and reduce biases in clinical decision-making. Core features of this approach involve the clinician developing testable hypotheses about the client’s presenting problems, selecting a treatment approach to test these hypotheses, and using EBA methods to assess outcomes and accuracy of hypotheses. Throughout, clinicians should rely on empirically validated theories and scientific literature to tailor treatment to the individual client. This process sets up a feedback loop wherein clinicians’ hypotheses and practices are evaluated, opening the door to revise practices based on the data, ultimately maximizing the likelihood of positive clinical outcomes.

References


The authors thank Cassidy Arnold for his consultation regarding the case example in this manuscript.

Address correspondence to Lillian M. Christon, Ph.D., Department of Psychology, University of North Carolina–Chapel Hill, Davie Hall Campus Box 3270, Chapel Hill, NC 27599-3270; e-mail: LMC@unc.edu.

Received: July 30, 2013
Accepted: December 1, 2013
Available online xxxx

Please cite this article as: Christon et al., Evidence-Based Assessment Meets Evidence-Based Treatment: An Approach to Science-Informed Case Conceptualization, Cognitive and Behavioral Practice (2014). http://dx.doi.org/10.1016/j.cbpra.2013.12.004