Persons, J. B., & Tompkins, M. A. (in press). Cognitive-behavioral case formulation. To appear in T. D. Eells (Ed.), *Handbook of psychotherapy case formulation* (3rd edition).

Cognitive-Behavioral Case Formulation

Jacqueline B. Persons
Michael A. Tompkins

Historical Background

The model of case formulation-driven cognitive behavioral therapy that we present here has multiple historical origins. One is the scientific method. In the model we describe, the formulation is a hypothesis; the therapist and patient use the formulation hypotheses as the basis for designing intervention strategies, and they collect data to test the hypotheses and evaluate whether the interventions are helping the patient reach their goals. Another historical origin is the tradition in psychology of the study of the single organism (Morgan & Morgan, 2001). Other historical antecedents include the effort to integrate science and practice in clinical psychology (Baker & Benjamin Jr, 2000), the movement to develop evidence-based mental health care (APA Presidential Task Force on Evidence-Based Practice, 2006; Spring, Marchese, & Steglitz, 2019), and efforts in clinical psychology to develop and promote empirically-supported treatments (ESTs; Chambless & Ollendick, 2001). Our model also draws on the leadership of Hunsley and Mash (2007) and others to develop evidence-based assessment methods.

Our thinking is heavily reliant on the evidence-based formulations for particular disorders and symptoms that have been developed in the last 60 years by cognitive-behavioral theorists and treatment developers. We rely most on Beck's cognitive model as a foundation for developing a case formulation for several reasons. One, it has been shown to provide effective treatment of a range of disorders (Hofmann, Asnaani, Vonk, Sawyer, & Fang, 2012). Second, Beck's model it is foundational to many disorder-focused cognitive-behavioral formulations and treatments (e.g., the theory that anxiety sensitivity causes and maintains panic disorder; (Reiss & McNally, 1985), cognitive processing therapy for PTSD (Resick & Schnicke, 1993), and others too numerous to list here. Because so many treatments for so many disorders are based on the core elements of Beck's cognitive model, we view Beck's model as essentially a transdiagnostic treatment. Finally, the model is flexible and easily adapted to each unique case.

Our ideas stand on the shoulders of other cognitive-behavioral therapists who have written about case conceptualization, especially the functional analysts (Haynes & O'Brien, 2000; Nezu, Nezu, Friedman, & Haynes, 1997), Aaron T. Beck (1983), Ira Turkat (1985), as well as more recent work by many, including Judith Beck (1995), Kuyken, Padesky, and Dudley (2009), Nezu, Nezu, and Lombardo (2004), Sturmey (2008), and Tarrier and Johnson (2015).

Conceptual Framework

Our view of cognitive-behavioral case formulation relies on two conceptual models, one of case formulation-driven cognitive behavior therapy, and one of the case formulation itself. Case formulation-driven cognitive behavior therapy (see Figure 1) is a hypothesis-testing empirical approach to treatment that includes three key elements, *assessment, formulation,* and *intervention*. Information obtained during *assessment* is used to develop a *formulation*, which is a hypothesis about the causes of the client's disorders and problems that is used as the basis for *intervention*. As the treatment proceeds, the therapist doubles back repeatedly to the *assessment* phase, collecting data to monitor the process and progress of the therapy and using those data to update the formulation and intervention plan as needed.

Insert Figure 1 about here

Our model of the case formulation or conceptualization (we use these terms interchangeably) appears in Figure 2. The figure illustrates the key elements of the case formulation: the problems on the problem list, the mechanisms or factors (we use these terms interchangeably) that are hypothesized to cause and maintain the problems, the origins of the mechanisms, and the precipitants of the problems.

Insert Figure 2 about here

Case Formulation-driven Cognitive Behavior Therapy: An Empirical Approach to the Single Case

Case formulation-driven CBT provides a systematic method of organizing information regarding the factors hypothesized to maintain a particular client's problems and using it to guide treatment. Empiricism is central to this systematic method and organizes both how we formulate a case and how we work. An empirical approach is a means to gain knowledge through direct and indirect observation and hypothesis testing and we apply this to our clinical work. This approach is often termed the scientific method and includes a series of steps.

The first step is to specify the question. The usual question in psychotherapy is, "Why does a particular client suffer from a particular set of problems?" Next, we formulate a hypothesis or conceptualization to test. The conceptualization is a hypothesis that posits key factors and inter-relationships among those factors thought to maintain the client's problems. Next, we make a prediction based on this hypothesis. For example, if our conceptualization hypothesizes that the absence of pleasant activities is a key factor that maintains a client's depression, then we would predict that increasing pleasant activities will decrease the client's depressive symptoms. We then carry out the experiment, if you will, and help the client increase pleasant activities. To collect data to test our hypothesis, we monitor the change in the client's depressive symptoms. Last, the scientific method is an iterative process, as is the therapeutic process we follow. Based on the data we collect to evaluate the effects of an intervention, we modify the current hypothesis, or generate a new one, and then modify the intervention or select a new one and implement the experiment again (Persons, Tompkins, & Beckner, 2013).

We apply other tenets of empiricism as we conceptualize cases. For example, we adhere to the *principle of parsimony*, which states that explanations or theories with the fewest

assumptions or explanations of an event or phenomenon are preferred. In the case of cognitive behavioral (CB) conceptualization, a parsimonious conceptual model helps the therapist understand the psychological factors deemed responsible for the maintenance of the client's problems in the simplest manner, and no more. We are interested in the *treatment utility* of the case conceptualization, rather than its accuracy (Hayes, Nelson, & Jarrett, 1987). Thus, we strive for the simplest theory or conceptualization that explains the client's problems and contributes to treatment that leads to progress toward the client's treatment goals.

As we develop a conceptualization, we favor beginning with an evidence-based *nomothetic* conceptual framework and elaborating that framework to build an idiographic or individualized conceptualization of the particular case at hand. The term "nomothetic" is derived from the Greek word *nomos*, which means *law* and refers to general laws of behavior. A *nomothetic* theory, for example, describes general laws of functioning that apply to all individuals or groups of individuals (e.g., the proposal that panic disorder symptoms result from catastrophic misinterpretations of benign somatic sensations (Reiss & McNally, 1985)). The word "idiographic" is derived from the Greek word *idios*, which means *one's own, and private,* and refers to theories that are *applicable to a particular specific case* (Cone, 1986). Thus, for example, an *idiographic* formulation of the *nomothetic* panic hypothesis we just described might propose that Sam's panic symptoms result from his fear that if he experiences palpitations while driving on the San Francisco-Oakland Bay Bridge, this means he is likely to have a heart attack and die. Thus, the method of conceptualization described here is a systematic method to adapt evidence-based nomothetic conceptualizations to a particular case to form an idiographic or individualized conceptualization.

The scientific method is a *problem-solving approach* to developing knowledge and understanding that contributes to treatment. A conceptualization, then, is only as good as its ability to solve the client's problems. This approach is mirrored not only in the conceptualization process but in the stance of cognitive-behavioral (CB) therapists. Rather than asking, "What would you like to talk about today?" CB therapists are more likely to ask, "What problems would you like to work on today?"

Last, *collaborative empiricism* is a defining feature of cognitive behavioral therapy (CBT) since its inception (Beck, 1967). Collaborative empiricism is the systematic process whereby the client and the therapist are co-investigators as they clarify and define the goals for treatment and investigate the client's thoughts together. Through collaborative empiricism, therapists help clients test their own thinking through personal observations and experiments (Beck & Dozois, 2011). Collaborative empiricism plays a role in CB case conceptualization as well. Therapist and client work together to develop a shared understanding of the client's problems and their relationships. Padesky and colleagues (Kuyken et al., 2009) use the apt term "shoulder-to-shoulder case conceptualization" to describe this collaborative process.

Elements of the CB Case Formulation

The CB case formulation, depicted in Figure 2, is a hypothesis that ties together, in a brief narrative or diagram, the *mechanisms* that cause and maintain the client's *problems,* the *origins* of the mechanisms, and the *precipitants* that are currently activating the *mechanisms* to

cause the *problems*. The formulation also describes the relationships among the *problems* and *mechanisms*.

Problems. We use the term "problems" to refer to overt or manifest symptoms, disorders, or difficulties the client is having in any of the following domains: psychological/psychiatric symptoms, interpersonal, occupational, school, medical, financial, housing, legal, leisure, and problems with mental health or medical treatment (Linehan, 1993; Nezu & Nezu, 1993; Turkat, 1985). A comprehensive case formulation accounts for all of the client's problems in all these domains; the notion is that in order to understand the case well enough to design an effective intervention plan, the therapist must know what *all* the problems are and how they are related.

We recommend that the therapist attend to treatment utility when building a problem list. For example, even if suicidal behavior is a symptom of depression, and the problem of depression appears on the problem list, because the suicidal behavior is a significant problem in its own right that requires high priority attention in treatment, the therapist might elect to include it in the formulation as a problem on the problem list. For the same reason, the therapist might choose to include on the problem list such problems as low motivation for treatment or poor compliance with previous treatment.

Mechanisms. The heart of the formulation is a description of mechanisms or processes that appear to be causing and maintaining the client's problems. The CB case formulation emphasizes psychological mechanisms but can also include biological mechanisms. Cognitive-behavioral conceptualization rests on cognitive and behavioral models of psychology and psychopathology. Beck's cognitive model of psychology is a particularly important and useful underpinning of CB case conceptualization (Beck & Bredemeier, 2016). Beck's cognitive model posits that psychological problems or disorders are maintained by the client's dysfunctional thinking and behaviors. Dysfunctional thoughts play a particularly crucial role, and influence the client's emotional, physiological, and behavioral reactions. The model describes the inter-relationship among thoughts, emotions, and behaviors and argues that through modifying or changing thoughts and/or behaviors, clients can change their emotional responses to events.

Origins of the Mechanisms. Here the formulation describes the distal factors that caused the mechanisms (in contrast to precipitants, described next, which can be seen as proximal or immediate causal factors of the problems). For example, if Beck's theory is used, the "origins" part of the formulation describes how the patient learned the dysfunctional beliefs, or schemas, that cause his or her problems. The origins section of the formulation can also identify the causes of biological mechanisms, as in the case of Briana, described later, where likely genetic causes of biological mechanisms driving her depression are noted. Cultural factors are also often relevant here, as well as family factors, other social factors, and aspects of the physical environment that can contribute to the origins of the mechanisms that cause and maintain the problems.

Precipitants of the Current Problems. Nomothetic CB formulations are diathesis–stress hypotheses, proposing that symptoms and problems result from the activation of psychological and/or biological vulnerabilities by one or more diatheses or stressors that can be internal, external, biological, psychological, or some combination of these; we use the term "precipitants"

to refer to these diatheses. Sometimes the precipitants are events that cause the initial onset of a disorder or symptom (e.g., a promotion might trigger an episode of bipolar disorder) and sometimes, as in the case of Briana presented later, precipitants are events (pregnancy, and stopping antidepressant medications) that trigger a recurrence of pre-existing problems (depressive symptoms) and an exacerbation of longstanding problems (relationship difficulties).

Tying the Elements Together. One purpose of a formulation is to tie together a lot of information about a patient (origins, mechanisms, precipitants, problems) into a coherent narrative that can be understood as a whole rather than as a list of unrelated facts. The case formulation can be presented in a diagram, as shown in Figure 2 and in the case example we provide later, or in a paragraph.

Multicultural Considerations

Culture encompasses the values, beliefs, and behaviors of a group of people. Many factors influence an individual's cultural identity and values, such as the degree of acculturation and the fit between the individual's culture and the dominant culture of the community in which the individual resides.

The challenge of working cross-culturally is to incorporate personally-relevant cultural values and beliefs without stereotyping (Hall, 2019). The process of developing a case formulation and using it to guide treatment provides a thoughtful method to include relevant cultural factors in the design and implementation of cognitive-behavioral treatment plans. Our thinking borrows from Hayes, Muto, and Masuda (2011), who propose that cultural adaptation of psychotherapy can be accomplished by "linking cultural knowledge to processes and principles of psychopathology and behavior change." (p. 232). An example is the recent work of Lawrie, Eom, Moza, Gavreliuc, and Kim (2019), who show that the relationship between age and well-being is moderated by cultural factors, and in particular by the degree to which the culture avoids uncertainty. Older age was associated with lower well-being in countries that were higher in uncertainty avoidance. The clinician who is treating a patient who comes from a country that is high in uncertainty intolerance may be able to address a cultural aspect of the patient's difficulties by focusing on the uncertainty avoidance that derives from the patient's cultural background.

Reliance on a case formulation-driven mode of treatment addresses cultural factors in two ways. First, case formulation is a systematic method that helps clinicians consider the role of all relevant variables, including cultural beliefs and values, in the maintenance of the client's problems, and to use that information to guide selection of strategies that target those problems. For example, a Muslim client who sought treatment for social anxiety may feel unsafe in crowded places, in part due to her social anxiety and in part due to recent highly-publicized events in our country and around the world in which Muslims were violently attacked. Therefore, the clinician will consider this factor when developing a case conceptualization and implementing core intervention strategies, such as interpersonal exposures.

Second, a cognitive-behavioral case formulation can help clinicians understand the possible role of cultural values in the development of the therapeutic relationship and the process

of treatment. For example, in our experience, individuals from Japanese backgrounds who retain those cultural values expect clinicians to direct them rather than to solicit their opinions and collaborate with them. Failure to attend to this cultural factor may lead the clinician to misread the client's deference and passivity to mean that the client is not fully engaged in the treatment. Similarly, when working with clients who expect the clinician to provide authoritative direction, the clinician who is attending to this cultural factor will likely make less use of Socratic questioning and more use of direct recommendations. Cultural factors can also play a role in adherence and dropout, perhaps in part because of cultural values that stigmatize mental illness and treatment. The therapist can make an effort to reduce the probability that these patients will prematurely end treatment by including in the case formulation factors that contribute to dropout. One of us treated a depressed elderly Korean-American woman who had very high self-criticism and shame about her depressive symptoms, and adding this shame and self-criticism to the patient's problem list helped the therapist pay careful attention to this culturally-driven aspect of the woman's presentation.

To summarize, the process of developing an individualized cognitive-behavioral case formulation and using it to guide treatment provides a systematic method to include cultural factors in treatment.

Evidence Base Supporting the Method

We briefly describe some of the evidence that evaluates whether use of a case formulation-driven approach to CBT (Figure 1) contributes to improved patient outcome. Persons & Hong (2016) provided a more comprehensive review of this topic.

A small number of randomized controlled trials (RCTs) compare the outcome of CBT guided by a case formulation to the outcome of CBT guided by a standardized protocol. In their review of these studies, Persons and Hong (2016) concluded that formulation-driven treatments lead to outcomes that are generally not different from and occasionally a bit superior to treatment guided by a standardized protocol. The failure to show a clear superiority of formulation-driven treatment may be due in part to the fact that even when using a standardized protocol, the therapist individualizes the treatment, attending to many of the elements (e.g., the patient's idiographic cognitions and behaviors) described in the case formulation.

A recent meta-analysis by Hurl, Wightman, Haynes, and Virues-Ortega (2016) of 13 studies of 57 single case within-subject time-series analyses showed that treatment was more effective when it was based on results of a pre-treatment functional analysis than when it was not. Most participants were children or young adults receiving treatment for disruptive behavior. The alternative to treatment based on a functional analysis was treatment not based on a functional analysis. For example, for one case, the treatment not based on a functional analysis was a token system that provided rewards for playing cooperatively with peers, an intervention that was not based on an idiographic assessment of the environmental factors controlling the participant's aggressive behavior with peers.

Two uncontrolled trials conducted by this chapter's first author and her colleagues showed that treatment of depressed (Persons, Bostrom, & Bertagnolli, 1999) and depressed

anxious adult outpatients (Persons, Roberts, Zalecki, & Brechwald, 2006) that was guided by the case formulation-driven approach to CBT described here has outcomes similar to standardized CBT or CBT plus pharmacotherapy in RCTs.

The element of the case formulation-driven approach to treatment (Figure 1) that has the strongest empirical support is progress monitoring. Lewis et al. (2018) recently published a review of research on measurement-based care, defined as "the systematic evaluation of patient symptoms before or during an encounter to inform behavioral health treatment." (p. E1). They reviewed 22 randomized controlled trials showing that patients who received measurement-based care had better outcomes than patients who received usual care.

Finally, data showing that therapist use of a clinical support tool helps clinicians respond to a signal indicating that the patient is failing to respond to treatment also provide some support for the treatment utility of the case formulation (Harmon, Hawkins, Lambert, Slade, & Whipple, 2005). The clinical support tool provided in the Harmon et al. study prompts the clinician to focus on several elements (e.g., readiness for change, patient degree of social support) that are often part of a case formulation.

We conclude by noting that almost none of these studies examined the synergistic benefit of using both the case formulation and assessment, especially progress monitoring data that are collected to test the formulation, to guide treatment. Our model proposes that both of these elements are needed to fully capitalize on the benefits of developing a case formulation and using it to guide treatment.

Related, we do not view case formulation-guided CBT as a new treatment. Instead, we view it as a systematic way to adapt evidence-based nomothetic formulations and interventions to the individual case. The idiographic case formulation is a hypothesis, and because it is a hypothesis, we must collect data to test its utility to guide the treatment of the particular patient who is in the therapist's office at that moment. From this point of view, the most relevant data about the utility of the case formulation-driven approach to CBT is data that evaluates the degree to which it helps *the patient that the therapist is treating at this moment* reach his/her treatment goals. To obtain these data, the therapist must collect data to monitor the outcome and process of each treatment s/he provides.

Steps in Case Formulation

To develop a case formulation, we suggest that the clinician carry out these steps in order: (1) obtain a comprehensive Problem List; (2) assign a DSM-5 or ICD-10 diagnosis or diagnoses; (3) select an "anchoring diagnosis"; (4) select a nomothetic formulation of the anchoring diagnosis; (5) individualize the formulation, so that it accounts for the details of the case at hand and for all of the problems on the Problem List and their relationships; (6) collect information about the patient's personal and family history in order to propose hypotheses about the origins of the psychological mechanisms; and (7) collect information about the onset of the current difficulties in order to describe precipitants of the current episode of illness or symptom exacerbation. These steps yield the information needed to develop a formulation of the case.

We describe here each step of the process of obtaining a case formulation. Of course, the order described here is an idealized one; in fact, lots of things happen in tandem or in a different order. For example, in the process of developing a Problem List (Step 1), the therapist will be thinking about and may learn how the problems are related to one another and what mechanisms might be causing or maintaining them (Steps 5 and 6).

1. Obtain a Comprehensive Problem List

A comprehensive Problem List describes all the problems the patient is having in all of these domains: psychological/psychiatric symptoms, interpersonal, occupational, school, medical, financial, housing, legal, leisure, and problems with mental health or medical treatment. Although comprehensiveness is important, it is also important to keep the Problem List to a manageable length. If the list is longer than 10 items, it is a good idea to group some of the problems together in order to shorten the list. It is useful to state each problem in a simple format, using a word or two to name the problem, followed by a description of the problem, providing, when possible, information about some of the cognitive, behavioral, physiological, and emotion elements of problems. This step helps the therapist (and patient) begin to conceptualize the problems in cognitive-behavioral terms.

The main strategy most therapists use to collect a comprehensive problem list is the clinical interview. In the initial interview, the tension the therapist always confronts is the pressure to move quickly to understand and address the patient's chief concerns while obtaining the information needed to understand how these concerns are part of a larger context. Patients typically come to treatment wanting to talk in depth about one or two issues that are troubling them. We recommend that the therapist spend some time eliciting information about those issues but then ask the patient's permission to step back to take a broad view of the patient's situation and collect information about other areas before drilling down deeply into the details of the patient's chief concern. Hawkins (1979) used the term "behavioral funnel" to describe this process of collecting information about a broad range of domains before focusing in detail on particular problems or symptoms.

The use of pre-treatment assessment tools can help resolve the tension between breadth and depth. We ask our patients to complete several assessment scales before the initial interview, including the PHQ-9 (Kroenke, Spitzer, & Williams, 2001), the GAD-7 (Spitzer, Kroenke, Williams, & Löwe, 2006), the Obsessive Beliefs Questionnaire-44 (OBQ-44; (Obsessive Compulsive Cognitions Working Group, 2003), the Work and Social Adjustment Scale (Mundt, Marks, Shear, & Greist, 2002), the Perseverative Thinking Questionnaire (Ehring et al., 2011), and an extensive intake questionnaire inquiring about the patient's family and social history, use of substances, medical illness and treatment history, psychological and psychiatric history of difficulties and treatment, and family history of psychiatric illness that we developed in our own practices (available at https://oaklandcbt.com/forms-and-tools-for-cliniciansshttps://oaklandcbt.com/forms-and-tools-for-clinicians. The PHQ-9 and GAD-7 are in the public domain and are available free at www.phqscreeners.com. We ask our patients to complete these questionnaires online or via paper-and-pencil and to bring them to the first session, so the therapist can review the patient's responses at the beginning of the interview and use them to focus the assessment

session. Having this information at the beginning of the interview reduces the likelihood that the therapist will learn in the last five minutes of the session about a problem (e.g., heroin addiction) that can completely invalidate the therapist's initial working formulation and treatment plan.

Careful observation can alert the therapist to problems that patients may not acknowledge or verbalize, such as a disheveled appearance, and interpersonal skills deficits. These phenomena yield valuable information about problems and even suggest hypotheses about underlying mechanisms.

When the therapist observes problems of which the patient is unaware or which the patient does not accept (e.g., a substance abuse problem), the therapist might or might not wish to immediately insist that the patient endorse these as problems. To decide whether and when to do this, the nascent case formulation can be helpful. For example, patients such as those with narcissistic personality disorder, who seem to believe "If I have problems, I am worthless" may not be receptive to placing a new item on the Problem List until they feel more trusting of the therapist. Sometimes a patient who does not endorse the notion that substance abuse is a problem can agree to investigate the question of whether it might be a problem, and thus might agree to a "possible substance problem."

2. Assign one or more DSM-5 or ICD-10 Diagnoses

We encourage the clinician to rely on diagnosis in the process of developing a case formulation. A diagnosis helps the clinician identify an evidence-based nomothetic formulation that can serve as a template for the case formulation. For example, the information that the patient meets criteria for Major Depressive Disorder points the clinician to the nomothetic formulations for the empirically-supported treatments (ESTs) for MDD. These formulations are evidence-based both because treatment based on them has been shown in randomized controlled trials to be effective and because basic science researchers have produced some evidence to support the formulations (theories) of depression upon which the ESTs are based. In addition, the ESTs (which are generally linked to diagnosis) provide the clinician with intervention ideas, and help the clinician provide the patient with information about what will happen in treatment and the expected duration of treatment. To obtain a diagnosis, the clinician does not usually do a research-quality diagnostic assessment but might use parts of structured diagnostic interview tools. We find modules of the Anxiety Disorders Interview Schedule (Brown & Barlow, 2014) to be helpful.

3. Select an "Anchoring" Diagnosis

Here the clinician selects a diagnosis that will be used to select a nomothetic template for the idiographic case formulation. Using the parsimony principle, a useful approach to selecting an anchoring diagnosis is to choose the diagnosis that accounts for the largest number of problems on the Problem List—that is, the diagnosis that interferes most with the patient's functioning. Practically, one implication of this rule is that if a patient has bipolar disorder, schizophrenia, or borderline personality disorder (disorders that can account for many presenting problems) the clinician may want to select this diagnosis as the

anchoring diagnosis.

Sometimes it is useful to choose an anchoring diagnosis based on the current treatment goals. So, for example, if the patient has bipolar disorder under good control and wants to treat her panic symptoms, the panic disorder diagnosis might serve as the anchoring diagnosis. Even so, the clinician will want to keep the bipolar disorder in mind as treatment proceeds. Becker (2002) provides a fascinating description of her method for integrating conceptualizations and interventions from several disorders and ESTs in the treatment of a single complex case. The decision about selection of an anchoring diagnosis is a clinical and pragmatic one guided by principles of parsimony and clinical utility rather than one based on any science, as little research about this type of clinical decision-making is available.

4. Select a Nomothetic Formulation of the Anchoring Diagnosis

If evidence-based nomothetic formulations of the anchoring diagnosis are available, select one to serve as a template for the idiographic case formulation. For example, in the case presented here, the therapist used Beck's cognitive theory of depression (Beck, Rush, Shaw, & Emery, 1979) to anchor the case formulation.

When no evidence-based nomothetic formulation is available, the therapist can consider adapting a template that has been proposed for another disorder or symptom to the case at hand. For example, the therapist can adapt the nomothetic formulation for a particular disorder to understand the case of a patient who reports sub-syndromal symptoms of that disorder. Another option for the therapist when there is no nomothetic template to work from (e.g., the patient reports an idiosyncratic symptom or problem for which no treatment or formulation has been developed) is to develop a formulation using an empirically supported theory of psychopathology, especially one that underpins many of the currently available ESTs. These general theories include Beck's cognitive theory, theories of associative and operant conditioning, and theories of emotion and emotion regulation, such as Gross's (1998) theory of emotion regulation. An elegant example is the use of operant conditioning theory as a foundation for the formulation and treatment of a child with migraine headache (O'Brien & Haynes, 1995).

5. Individualize the Formulation

To individualize the nomothetic formulation, the therapist must collect the details of the cognitive, behavioral, emotional, and somatic aspects of the problems experienced by the unique patient who is in the therapist's office at that time, details about how the problems seem to be related, and details about the predisposing and precipitating factors that are in play for that patient. Of course, not all problems result from the hypothesized psychological mechanisms that are the heart of the formulation. Some problems result entirely or in part from biological, environmental, or other nonpsychological factors, as in the case of medical problems, or financial problems resulting from an employer's bankruptcy. Information about the patient's treatment goals can also help the therapist individualize the formulation, as in the case of the patient with well-controlled bipolar

disorder who seeks treatment for symptoms of panic disorder.

6. Propose Hypotheses about the Origins of the Mechanisms

Here the therapist collects information to generate hypotheses about how the patient developed the schemas, how the patient learned the dysfunctional behaviors or failed to learn the functional ones, how the patient developed an emotion or emotion regulation deficit, and how the patient acquired a biological vulnerability—that is, how the patient acquired the mechanisms that are proposed to be causing the patient's problems. To do this, the clinician will collect a family history of psychiatric disorder, as well as a family and social history that identifies key events and factors in the patient's upbringing and development.

7. Describe Precipitants of the Current Episode of Illness or Symptom Exacerbation

To obtain information about precipitants and activating situations, the therapist can ask the patient and/or someone who is close to the patient to describe the sequence of events leading up to the patient's presenting problems or to the patient's decision to seek treatment for long-standing problems. As the individual does this, the therapist will be thinking about the proposed mechanism hypotheses, in an effort to tie together or link in some logical way the precipitants and the mechanisms. Beck (1983) discussed this issue very elegantly, proposing that interpersonal loss and rejection would be expected to precipitate depression in patients who have schemas relating to dependency, whereas failure would be expected to precipitate depression in patients who hold schemas relating to failure and loss of autonomy.

After walking through these seven steps, the therapist will have the information needed to develop an initial formulation of the case.

Treatment Planning and Practice

The case formulation helps the cognitive behavior therapist in innumerable ways during treatment planning and treatment, including by helping the therapist build a strong therapeutic relationship, identify targets for treatment, set good treatment goals, and address problems that inevitably arise in therapy.

<u>Build a strong therapeutic relationship</u>

The therapist develops the formulation collaboratively with the patient, and this collaborative process is a major contributor to a strong therapeutic relationship. The cognitive behavioral therapist develops the formulation with the patient in a step-by-step way, often drawing a diagram of the formulation or completing a Thought Record that captures a key element of the formulation with the patient during the therapy session. Even during video sessions, the therapist can do this using a screen-sharing feature. The case formulation is a living breathing document that therapist and patient refer to often and revise frequently as treatment proceeds. One of us writes the formulation in pencil on a piece of colored paper so it is easy to

find it and pull it out of the clinical record to consult or revise during the session. If the therapist is using an electronic medical record, s/he may wish to also maintain a small paper record to hold worksheets like the written formulation that can be scanned and uploaded to the electronic medical record when the therapist closes the case. Or some methods for keeping an electronic medical record allow the therapist to review and update the case formulation in the session with the patient. One of our colleagues does this by using the Ipad Pro and an Apple pen and an app called Notability for her medical records.

Identify targets for treatment

One of the major ways the CB case formulation guides treatment is by identifying the targets of treatment. In CBT, the treatment targets are generally cognitions or behaviors. Cognitive treatment targets can include the *content* of thoughts, which, in a cognitive-behavioral model, can be inaccurate or unhelpful or both, or the *form or pattern* of cognitions, such as repetitive negative cognitions about the past (generally termed rumination) or the future (generally termed worry). Rumination and worry can be profitably viewed as behaviors (e.g., (Martell, Addis, & Jacobson, 2001). Behaviors are also a common treatment target. A cognitive-behavioral case formulation can describe avoidance or other behavioral deficits, skills deficits (e.g., interpersonal unassertiveness or aggression), or behavioral excesses (e.g., over-exercising to promote weight loss). The formulation also identifies relationships among problems, offering hypotheses about which problems are primary (that is, apparently causal of other problems), and which are secondary (that is, apparently resulting from other problems). By definition, targeting the most primary problems for change is likely to produce more benefits for the patient than targeting secondary or minor problems (Haynes, 1992).

Set good treatment goals

The case formulation helps in the process of setting treatment goals because typically at least some of the treatment goals are to solve some of the problems on the Problem List. In addition, sometimes the mechanism hypotheses of the formulation help the therapist guide the patient to select good treatment goals, as in the case of a young woman, Susan, who sought treatment because she felt very worried that she was engaged to marry the wrong man. She spent hours every day reviewing her interactions with her fiancé, Sam, and asking herself, “Is he the man for me?” She also spent a lot of time with her girlfriends and her mother going over and over her decision to marry Sam. Susan’s therapist worked with her to develop the formulation that Susan was having difficulty tolerating the fact that it was not possible to know with certainty that her decision to marry Sam was a good one. In a futile effort to obtain certainty, she reviewed the decision over and over. This formulation helped the therapist avoid the trap of letting Susan set a treatment goal to achieve certainty about her decision. Instead, Susan agreed to set the treatment goal of reducing the amount of time she spent thinking about the decision to marry Sam. The fact that treatment focused on this goal rather than on the goal of obtaining certainty was a key contributor to the success of her treatment. Susan found that when she stopped thinking repetitively about her decision, she was able to stay present in her interactions with Sam, and when she did this, she got the information she needed to understand that the relationship was not right for her, and she broke off her engagement.

Solve problems

One of the formulation's primary roles is to help the therapist (and patient) anticipate, prevent, and solve problems that can interfere with effective treatment, including problems in the patient-therapist relationship, noncompliance, lack of progress, and premature or uncollaborative termination.

The therapist can use the formulation to anticipate and prevent problems. For example, the therapist can predict that the procrastination for which the patient seeks treatment might interfere with homework compliance, and can work with the patient at the time she makes the homework assignment to assess the potential for perfectionism to interfere with compliance, and to design an intervention to attempt to prevent it from interfering with the therapy itself.

Course corrections are often needed in psychotherapy. A case formulation-driven approach to psychotherapy (shown in Figure 1) helps the therapist initiate and implement needed course corrections in a timely and systematic way via the collection and review of progress monitoring data at every therapy session. As we pointed out in the Conceptual Framework section of the chapter, the case formulation is a hypothesis. It's used to guide intervention designed to help the patient accomplish his or her goals. Patient and therapist monitor progress toward the goals as therapy proceeds. Good progress suggests the formulation may be correct, and poor progress suggests the formulation may be incorrect. To use the formulation and progress monitoring data together, we recommend monitoring progress at every session, and reviewing the data with the patient. It is especially useful and important to discuss any big shifts of symptom improvement or worsening, as a careful understanding of that sort of shift can shed light on the mechanisms driving it, and can provide information that supports or disconfirms the formulation hypothesis.

One useful strategy for addressing poor progress is to collect more assessment data to try to obtain a different formulation of the case that might identify different treatment targets and a different intervention plan that might be more successful than the failing one (Persons, Beckner, & Tompkins, 2013; Persons & Mikami, 2002).

Case Example

Briana was a 40-year old single white pregnant woman, an unemployed technical writer, who was living with her partner, Bill, who owned an international food import business. She was referred by her pharmacotherapist, and called to ask to be seen by the first author, saying, "I'm depressed but don't want to take medication because I'm pregnant."

Briana was a young woman with dark hair and a short haircut whose attractiveness was hidden by her dull, drab clothing and her sad, demoralized, and defeated facial expression and body posture.

Assessment to develop an initial case formulation and diagnosis

The therapist used the assessment strategies described in the section of this chapter on Steps in Case Formulation to develop the initial formulations and diagnosis described here.

Problem List

1. Depressive symptoms. Briana's mood was bleak and her thinking pessimistic as she described a situation that she perceived as hopeless and unsolvable. She stated that she had made the stupid error of agreeing to have a baby with a man she was unhappy with, and now was pregnant and stuck in a miserable situation. She insisted, "I made a big mistake and ruined my life." Briana scored 27 on the Beck Depression Inventory, indicating moderate to severe depressive symptoms (Beck, Steer, & Garbin, 1988), and 36 on the Depression Anxiety Stress Scales (DASS), a score in the severe range (Lovibond & Lovibond, 1995). She reported symptoms of sadness, loss of interest, low energy, feelings of guilt and worthlessness, hopelessness, difficulty making decisions, and agitation. She reported passive thoughts of suicide ("maybe something will happen and I won't be in this situation anymore") but no plan or intent.
2. Repetitive negative thinking. Briana reported spending up to three hours ruminating about how she had ruined her life by making bad decisions in the past. She also reported repetitive negative thinking (worry) about the future. She also reported some intrusive thoughts (e.g., of violent scenes in movies), but she did not report symptoms of Generalized Anxiety Disorder or Obsessive Compulsive Disorder sufficient to meet diagnostic criteria for those disorders.
3. Relationship difficulties. Briana was unhappy in her relationship with Bill, her partner of 8 years. She resented Bill's behavior toward her, which she viewed as self-focused, insensitive, and oblivious to her needs. She reported that when she had recently attempted to speak up to him about an instance of his annoying behavior, he did not seem to understand the point she was making, although she admitted that his difficulty understanding her might have been a result of the fact that she was so angry that she "just lit into him." Briana insightfully reported that "these things bother me much more than they should." Her proneness to angry flareups was reflected in her score of 20 on the Stress subscale of the DASS, where she endorsed the maximum score on the items assessing irritability and tendency to over-react to situations. Briana described her relationship difficulties as longstanding, saying that she had attempted more than once to break up with Bill but that he had "steamrollered me into coming back."
4. Unemployed. Briana had recently quit a job she had enjoyed because of her belief that "I am functioning too poorly to be worth what they are paying me."
5. Social isolation. Briana did not reach out to her friends, as a result of low energy and guilt arising from the belief, "my low mood will pull my friends down."
6. Unsatisfying living situation. Briana had moved into Bill's apartment when she got pregnant, and she did not enjoy the space or have any feeling of ownership of it.

Diagnosis

Briana reported both sadness and loss of interest, the two core symptoms of Major Depressive Disorder in the DSM-V (American Psychiatric Association, 2013) and ICD-10, and she reported multiple other depressive symptoms, as described above. Briana reported a history

of multiple episodes of depression, the first at age 19, when she was hospitalized for two months. Based on the clinical interview and the data from Briana's intake assessments, the therapist assigned Briana a DSM-5/ICD-10 diagnosis of Major depressive disorder, recurrent, moderate, F33.1. There was no evidence of an eating disorder, self-harm, substance abuse, psychosis, current or past mania or hypomania, or family history of bipolar disorder.

Precipitants and mechanism hypotheses

The diagnosis, the problem list, careful attention to the patient's account of her problems and her history, and the results of the OBQ-44 scale from the intake packet led the therapist to entertain, starting in the very first session, a nomothetic formulation based on Beck's cognitive theory of depression (Beck et al., 1979). The therapist hypothesized that the negative life events of being pregnant in an unhappy relationship, and the loss of a job she had enjoyed, activated several behavioral and cognitive mechanisms that caused and maintained Briana's symptoms. After several sessions of assessment and intervention, the therapist had developed the formulation of Briana's case that is depicted in Figure 3. The formulation identified the following mechanisms that the therapist hypothesized were maintaining Briana's symptoms and problems: self-criticism, rumination, poor assertiveness skills, perfectionism, and the beliefs, "I made a big mistake and my life is ruined," I am responsible for others' happiness," and "I can't cope with mistakes and adversity." These mechanisms all promoted the behavior of lack of action, which the therapist posted in the middle of the formulation diagram, as she viewed it as playing a key role in causing and maintaining all of the problems on Briana's problem list. Another precipitant was Briana's stopping her antidepressant medication (ADM), suggesting a possible biological mechanism that contributed to a recurrence of depressive symptoms.

Insert Figure 3 about here

Because she believed "If I speak up, he'll be unhappy and that will be my fault," and because she had poor assertion skills that frequently had poor outcomes, Briana did not assert herself with Bill until she became so resentful that she flared up and attacked. This behavior caused her to feel guilty and to withdraw again, in an unhelpful cycle in which she alternated between passive and aggressive behavior, as shown in the formulation of her relationship problem depicted in Figure 4. Neither behavior was effective in getting Briana what she wanted from Bill. The relationship problems and depressive symptoms fed one another, as the arrows in the case formulation depicted in Figure 3 propose.

Insert Figure 4 about here

The formulations shown in Figures 3 and 4 were arrived at after many sessions of treatment. To develop them, the therapist worked in a step-by-step way with Briana. For example, the therapist used the Thought Record she completed with Briana in session 2 (shown in Figure 5) to teach Briana that her self-critical response to her distress fed emotions of helplessness, uncertainty about what to do, hopelessness, and feeling distraught, and actually increased the distress that stimulated the self-criticism. Similarly, the therapist used the Thought Record she completed with Briana in session 7 (shown in Figure 6) to add more elements to the formulation. This Thought Record focuses on a summary sort of description of Briana's

situation, identifies her response to these problems as self-criticism (Gilbert & Procter, 2006)) and "why" thinking (Watkins, 2016)), shows how these thoughts feed emotions of depression and doubt, which in turn feed behaviors of rumination, paralysis, and a general behavioral "in limbo" state that, as shown in the coping responses column, block active problem-solving.

Insert Figures 5 and 6 about here

Origins of the mechanisms

Origins of Briana's problematic beliefs and behaviors appeared to include the thoughts and behaviors that were modelled by her parents, especially her father, who appeared to be perfectionistic, anxious, and over-responsible. He was unwilling to give Briana any advice, for example, fearing that it might prove unhelpful and he would then be responsible for any bad outcome she experienced. The hypothesized biological mechanism underpinning Briana's depressive symptoms appeared to be inherited, as two distant relatives had serious mental illness.

Setting treatment goals

Briana used the form the therapist gave her (available at https://oaklandcbt.com/forms-and-tools-for-clinicians) to develop the following draft list of treatment goals that she brought to her second session:

- To score in the normal range on a depression measurement scale
- To not feel repelled and irritated by Bill (to move from a 10 to a 2 on a 10-point scale)
- To feel motivated to do projects
- To wake up in the morning without a feeling of dread
- To feel like I can cope with adversity

Briana agreed to use the Depression Anxiety Stress Scales (DASS) measure to monitor symptom change at every session. The therapist selected the DASS because Briana's intake scores on the measure were high, because the measure was sensitive to change due to treatment, and because the DASS tracked both symptoms of depression and symptoms of stress (agitation, irritability, tendency to over-react) with which Briana struggled. Briana's goal was to score 9 on the Depression score, indicated by the line in Figure 7, which reports the progress monitoring data collected at every session of Briana's treatment. The therapist used the Session Assignment and Feedback Form (SAFF), described in Persons et al. (2012) and available online at https://perma.cc/K78V-BSSM), at every session to monitor several aspects of the therapy process.

Insert Figure 7 about here

Treatment planning and informed consent for treatment

At the end of the second session, the therapist reviewed her recommendations for treatment with Briana. She recommended a course of CBT, proposing that Briana meet with the therapist for weekly sessions, complete homework between sessions that would involve working

to change cognitions and behaviors, including the self-criticism that had been identified in that session, and complete the DASS and SAFF to monitor progress at every session. Briana agreed to this plan. The therapist briefly reviewed other treatment options that were available in the local community, and her rationale for recommending CBT to Briana, so that Briana could make an informed choice about her treatment.

Treatment

The process of conducting the assessment and working together to get a formulation helped build a strong working alliance, and also provided Briana with some hypotheses about the mechanisms maintaining her depression that pointed to actions she could take to accomplish her goals. Assessment and intervention overlapped throughout treatment, but especially at the beginning.

The therapist asked Briana to use the SAFF to write down an agenda item or two before every session. The therapist did this in order to collect information about what Briana wanted help with so as to be able to provide that help, and as an intervention that allowed the therapist to elicit and provide natural reinforcement for Briana's behavior of taking action to speak up about something she wanted help with (Kohlenberg & Tsai, 1991). This intervention addressed Briana's lack of assertiveness skills and the"no action" mechanism in the middle of the case formulation (Figure 3).

At session 4, Briana reported a very large drop in her score on the Depression scale on the DASS, as shown in Figure 7. She and the therapist looked at the plot of scores together; Briana tied the low score to the fact that she was planning a visit to her family in Boston, whom she enjoyed seeing because her interactions with them were uniformly positive and smooth, which was not the case with Bill. The following session, on her return from Boston, her score showed a big increase (indicated by a * on the plot of her Depression scores), which Briana explained by saying that returning to Oakland re-activated in a powerful way the belief "I made a big mistake and ruined my life." This information was consistent with the formulation's identification of that belief as a key mechanism driving her symptoms, and the therapist's plan to teach Briana that she could in fact identify and take actions that would make her life better.

Toward that end, the therapist worked with Briana on Thought Records to teach her that the idea, "I made a bad decision and I'm doomed" was a belief, not a fact, and to overcome perfectionistic thinking that made it difficult to take action to make her life better, such as buy a new carpet for the living room. The therapist carried out a variety of interventions that addressed the treatment targets identified in the formulation (see Figure 3). She worked with Briana on a pros and cons exercise to teach her that rumination about the past was not helpful, and taught her skills to interrupt it (Watkins, 2016). The therapist taught Briana the DEAR MAN skill of assertive behavior (Linehan, 2015) and practiced it with her so Briana could ask Bill to change behaviors that irked her, and to make a very big change – to move to Boston.

Briana and Bill had met in Boston, and her parents and her three sisters lived there, and when Briana became pregnant, Bill had agreed to move to Boston. However, Thought Records revealed that Briana feared asking Bill to follow through on his commitment to move due to her

belief that if she spoke up to ask for the move, she'd be making him do something he didn't want to do and he would feel miserable and this would be her fault. The therapist used Socratic dialogue to teach Briana that Bill's emotions and behaviors were *his* responsibility, not hers. As part of this work, the therapist made the decision to self-disclose that she had *very assertively* asked her husband (who did *not* want to do it) to undertake a kitchen remodel that was underway at that time. (Briana later reported that this information was "inspiring" to her, and suggested that perhaps she too could get what she wanted.)

Sessions bounced around among the many mechanisms in the formulation, with one exception. The formulation (see Figure 3) "no action to solve problems, meet needs" was a central element of the puzzle. For that reason, in every session the therapist targeted Briana's inactivity and unassertiveness, and she did this by asking Briana for agenda items at the beginning of the session, and by striving to end each session with a homework assignment that called for Briana to take some sort of action to address whatever problem the session had focused on.

Briana took a month-long break from therapy between sessions 12 and 13 when her baby was born. Soon after the baby arrived, she effectively and assertively asked Bill to babysit their child so she could resume therapy.

In session 17, the therapist initiated a review of progress. The plot of Briana's DASS scores (see Figure 7) showed that her depressive symptoms were improving, and Briana reported that she was also making progress on her other goals. She tied her gains to her increased action and assertiveness, which were leading to more pleasure and enjoyment and better interactions with Bill, including productive discussions about their evening dinner routine and other issues -- and about moving to Boston. The fact that symptom change appeared to be tied to changes in the mechanisms identified in the formulation (no action, poor assertion skills) indicated that therapy was on the right track. Both outcome and process were good. Sessions were productive, and Briana and the therapist enjoyed working together. Briana completed her homework nearly every session, and reported that the therapy was "an extraordinarily positive experience."

Using the formulation and progress monitoring data to handle lack of progress

Five months later, at session 29 Briana reported another very large increase in DASS symptoms after returning from a trip to Boston to visit her family, as indicated by the * on the progress monitoring plot shown in Figure 7. As Briana and the therapist worked to understand this symptom flareup, Briana reported that visiting her family felt good because "I get some help with the baby, and I spend time with people who are easy to be around," and that returning home to Oakland was difficult because it again re-activated her belief that her life was ruined. During the discussion of her life in Oakland, Briana was highly self-critical. The fact that Briana's self-criticism and belief that her life was ruined were so easily re-activated raised a flag in the therapist's mind, and initiated a discussion with Briana of the issue of whether the therapy was on track. Briana and the therapist discussed the formulation, and again agreed that the treatment targets described in the formulation were the correct ones (self-criticism, rumination, the belief that her life was ruined, and failure to take action to make a better life). They agreed to redouble

their efforts to target the mechanisms in the formulation, especially self-criticism and effective assertion, and to focus in particular on helping Briana get the move to Boston that she wanted.

However, Briana's progress seemed stalled. At session 40, 3 months later, Briana's score on the Depression scale of the DASS was 32, similar to her initial score of 36. The therapist discussed the situation with Briana. They again agreed that the things they were working on were the correct things to work on but concluded, after some discussion, that more powerful guns were needed to attack them. The therapist and Briana reviewed the formulation diagram and drew the heavy black lines between the relationship problems and depressive symptoms that appear on the formulation diagram in Figure 3, to indicate that the link between these two problems was key, and more work was needed on the relationship problems. Briana agreed to a homework assignment of finding some childcare so she could start couple therapy.

The therapist also recommended that Briana meet with her pharmacotherapist to discuss resuming pharmacotherapy. Her rationale for this recommendation was: Briana's depression had its onset when she stopped her medications, she had a history of benefitting from medication; depressive symptoms (including self-criticism and rumination) were not consistently remitting, and there was some evidence in the literature (Keller et al., 1992) that the longer the duration of a depressive episode, the poorer the long-term prognosis.

Briana and the therapist kept working, chipping away at the self-criticism and other mechanisms described by the formulation. But Briana did not follow through with pharmacotherapy or couple therapy. Briana was reluctant to restart her medications, in part due to feeling critical of herself for not being able to overcome her depression without medication. Here again, self-criticism was impeding Briana from taking action. These mechanisms were entrenched and difficult to change! And, as the plot of progress monitoring data shows (Figure 7), depressive symptoms persisted. In fact, in session 50, at least as depicted by the DASS Depression subscale, Briana was no better than when she had started treatment nearly 5 months earlier.

So in session 50, the therapist made a big move. She spoke up to say that it was unethical for her to provide unhelpful treatment (American Psychological Association, 2002), and that after one month from that date, she would not be willing to continue to treat Briana unless she agreed to some sort of change in the treatment plan -- either pharmacotherapy or couple therapy or both. The therapist let Briana know that if she did not want to make a significant change in the treatment plan, the therapist would help Briana find another therapist.

Drawing this line in the sand was a very difficult step for the therapist to take. She consulted with colleagues before she did it, and the formulation also helped her do it. The formulation helped the therapist understand that Briana's lack of follow-through with couple therapy or pharmacotherapy was an example of one of Briana's key problem behaviors described in the formulation (inaction), and that the therapist's action to block it would be therapeutic for Briana. In addition, by speaking up very assertively, the therapist modelled one of the behaviors she was teaching Briana -- skillfully asserting to ask for what she needed.

After a bumpy session or two spent discussing the therapist's ultimatum, Briana reluctantly agreed to meet with the pharmacotherapist. The therapist sent the pharmacotherapist a summary of the patient's treatment with a cover note stating, "I tend to want a more aggressive treatment plan than she does. We look forward to getting your input." The pharmacotherapist, when he met Briana, convinced her to start an antidepressant medication. About a month later, Briana reported that she felt she was getting a benefit from the medication.

About three months later, in session 75, after she returned from a trip to visit her family in Boston, Briana experienced another huge uptick in her DASS Depression score, indicated by a * on the progress monitoring plot in Figure 7. It became clear that restarting the medication was not a panacea. And an uptick in the tension in her relationship convinced Briana of the need for couple work, and she initiated couple therapy. At about this time she also took action to go back to work part-time at a job she enjoyed.

Using the formulation to guide collaboration with collateral therapists

Briana's individual and couple therapist developed a shared formulation that proposed that a key piece of the puzzle was that Briana needed to learn to speak up more effectively on her own behalf. The two therapists frequently traded phone messages so the individual therapist could alert the couple therapist about things the individual therapist had coached Briana to assert about in the couple therapy, for example. The two therapies worked together to provide a synergistic benefit.

Ending treatment

Now Briana had a triple-power therapy in place: individual therapy, medication, and couple therapy. She made slow but steady progress. As the * symbols on the progress monitoring plot in Figure 7 show, Briana was now able to return to Oakland from a visit to her family without showing a flareup of depressive symptoms. About a year and a half after beginning the couple therapy, and 102 sessions and 3 ½ years after beginning therapy, Briana brought her therapy to an end as she and Bill prepared to move to Boston. At the end of treatment, Briana's score on the Depression scale of the DASS was 10, one point above the normal range, her score on the Stress scale was 8, in the normal range, and she had accomplished the other goals she had set herself at the beginning of the treatment. The therapist gave her a termination diagnosis of Major Depressive Disorder in remission.

As part of the termination process, the therapist asked Briana to bring a list of things she had learned in the therapy. Items on Briana's list included the following:

- Other people have free will. They make their decisions and it's not my responsibility to make sure they make their decisions okay.
- I can get more of what I want than I think.
- Don't be afraid to ask for what I want.
- DEAR MAN
- Self-denial is not such a good thing
- Take action; I'll feel better if I jump in and move things forward
- Don't act as if what I'm asking for is unreasonable

- Reduce self-criticism and rumination; they get in the way of problem-solving

These items match up very well with the mechanisms described in the formulation, and point to the highly transparent and collaborative nature of the formulation and the treatment.

Long term followup report

As part of preparing this case report, the therapist contacted Briana (3.5 years after the treatment ended) to obtain her permission to present this material, and to get some information about how she was doing. Briana reported that overall she was doing well. She reported scores in the normal range on the Beck Depression Inventory and on the DASS. She reported that she was still with Bill, and that their relationship was "not so great, but I'm not despondent about it the way I was." She had a full-time job she enjoyed, and their child was doing well. She had continued to take antidepressant medication and felt convinced it was helpful. She had not pursued any psychotherapy. Briana read this account of her treatment and reported that it matched up very well with her experience.

Learning the Method

The skills of developing and using a cognitive-behavioral case formulation to guide treatment are particularly challenging ones to learn. However, they are important skills. Case formulation is considered a core clinical competency (Roth & Pilling, 2008). To guide our recommendations for training clinicians to develop a case formulation, we draw on a recent review of strategies for training therapists to carry out evidence-based psychosocial treatment more generally. Herschell, Kolko, Baumann, and Davis (2010) found that trainings that included multiple teaching modalities were more effective than other training methods. For that reason, we recommend that trainees use multiple modalities to learn to develop and use a case formulation, including reading books and articles on cognitive-behavioral case formulation (Kuyken et al., 2009; Persons, 2008), attending workshops, and seeking supervision or consultation in case formulation, including review of session recordings, from experienced cognitive behavior therapists.

We also include reflective practice strategies when we teach trainees to develop and use case formulation (Bennett-Levy, Thwaites, Haarhoff, & Perry, 2014). A number of empirical studies demonstrate that reflective practice enhances the learning of cognitive-behavior therapy (CBT) skills (Haarhoff & Farrand, 2012; Thwaites, Bennett-Levy, Davis, & Chaddock, 2014) as well as the quality of cognitive-behavioral case formulation (Haarhoff, Gibson, & Flett, 2011). Both experienced and novice therapists benefit from the incorporation of reflective practice in their training experiences (Bennett-Levy, Lee, Travers, Pohlman, & Hamernik, 2003; Davis, Thwaites, Freeston, & Bennett-Levy, 2015). When using self-practice/self-reflection strategies, the trainee practices a psychotherapy skill by applying it to himself or herself and spending some time reflecting on the experience. For example, we ask clinicians to practice developing a mini-formulation whereby they identify a problem they are having with a client, such as their reluctance to raise with the client the issue of the client's tardiness to sessions. We then ask the trainee to complete a thought record in order to identify the automatic thoughts and feelings that are linked to their problematic behavior. We then ask them to elaborate this mini-conceptualization to include hypotheses regarding their intermediate and core beliefs.

In addition, we apply Ericsson's evidence-based deliberate practice model (Ericsson, Krampe, & Tesch-Romer, 1993) to guide our teaching of case conceptualization skills. Ericsson posits that the development of expertise in a skill depends more on how one practices the skill than on how much experience one has using it. In deliberate practice, teachers first break down a skill into sub-skills. For example, the sub-skills of cognitive behavioral case formulation include, among others, developing a problem list, generating belief hypotheses, and identifying maladaptive coping strategies. The student then practices each sub- skill with immediate corrective feedback. For example, we might ask the trainee to listen to a recorded interview with a client and list clinical problems the client identifies. One of us has developed a workshop training exercise in which she asks participants to listen to the audio-recording of the first 12 minutes of an initial session and to generate some hypotheses about the patient's problems and schemas about self and others. She is able to provide feedback on the problem and schema hypotheses were offered by other clinicians who listened to this material as part of a study of inter-rater reliability of cognitive-behavioral case formulation (Persons, Mooney, & Padesky, 1995). Last, the teacher asks the trainee to practice the skill at more challenging levels; in the case of the skills of case formulation, this practice might involve developing case formulations for increasingly complex clients.

Conclusion

This chapter describes a case formulation-driven approach to cognitive behavioral therapy. The chapter begins with a description of the historical background of the approach. It fleshes out the conceptual framework underpinning the CB case formulation, describes the way the case formulation addresses cultural factors, and briefly reviews the evidence supporting the proposal that cognitive behavioral therapy that is based on an individualized case formulation has better outcome than CBT that is not based on an individualized formulation. We list and describe steps the therapist can take to develop a CB case formulation, and we outline some of the ways the formulation aids in treatment. We present an example of a patient treated by the first author, and we offer the detailed process of developing and using the formulation to treat Briana, an interesting case because it is the kind of long-term (100+ sessions) treatment that is not uncommon in clinical practice but is not represented in the ESTs for depression. We conclude with our recommendations for evidence-based methods for training students and practitioners to develop a case formulation.

Acknowledgements

We thank all of our patients, from whom we have learned much of what we present here, and especially "Briana," who permitted us to present an anonymized version of her treatment for this chapter. We thank Megan Hsiao for her help with the tables and figures, Connie Fee for her help with formatting and references, and our colleague Monique Thompson for helpful input about her approach to electronic record-keeping.

Figure titles

References

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders DSM-5* (5th ed.). Washington, D. C.: American Psychiatric Association.

American Psychological Association. (2002). *Ethical principles of psychologists and code of conduct*. Washington, D. D.: American Psychological Association.

APA Presidential Task Force on Evidence-Based Practice. (2006). Evidence-based practice in psychology. *American Psychologist, 61*(4), 271-285.

Baker, D. B., & Benjamin Jr, L. T. (2000). The affirmation of the scientist-practitioner: A look back at Boulder. *American Psychologist, 55*(2), 241.

Beck, A. T. (1967). *Depression: Clinical, experimental and theoretical aspects.* New York: Harper & Row.

Beck, A. T. (1983). Cognitive theory of depression: New perspectives. In P. J. Clayton & J. E. Barrett (Eds.), *Treatment of depression: Old controversies and new approaches.* (pp. 265-288). New York, NY: Raven Press.

Beck, A. T., & Bredemeier, K. (2016). A unified model of depression: Integrating clinical, cognitive, biological, and evolutionary perspectives. *Clinical Psychological Science, 1*(24).

Beck, A. T., & Dozois, D. J. A. (2011). Cognitive therapy: Current status and future directions. *Annual review of medicine, 62*, 397-409.

Beck, A. T., Rush, J. A., Shaw, B. F., & Emery, G. (1979). *Cognitive therapy for depression.* New York: Guilford Press.

Beck, A. T., Steer, R. A., & Garbin, M. G. (1988). Psychometric properties of the Beck Depression Inventory: Twenty-five years of evaluation. *Clinical Psychology Review, 8*, 77-100.

Beck, J. S. (1995). *Cognitive therapy: Basics and beyond.* New York: Guilford Press.

Becker, C. B. (2002). Integrated behavioral treatment of comorbid OCD, PTSD, and borderline personality disorder: A case report. *Cognitive and Behavioral Practice, 9*, 100-110.

Bennett-Levy, J., Lee, N., Travers, K., Pohlman, S., & Hamernik, E. (2003). Cognitive therapy from the inside: enhancing therapist skills through practising what we preach. *Behavioural and Cognitive Psychotherapy, 31*(2), 143-158.

Bennett-Levy, J., Thwaites, R., Haarhoff, B., & Perry, H. (2014). *Experiencing CBT from the inside out: A self-practice/self-reflection workbook for therapists*: Guilford Publications.

Brown, T. A., & Barlow, D. H. (2014). *Anxiety and related disorders interview schedule for DSM-5 (ADIS-5L): Client interview schedule.* Oxford: Oxford University Press.

Chambless, D. L., & Ollendick, T. H. (2001). Empirically supported psychological interventions: Controversies and evidence. *Annual Review of Psychology, 52*, 685-716.

Cone, J. D. (1986). Idiographic, nomothetic, and related perspectives in behavioral assessment. In R. O. Nelson & S. C. Hayes (Eds.), *Conceptual foundations of behavioral assessment.* (pp. 111-128). New York, NY: Guilford Press.

Davis, M. L., Thwaites, R., Freeston, M. H., & Bennett-Levy, J. (2015). A measurable impact of a self-practice/self-reflection programme on the therapeutic skills of experienced cognitive-behavioural therapists. *Clinical Psychology & Psychotherapy, 22*(2), 176-184.

Ehring, T., Zetsche, U., Weidacker, K., Wahl, K., Schönfeld, S., & Ehlers, A. (2011). The Perseverative Thinking Questionnaire (PTQ): Validation of a content-independent measure of repetitive negative thinking. *Journal of Behavior Therapy and Experimental Psychiatry, 42*(2), 225-232. doi:10.1016/j.jbtep.2010.12.003

Ericsson, K. A., Krampe, R., & Tesch-Romer, C. (1993). The role of deliberate practice in the acquisition of expert performance. *Psychological Review, 100*(3), 361-406.

Gilbert, P., & Procter, S. (2006). Compassionate mind training for people with high shame and self-criticism: Overview and pilot study of a group therapy approach. *Clinical Psychology and Psychotherapy, 13*, 353-379.

Gross, J. J. (1998). The emerging field of emotion regulation: An integrative review. *Review of General Psychology, 2*, 271-299.

Haarhoff, B., & Farrand, P. (2012). Reflective and self-evaluative practice in CBT. *The CBT handbook*, 475-492.

Haarhoff, B., Gibson, K., & Flett, R. (2011). Improving the quality of cognitive behaviour therapy case conceptualization: The role of self-practice/self-reflection. *Behavioural and Cognitive Psychotherapy, 39*(3), 323-339.

Hall, G. C. N. (2019). Why don't people of color use mental health services? *Psychological Science Agenda, 33*(3). Retrieved from https://www.apa.org/science/about/psa/2019/03/people-color-mental-health

Harmon, C., Hawkins, E. J., Lambert, M. J., Slade, K., & Whipple, J. L. (2005). Improving outcomes for poorly responding clients: The use of clinical support tools and feedback to clients. *Journal of Clinical Psychology, 61*, 175-185.

Hawkins, R. P. (1979). The functions of assessment: Implications for selection and development of devices for assessing repertoires in clinical, educational, and other settings. *Journal of Applied Behavior Analysis, 12*(4), 501-516.

Hayes, S. C., Muto, T., & Masuda, A. (2011). Seeking cultural competence from the ground up. *Clinical Psychology: Science & Practice, 18*(3), 232-237.

Hayes, S. C., Nelson, R. O., & Jarrett, R. B. (1987). The treatment utility of assessment: A functional approach to evaluating assessment quality. *American Psychologist, 42*, 963-974.

Haynes, S. N. (1992). *Models of causality in psychopathology: Toward dynamic, synthetic, and nonlinear models of behavior disorders.* New York, NY: Macmillan Publishing Company.

Haynes, S. N., & O'Brien, W. H. (2000). *Principles and practice of behavioral assessment*. New York: Kluwer Academic/Plenum Publishers.

Herschell, A. D., Kolko, D. J., Baumann, B. L., & Davis, A. C. (2010). The role of therapist training in the implementation of psychosocial treatments: A review and critique with recommendations. *Clinical Psychology Review, 30*, 448-466.

Hofmann, S. G., Asnaani, A., Vonk, I. J. J., Sawyer, A. T., & Fang, A. (2012). The efficacy of cognitive behavioral therapy: A review of meta-analyses. *Cognitive Therapy and Research, 36*(5), 427-440.

Hunsley, J., & Mash, E. J. (2007). Evidence-based assessment. *Annual Review of Clinical Psychology, 3*(29-51).

Hurl, K., Wightman, J., Haynes, S. N., & Virues-Ortega, J. (2016). Does a pre-intervention functional assessment increase intervention effectiveness? A meta-analysis of within-subject interrupted time-series studies. *Clinical Psychology Review, 47*, 71-84.

Keller, M. B., Lavori, P. W., Mueller, T. I., Endicott, J., Coryell, W., Hirschfeld, R. M. A., & Shea, T. (1992). Time to recovery, chronicity, and levels of psychopathology in major depression: a 5-year prospective follow-up of 431 subjects. *Archives of General Psychiatry, 49*(10), 809-816.

Kohlenberg, R. J., & Tsai, M. (1991). *Functional analytic psychotherapy: Creating intense and curative therapeutic relationships.* New York, NY: Plenum Press.

Kroenke, K., Spitzer, R. L., & Williams, J. B. W. (2001). The PHQ-9: Validity of a brief depression severity measure. *Journal of General Internal Medicine, 16*(9), 606-613.

Kuyken, W., Padesky, C. A., & Dudley, R. (2009). *Collaborative case conceptualization*. New York: Guilford.

Lawrie, S. I., Eom, K., Moza, D., Gavreliuc, A., & Kim, H. S. (2019). Cultural variability in the association between age and well-being: The role of uncertainty avoidance. *Psychological Science*. doi:10.1177/0956797619887348

Lewis, C. C., Boyd, M., Puspitasari, A., Navarro, E., Howard, J., Kassab, H., . . . Douglas, S. (2018). Implementing measurement-based care in behavioral health: A review. *JAMA Psychiatry*.

Linehan, M. M. (1993). *Cognitive-behavioral treatment of borderline personality disorder.* New York, NY: Guilford Press.

Linehan, M. M. (2015). *DBT skills training handouts and worksheets* (second ed.). New York: Guilford Press.

Lovibond, S. H., & Lovibond, P. F. (1995). *Manual for the Depression Anxiety Stress Scales* (Second ed.). Sydney: Psychology Foundation.

Martell, C. R., Addis, M. E., & Jacobson, N. S. (2001). *Depression in context: Strategies for guided action*. New York: W.W. Norton.

Morgan, D. L., & Morgan, R. K. (2001). Single-participant research design: Bringing science to managed care. *American Psychologist, 56*, 119-127.

Mundt, J. C., Marks, I. M., Shear, M. K., & Greist, J. M. (2002). The Work and Social Adjustment Scale: A simple measure of impairment in functioning. *The British Journal of Psychiatry, 180*(5), 461-464.

Nezu, A. M., & Nezu, C. M. (1993). Identifying and selecting target problems for clinical interventions: A problem-solving method. *Psychological Assessment, 5*, 254-263.

Nezu, A. M., Nezu, C. M., Friedman, S. H., & Haynes, S. N. (1997). Case formulation in behavior therapy: Problem-solving and functional analytic strategies. In T. D. Eells (Ed.), *Handbook of psychotherapy case formulation.* (pp. 368-401). New York, NY: Guilford Press.

Nezu, A. M., Nezu, C. M., & Lombardo, E. (2004). *Cognitive-behavioral case formulation and treatment design: A problem-solving approach*. New York: Springer.

O'Brien, W. H., & Haynes, S. N. (1995). A functional analytic approach to the conceptualization, assessment, and treatment of a child with frequent migraine headaches. *Journal of Clinical Psychology, 1*, 65-80.

Obsessive Compulsive Cognitions Working Group. (2003). Psychometric validation of the obsessive beliefs questionnaire and the interpretation of intrusions inventory: Part I. *Behaviour Research and Therapy, 41*(8), 863-878.

Persons, J. B. (2008). *The case formulation approach to cognitive-behavior therapy*. New York: Guilford.

Persons, J. B., Beckner, V. L., & Tompkins, M. A. (2013). Testing case formulation hypotheses in psychotherapy: Two case examples. *Cognitive and Behavioral Practice, 20*(4), 399-409.

Persons, J. B., Bostrom, A., & Bertagnolli, A. (1999). Results of randomized controlled trials of cognitive therapy for depression generalize to private practice. *Cognitive Therapy and Research, 23*, 535-548.

Persons, J. B., & Hong, J. J. (2016). Case formulation and the outcome of cognitive behavior therapy. In N. Tarrier & J. Johnson (Eds.), *Case formulation in cognitive behaviour therapy* (2nd ed., pp. 14-37). London: Routledge.

Persons, J. B., & Mikami, A. Y. (2002). Strategies for handling treatment failure successfully. *Psychotherapy: Theory/Research/Practice/Training, 39*, 139-151.

Persons, J. B., Mooney, K. A., & Padesky, C. A. (1995). Inter-rater reliability of cognitive-behavioral case formulation. *Cognitive Therapy and Research, 19*, 21-34.

Persons, J. B., Roberts, N. A., Zalecki, C. A., & Brechwald, W. A. G. (2006). Naturalistic outcome of case formulation-driven cognitive-behavior therapy for anxious depressed outpatients. *Behaviour Research and Therapy, 44*, 1041-1051.

Reiss, S., & McNally, R. J. (1985). The expectancy model of fear. In S. Reiss & R. R. Bootzin (Eds.), *Theoretical issues in behavior therapy* (pp. 107-121). London, England: Academic Press.

Resick, P. A., & Schnicke, M. K. (1993). *Cognitive processing therapy for rape victims: A treatment manual*. Newbury Park, CA: Sage.

Roth, A., & Pilling, S. (2008). Using an evidence-based methodology to identify the competences required to deliver effective cognitive and behavioral therapy for depression and anxiety disorders. *Behavioral and Cognitive Psychotherapy, 36*, 129-147.

Spitzer, R. L., Kroenke, K., Williams, J. B. W., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: The GAD-7. *Archives of Internal Medicine, 166*(10), 1092-1097.

Spring, B., Marchese, S., & Steglitz, J. (2019). History and Process of Evidence-Based Practice in Mental Health. In S. Dimidjian (Ed.), *Evidence-based practice in action: bridging clinical science and intervention* (pp. 9-27). New York: The Guilford Press.

Sturmey, P. (2008). *Behavioral case formulation and intervention. A functional analytic approach*. Chichester: Wiley-Blackwell.

Tarrier, N., & Johnson, J. (Eds.). (2015). *Case formulation in cognitive behavior therapy: The treatment of challenging and complex cases* (Second ed.). New York: Routledge.

Thwaites, R., Bennett-Levy, J., Davis, M., & Chaddock, A. (2014). Using self-practice and self-reflection (SP/SR) to enhance competence and meta-competence. In A. Whittington & N. Grey (Eds.), *The cognitive behavioural therapist: From theory to clinical practice* (pp. 241-254). London, England: Routledge.

Turkat, I. D. (Ed.) (1985). *Behavioral case formulation.* New York, NY: Plenum Press.
Watkins, E. R. (2016). *Rumination-focused cognitive behavioral therapy for depression*. New York: Guilford Press.

Figure 1. Case formulation-driven cognitive-behavior therapy

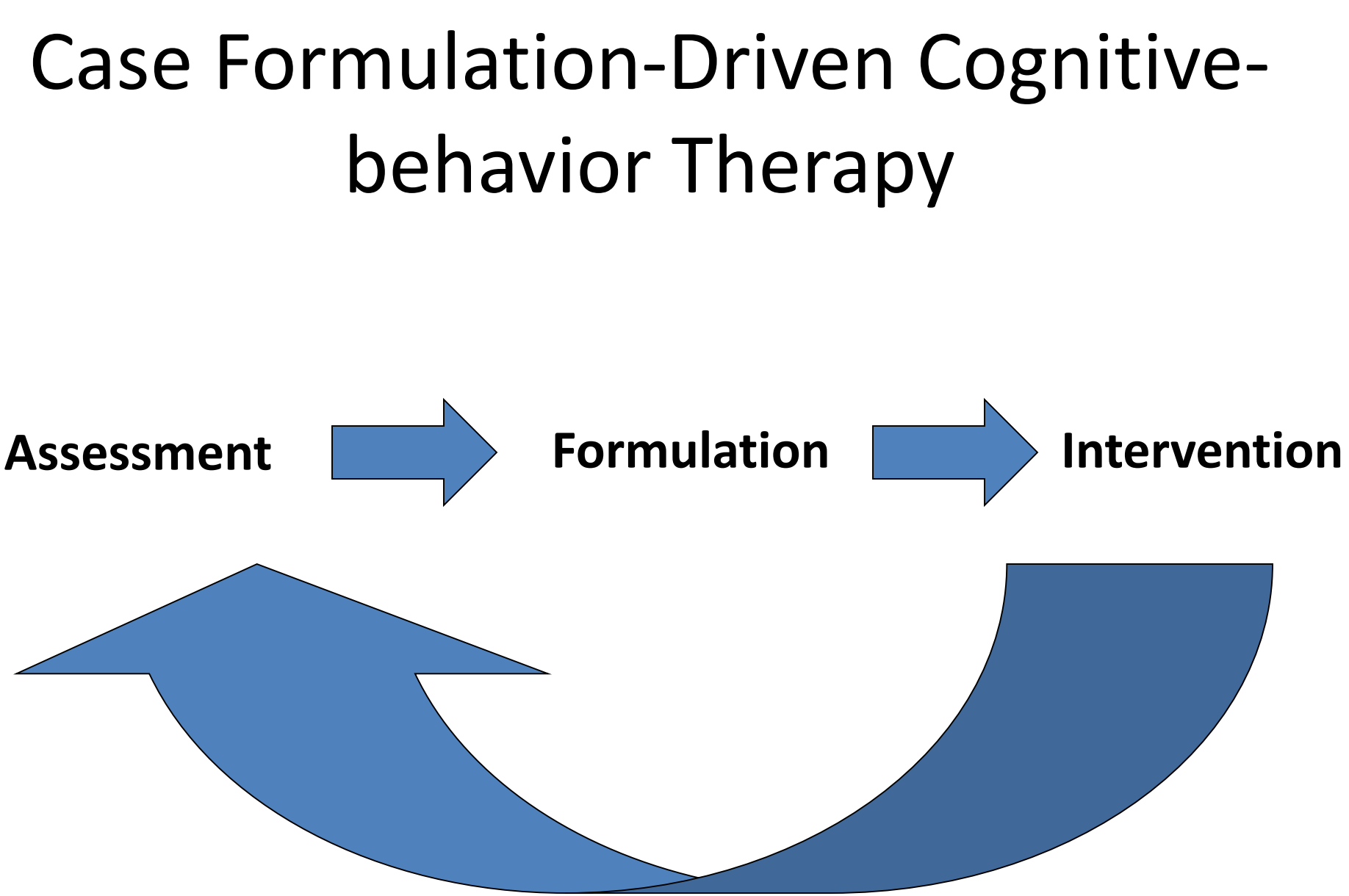

Figure 2. Elements of a case formulation

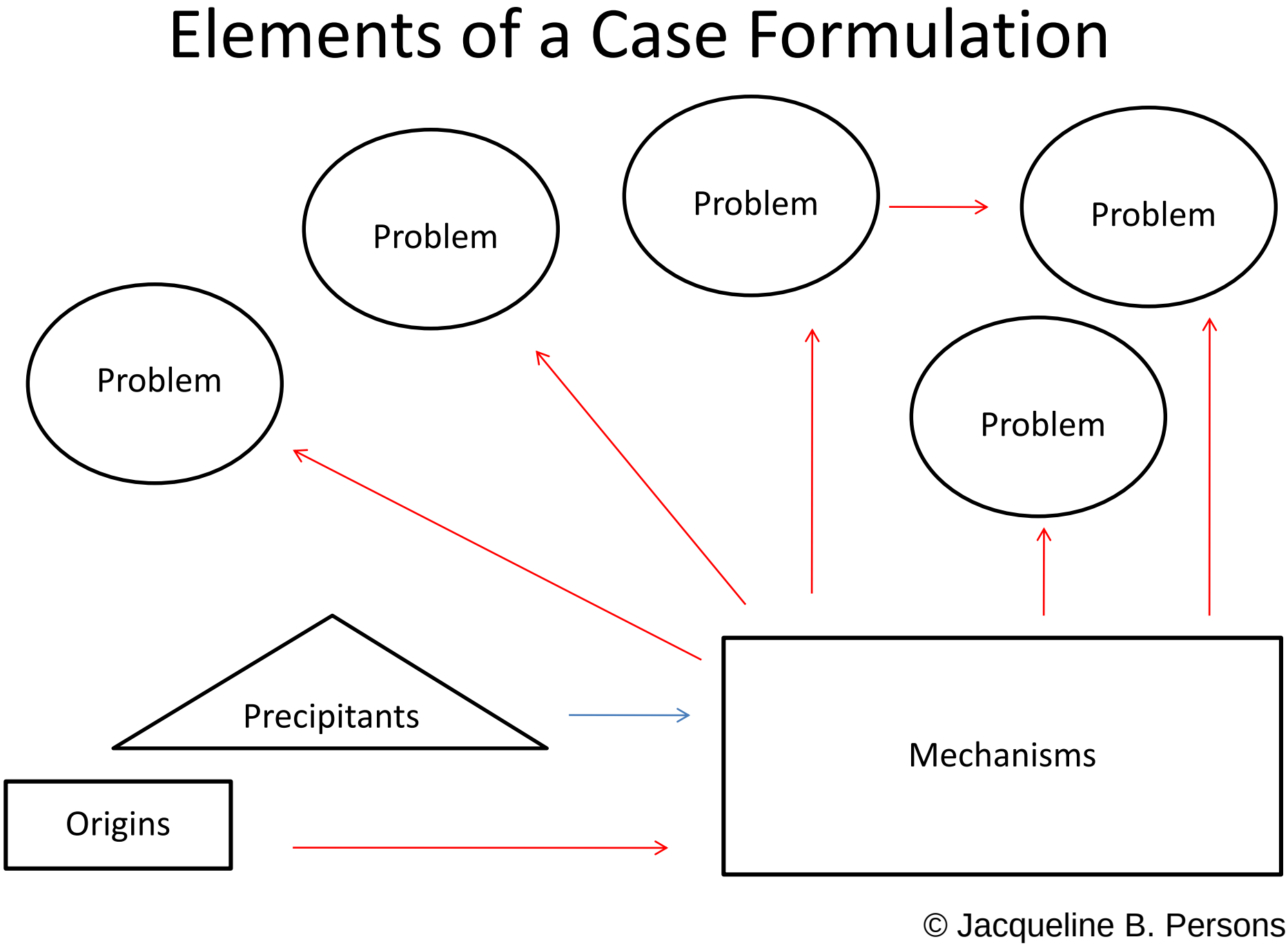

Figure 3. Case formulation for Briana

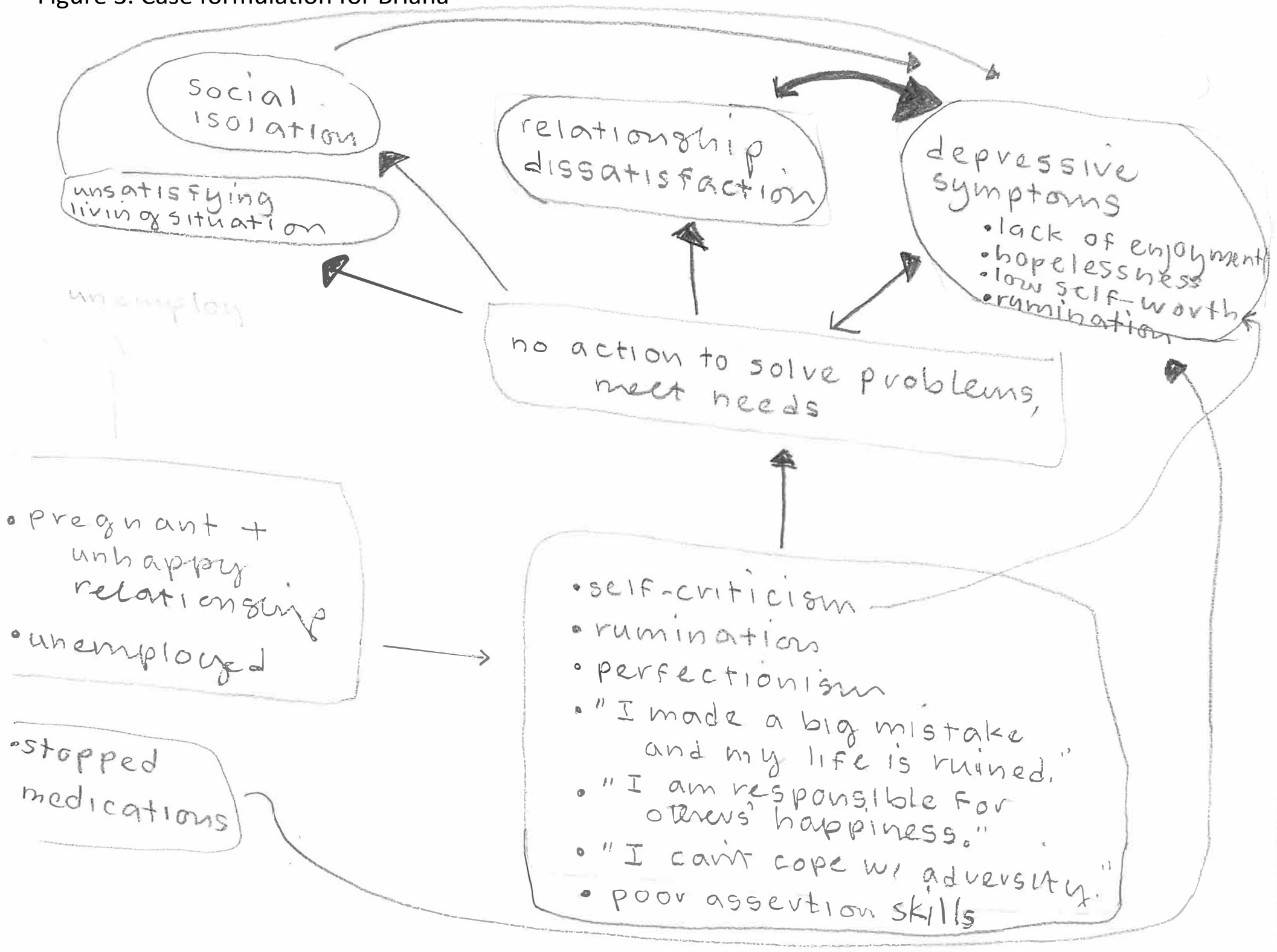

Figure 4. Formulation of Briana's relationship problem

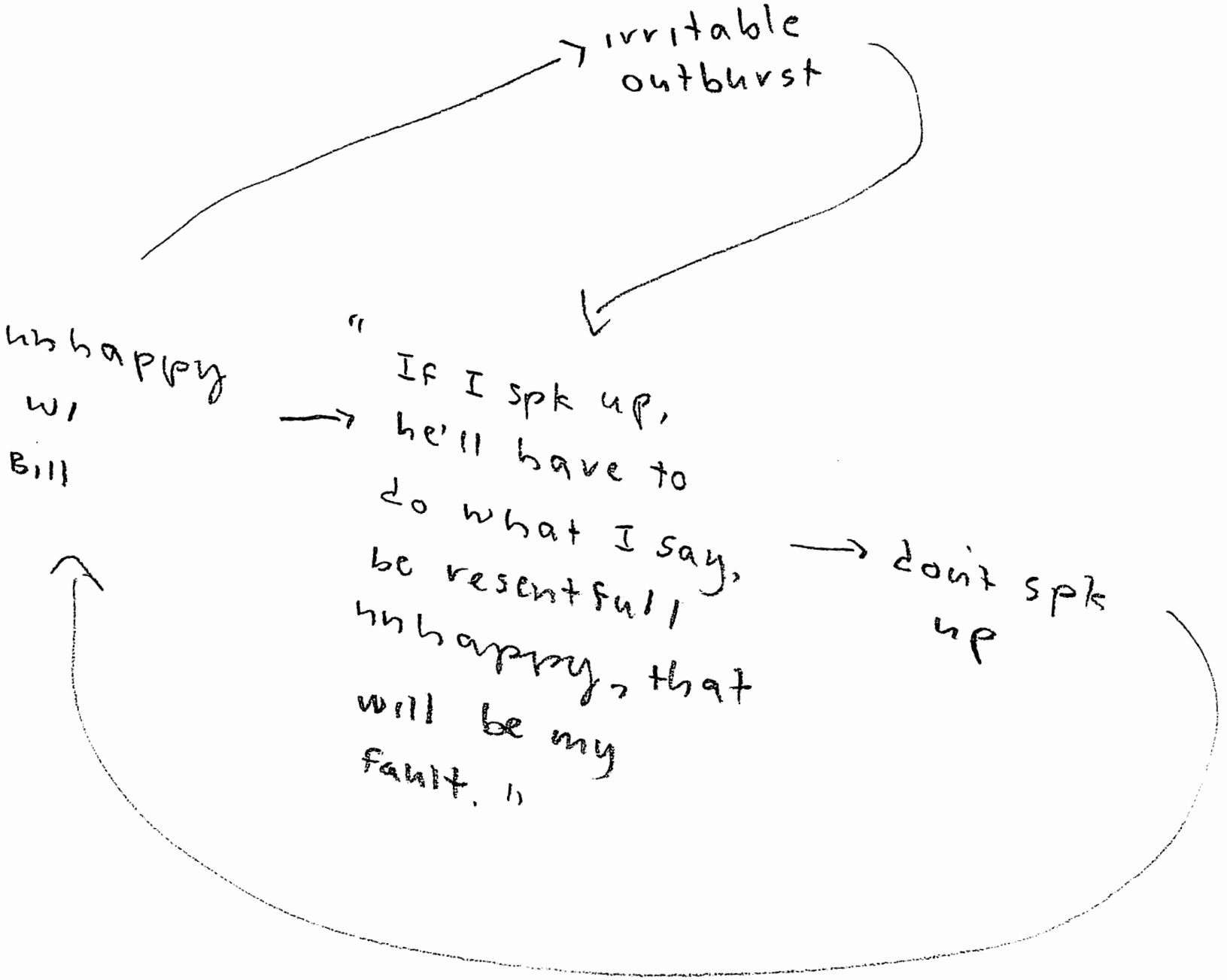

Figure 5. Briana's Thought Record at session 2

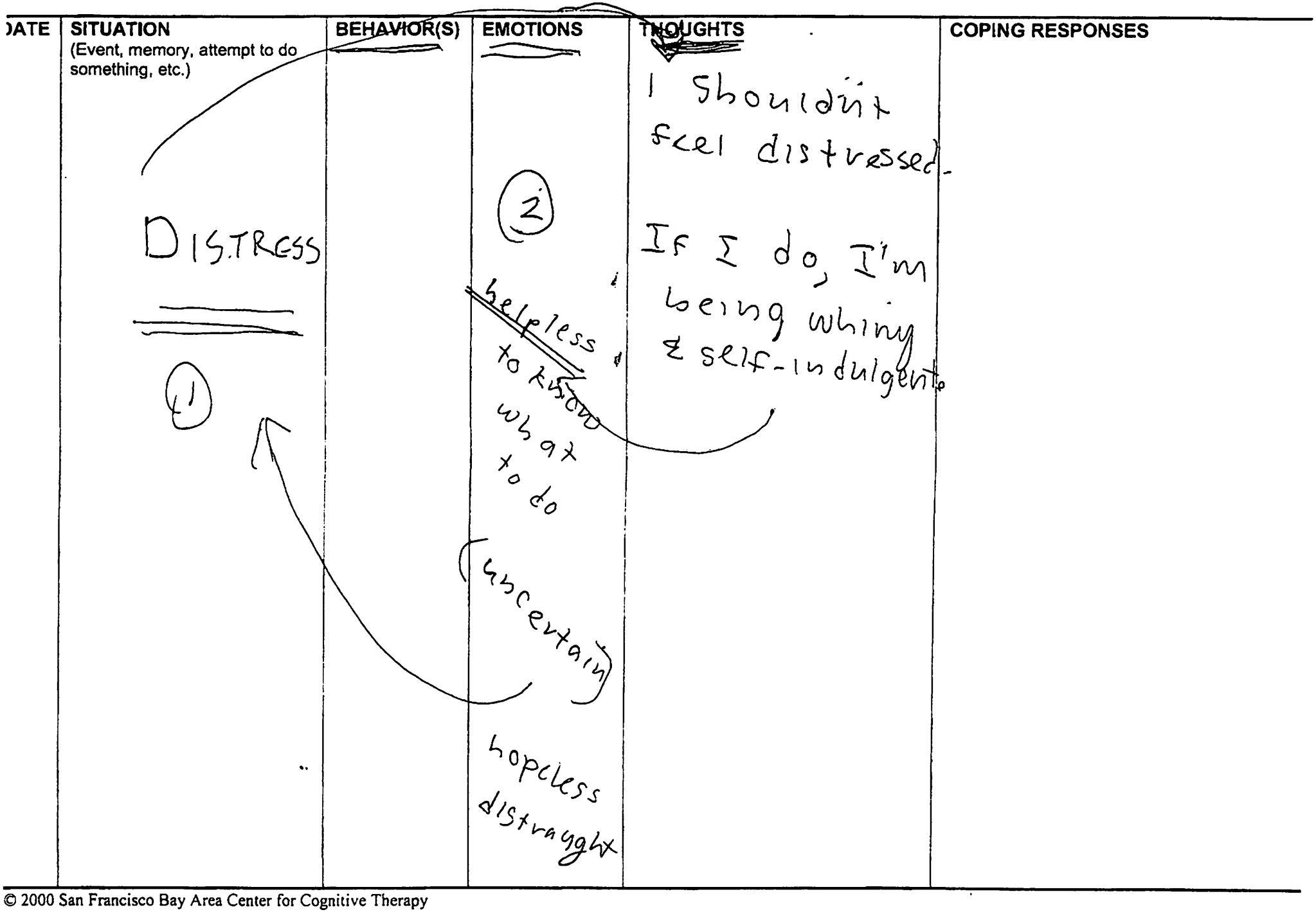

Figure 6. Briana's Thought Record at session 7

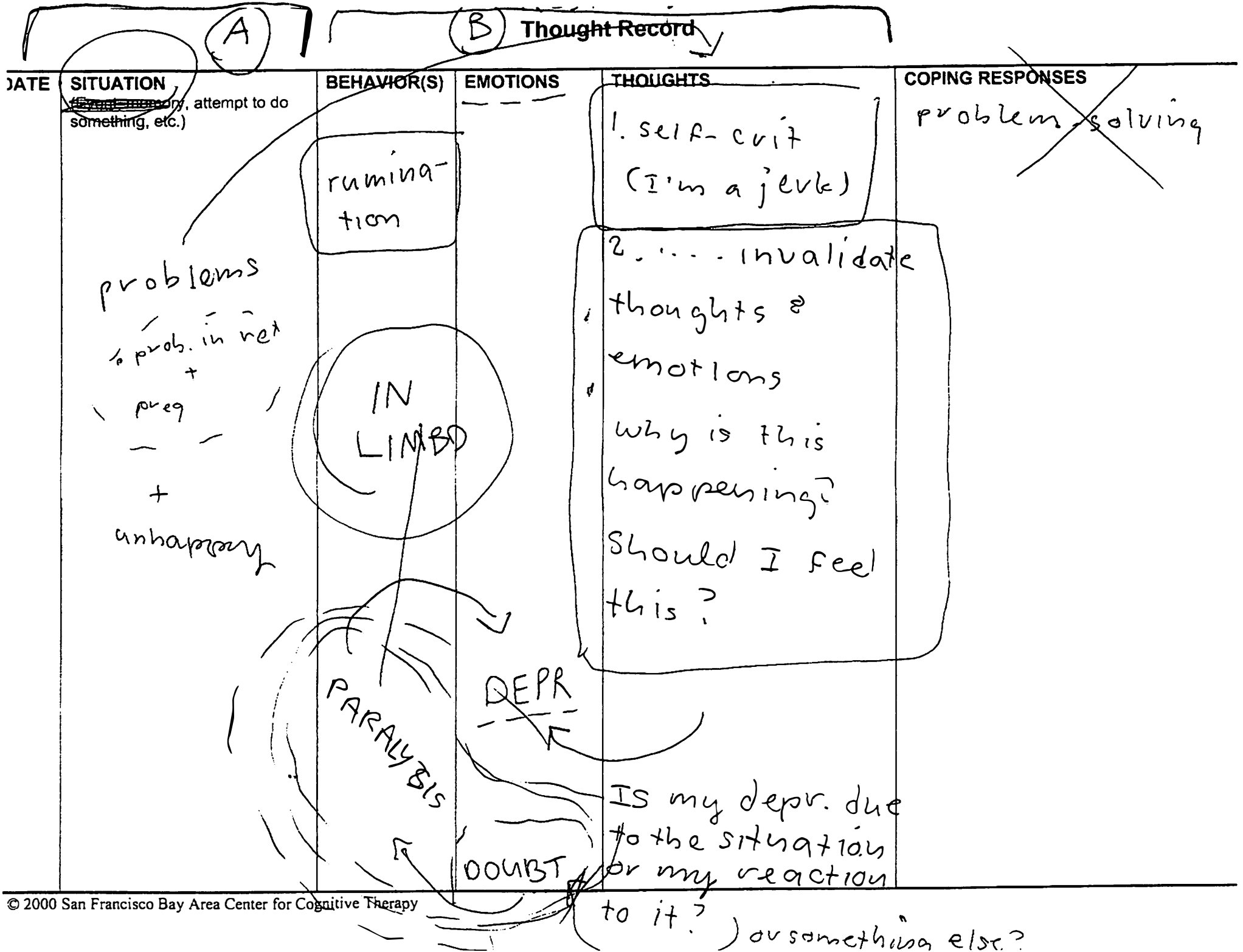

Figure 7. Scores on the Depression subscale of the Depression Anxiety Stress Scales at each session of Briana's therapy