Advances in Cognitive Theory and Therapy: The Generic Cognitive Model*

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Abstract

For over 50 years, Beck's cognitive model has provided an evidence-based way to conceptualize and treat psychological disorders. The generic cognitive model represents a set of common principles that can be applied across the spectrum of psychological disorders. The updated theoretical model provides a framework for addressing significant questions regarding the phenomenology of disorders not explained in previous iterations of the original model. New additions to the theory include continuity of adaptive and maladaptive function, dual information processing, energizing of schemas, and attentional focus. The model includes a theory of modes, an organization of schemas relevant to expectancies, self-evaluations, rules, and memories. A description of the new theoretical model is followed by a presentation of the corresponding applied model, which provides a template for conceptualizing a specific disorder and formulating a case. The focus on beliefs differentiates disorders and provides a target for treatment. A variety of interventions are described.

Contents

Beliefs:
representations of abstractions of schema content (e.g., assumptions, expectancies, fears, rules, and evaluations)

Schemas: complex cognitive structures that process stimuli, provide meaning, and activate related psychobiological systems

Modes: networks of cognitive, affective, motivational, and behavioral components designed to deal with specific demands

Protoschemas: basic cognitive structures that detect, assess, and mobilize a response to stimuli vital for survival

INTRODUCTION

The early beginning of the cognitive approach to psychological problems and clinical disorders was based on clinical observations of cognitive distortions in depression (Beck 1963). These observations evolved into a conceptual model of depression in which beliefs incorporated into cognitive structures labeled schemas (Piaget & Warden 1926) played a central role in the development of depression and other disorders (Beck 1964, 1967). The emerging cognitive model was fully explicated and applied to other disorders, with the distinction between disorders based on differences in the content of beliefs. In a further refinement of the model, Beck introduced the concept of modes, which represent a complex organization of schemas relevant to expectancies, self-evaluations, rules, and memories (Beck 1996). Disorders were organized into modes, for example, a depressive mode, an anxiety mode, etc. However, there remained many features of psychological disorders that required explanation. Furthermore, Beck's previous writings did not account for goals, normal adaptations, and mechanisms of activation and deactivation of schemas. Finally, the apparent autonomy of bipolar disorder and endogenous depression was not explained.

The generic cognitive model (GCM) reflects several important innovations to the original theoretical model, including (*a*) the continuity between adaptation and maladaptation, (*b*) the concept of schema activation, (*c*) the integration of dual processing into the model, (*d*) the concept of early detection and orientation of incoming stimuli in information processing by relatively crude schemas (protoschemas), (*e*) the processing of vital stimuli by specialized primal schemas, and (*f*) an expanded theory of modes, which provides the substrate for manic episodes and endogenous depression.

The GCM includes a theoretical account and an applied clinical approach. Theoretically, the model is a coherent representation of the underlying psychopathology (e.g., maladaptive functions expressed in symptom formation), which provides testable hypotheses that can be modified to

influence the clinical model. The theoretical model has been translated into an applied approach for use by clinicians. Clinicians can use the applied approach to determine the psychological configuration for a particular disorder, develop a case formulation, and choose among a variety of interventions, some of which are highly specific for a particular problem, whereas others can be used across a wide variety of disorders.

GENERIC COGNITIVE MODEL

The GCM provides a theoretical framework for understanding common cognitive processes in psychopathology while specifying the unique features of the specific disorders. The GCM articulates the relationship between cognitive and behavioral processes and other symptomatology and specifies how common processes lead to the differentiation of disorders. Finally, the GCM is clinically useful for conceptualizing and treating a range of psychopathology in order to facilitate the implementation of cognitive behavioral techniques into routine care settings.

The GCM posits everyday psychological problems and clinical disorders as accentuation of normal adaptive functioning. The difference between adaptation and psychological disorders is largely quantitative. The link between normal adaptive functioning and maladaptive functioning appears to be the result of the exaggeration of biases found in normal information processing. Negative bias normally exaggerates a threat or challenge, whereas positive bias exaggerates the reward from expansive activity. Cognitive schemas, defined as internally stored representations of stimuli, ideas, or experiences (Beck 1967), control information-processing systems (e.g., lower-order automatic processing versus higher-order reflective processing). When a schema is activated, corresponding meaning is derived from the belief and interacts with other cognitive, affective, motivational, and behavioral systems. Biased beliefs exist on a continuum ranging from adaptive to maladaptive and can be conditional or absolute. When the bias exceeds the built-in adaptive level, it increases the probability of an individual experiencing a subclinical or clinical disorder.

Adaptation and Information Processing

When we experience distress in psychological problems or full-blown disorders, our attention is drawn to symptoms such as anxiety or depressed mood (Ingram 1990). To understand how these symptoms arise, we need to consider a broader perspective. Distressing reactions and disorders may be viewed within the broad context of adaptation and its failures. When we are adapting well to life situations, our ability to function in our various roles is not impaired by errors in thinking, emotional distress is not disproportionate to our realistic problems, and our behavioral strategies facilitate rather than impede attainment of our goals. Our cognitive, affective, motivational, and behavioral systems function to meet basic needs and equip us with strategies to protect from physical or interpersonal harm. The affective system provides the emotional fabric of our lives: affection to forge and maintain relationships, pleasure to reward enhancing activities, anxiety to signal danger, sadness to underscore loss or defeat, and anger to counter offenses.

When the activation of these adapting systems is disproportionate to life events, then we experience various levels of psychological problems, culminating in a diagnosable disorder. Psychological disorders such as depression or the various anxiety disorders represent an exaggeration of these normal adaptive functions. We rely upon a broad range of adaptive strategies in our everyday lives: We avoid or withdraw from acute challenges that we are not prepared to deal with, we escape from life-threatening situations, we worry about a problem until we find a solution, and we give up on insolvable problems. These adaptive strategies become dysfunctional when used inappropriately or excessively to deal with clinical problems. The continuum from the adaptive behavioral

reactions of life to clinical disorders is an extension of adaptive avoidance of dangerous situations to phobias, from hygienic practice to compulsive hand washing, from caution to inhibition and anxiety in social relations, from withdrawal after rejection to depression, from reasonable concern over unexplained pains to health anxiety.

What transforms normal adaptive reactions to disorders? We believe that the cause is faulty information processing. Information processing is not necessarily veridical. When information processing provides faulty information, other systems (e.g., affective, motivational, behavioral) no longer function in an adaptive way. Errors can result in other cognitive biases (e.g., interpretation, attention, memory), excessive or inappropriate affect, and maladaptive behavior. An erroneous or exaggerated interpretation of threat, for example, will result in inappropriate or excessive anxiety and avoidance (Clark & Beck, 2011).

A biased information-processing system affects not only the type of thinking errors but also the content of meanings and interpretations. A negative or positive bias will slant incoming data in a negative or positive direction. In normal functioning, for example, there is an adaptive bias for life-threatening or life-enhancing events. A negative bias increases the subjective probability that a particular event poses a danger. A negative bias will assure reactions to true danger; however, at the cost of many false alarms. Consequently, individuals are likely to experience unwarranted anxiety in many seemingly dangerous but innocuous situations. Similarly, a positive bias exaggerates the probability or degree of positive outcomes and consequently increases or maintains motivation to engage in a task. When the bias exceeds an adaptive level, the probability of experiencing a subclinical or clinical disorder is increased. Various processes associated with biased thinking include absolute extreme categorization leading to magnification and overgeneralization, selective abstraction (e.g., focusing on one detail while disregarding other information in the context), and personalization (e.g., the tendency to believe that everything others do or say is a direct reaction to the individual).

Automatic and Reflective Processing

Information processing depends upon two interacting subsystems, described as primary or automatic processing system and secondary or reflective processing system. This conceptualization of a dual processing system has its roots in Freud's concept of appraisal and reflective reappraisal (Lazarus & Folkman 1984) and relates to automatic and controlled processing in cognitive psychology (Schneider & Chein 2003). The automatic system processes stimuli rapidly, is resource sparing, and is triggered by events that signal personal threats, gains, or losses. This system fits incoming data into gross categories and is likely to produce errors. The reflective system processes stimuli more slowly, is resource demanding, and is more deliberate, nuanced, and controlled. The meanings and interpretations tend to be more objective and refined, and less absolute and extreme, than the products of primary processing. The two systems may act reciprocally in that the subjective meanings assigned by the automatic system may be appraised and corrected or modified by the reflective system (i.e., "reality testing"). The dual processing system is driven by cognitive structures, labeled schemas.

Schemas

In ordering life experiences, individuals need to determine what is important, construe it properly, and respond appropriately. The role of schemas is to process everyday stimulus situations in order to provide meaning and, depending on the content, engage other systems such as motivational, affective, and physiological systems. The concept of schemas was initially proposed by Piaget & Warden (1926) as the underlying structure for organizing perceptions of the world. Bartlett

Automatic processing system: a system driven by protoschemas to rapidly process stimuli that may signal personal threat, gain, or loss

Reflective processing system: a system driven by schemas in service of processing stimuli in a thorough and controlled manner

(1932) demonstrated that culturally based schema can distort memories. Kelly (1955) applied the notion of personal construct to the understanding and therapy of clinical problems. Although not explicitly using structure in his theory, Ellis (1958) introduced the concept of beliefs in terms of assigning meaning to events.

Negatively biased schemas, or those schemas that are theorized to have a causal role in the development of mental disorders such as depression and anxiety (Beck 1967), develop through a complex biasing process involving the interaction of genetic factors, selective allocation of attentional resources, and storage in memory with adverse environmental life events.

As shown in **Figure 1**, the risk for the development of negatively biased schemas begins at the earliest stage of information processing. Genetic influences, such as the 5-hydroxytryptamine polymorphism (serotonin transporter gene, short form), lead to a neurophysiological hyperactivity reflected in attentional biases to emotionally relevant stimuli (Gibb et al. 2013). Negative environmental inputs tend to shape the valence of the attentional bias, and repeated interactions reinforce the bias for negative experiences.

Biased perceptions are accumulated and stored in memory and lead to the formation of cognitive processing structures, or schemas, which incorporate the biased beliefs. Schemas are strengthened by exposure to a severe adverse event or repeated stressful experiences. Schemas may remain latent

Figure 1

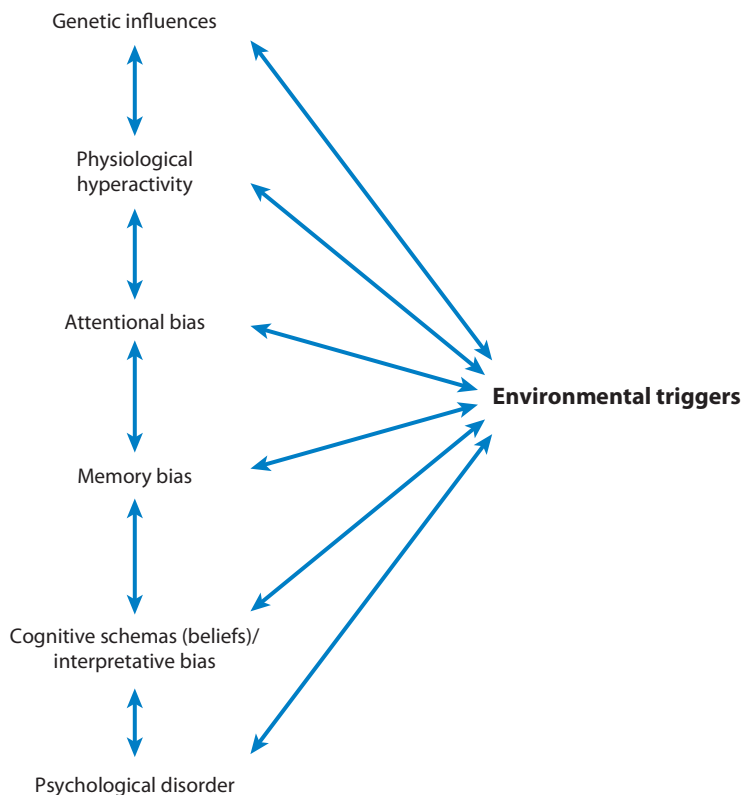The development of cognitive schemas implicated in the onset and maintenance of psychological disorders. Genetic influences contribute to physiological hyperactivity, which leads to biases in attention and memory and the formation of interpretative biases that coalesce as schemas. Environmental events influence each stage of development to determine the nature of the schema content and psychological disorder.

or become activated by potent life events. In the case of the latter, fully activated cognitive schemas control cognitive processing and lead to a psychological symptomatology.

According to the GCM, stimulus events are initially processed by protoschemas that function to provide an initial evaluation of stimuli through the automatic system. Protoschemas monitor, detect, and abstract data from the external environment and subjective experiences that may be of vital concern (e.g., for survival). Protoschemas separate stimulus events into crucial (e.g., "good for me" or "bad for me") or mundane categories, attach a probable gross meaning, and activate affective and behavioral systems. The final phase of processing is implemented by the reflective system, which refines or corrects the meaning or the product of the automatic system. The reflective system contains more complex schemas than the automatic system and includes concepts for reasoning and rules of logic such as adaptive attitudes to promote resilience and goal achievement.

In our formulation, cognitive schemas have a variety of characteristics, including several described by Piaget & Warden (1926). The variety of schema content plays a crucial role in applying meaning to experiences. Schemas can also vary in terms of their permeability or the degree to which they are open to new information. A moderate degree of permeability is important in terms of its impact on receptiveness to new experiences (e.g., psychotherapy). At the extremes, excessive permeability may lead to a loose, disorganized style of thinking, whereas impermeability is a token of rigid thinking and delusions. Another crucial feature of schemas is accommodation, which relates to learning via the integration of new information and the consequent modification of schema content. The density of a schema plays a role in maintaining concepts such that greater density, as a result of repeated activation (e.g., habitual behavior), reflects the durability of a schema or the schema's sensitivity to change. Schema-related activation or charge refers to the sensitivity and power of the schema. When highly energized, schemas are easily activated, and the converse is also true. When schemas are modified (e.g., via accommodation) by therapy or life experience, they have a high threshold for activation. The level of activation reflects the degree of charge or energy associated with the schema. Schemas that are fully energized control information processing.

Beliefs

The term belief is used as a generic label to represent a variety of schema-related constructs such as assumptions, expectancies, fears, rules, and evaluations influencing memories and associations. Some beliefs assume an imperative form. The object may be the self or other individuals. These are framed in words such as "should," "must," or "ought."

The content of primal belief deals with vital issues such as survival, health, identity, and relationships. The primal beliefs are distinguished from relatively mundane beliefs that can be changed if wrong by correcting information or using common sense reasoning. Individuals in therapy often say, "I know intellectually this belief is irrational, but I still believe it." This statement illustrates that perspective and objectivity do not necessarily change a dysfunctional belief. Effecting change may require the integration of new corrective information into the primal schema (accommodation) either through corrective experience or robust psychotherapy.

In addition to content, primal beliefs are characterized by several dimensions, including accessibility, conviction, conditionality or absoluteness, attribution, and bias. The accessibility of primal beliefs varies such that beliefs may pervade conscious thinking in severe depression, anxiety, or obsessional disorder. Depending on the context, a derivative of the belief is represented in the form of an automatic thought (Beck 1963). For example, a depressed lawyer with the underlying belief "I am incompetent" had the automatic thought, "I can't do it" when asked to return a call from a client. As his depression deepened, his stream of consciousness was dominated by the thought, "I am a failure."

The degree of conviction in the validity of a belief varies from time to time, even in the case of delusions. An index of the degree of conviction is the behavior instigated by the activation of the belief. When the conviction is total, the individual will have difficulty resisting the dictates of the belief, which may be to escape, withdraw, aggress, or engage in ritualistic behavior.

Beliefs may occur in a conditional or unconditional (absolute) form. For example, an individual with obsessive-compulsive disorder may have the belief, "If I touch an unfamiliar object, I may be contaminated." As this condition worsens, the individual may think, "I am contaminated" and would feel compelled to wash repeatedly. The pervasiveness and the extremeness of primal beliefs increase as psychological disorders worsen. The content of the beliefs can shift along the continuum from minimal to extreme. Escalation from conditional to absolute occurs in disorders such as depression. As the disorder progresses, the belief changes from "If I can't do something it means I am helpless" to "I am helpless."

A crucial dimension of beliefs is the direction of attribution. For example, when an aversive event happens, the depressive attribution may be, "It's my fault." The angry or paranoid attribution may be, "They did this to me deliberately." The anxious attribution may be, "I am contaminated," and the individual may feel compelled to wash repeatedly. The pervasiveness and the extremeness of primal beliefs increase as psychological disorders worsen.

Finally, beliefs can also be characterized by their degree of bias. Biased beliefs range from adaptive to maladaptive, from subclinical to clinical, and from mild to severe in extremeness. The progression from a functional to dysfunctional bias may occur as an interaction between biased beliefs of vulnerability to the occurrence of a stimulus situation matching that vulnerability.

Stimulus Response Network

The traditional approach to behavior is based on a reactivity model: The individual is the passive recipient of a wide variety of external and internal stimuli and responds in either an adaptive or maladaptive manner. A broader model takes into account individual goals, drives, and expectations that proactively shape behavior. Our interactive model is based on the assumption that at times the sequence of reactions is initiated by goals and drives (proactive) and other times by events (reactive). In either application (proactive or reactive), feedback forms an interaction.

The evolution of the GCM is derived in part from response theory. There has been a gradual progression from the early peripheralist theory of Pavlov (1927) to the more centralist theory of Ellis (1958). Skinner (1938) added the concept of reinforcement and punishment to behavioral theory. Tolman (1936) introduced the concept of intervening variables within the organism between the stimulus and response, which was further developed by Hull (1943). Tolman (1941) had a more cognitive view of these intervening variables and included beliefs in his formulation, whereas Bandura's (1962) influential learning theory significantly shifted into the cognitive domain. Ellis (1958) completed the transition of a centralist model that could be applied to psychopathology and psychotherapy.

Ellis (1958) was the first to attempt to develop a comprehensive cognitive model of psychopathology. He theorized that psychopathology was the result of processing events through an irrational belief system. In particular, he underscored the role of the imperative "shoulds" in producing maladaptive behavior. Ellis's model proposed a sequence of events beginning with external stimuli (activating events), which trigger irrational beliefs and lead to irrational or inappropriate reactions (consequences).

Although Ellis's work was significant for its focus on rational beliefs, his model has several significant limitations. First, the model does not specify how irrational beliefs account for the heterogeneity in clinical presentations. Second, the model does not address instances where rational

beliefs are, in fact, maladaptive or unhelpful (e.g., a person attempting to walk across a tightrope may have the rational thought that he or she might fall, but this belief would be maladaptive). Third, although the model clearly acknowledges the role of biased beliefs in psychopathology, the model omits the role of other types of cognitive processes, such as attention or memory.

Each of the components of the GCM has a specific adaptational function. In our current formulation, the sequence starts with the activation of a schema by an internal or external stimulus situation. The activated schema applies a template (belief) to extract meaning from the data and sets in motion further maladaptive thought processes (e.g., rumination or worry) and affective, motivational, physiological, and behavioral responses. The sequence is transformed into an interacting network by multiple feedback vehicles, and once formed, it functions as a unit. The stimulus situation provides information regarding the circumstances requiring an adaptive response. The protoschemas provide a preliminary appraisal and interpretation, which may be subjected to more elaborate processing by the schemas of the reflective system in order to organize relevant contextual information and provide a reinterpretation.

Stimulus situations range from bodily sensations to physical harm to social rejection. Individuals are especially likely to detect and respond to vital stimuli or those events that affect their well-being, identity, goals, and individual and group attachment. These stimuli are preemptive, draw attention away from more mundane preoccupations, and sharpen perceptions and behavioral responses. Preemptive stimuli activate the primal schemas and guide cognitive focus (attention and memory), which leads to either adaptive or maladaptive reactions, depending on the content (beliefs) of the primal schemas.

The role of attentional focus in psychopathology was highlighted by Ingram (1990), who proposed that self-focus was ubiquitous across clinical disorders, with the differentiation based on differences in beliefs. For example, in the case of social phobia, Clark & Wells (1995) proposed that self-focus has a central role in the disorder and that this process interferes with accurate processing of a situation and the ability to benefit from corrective reality testing. Woodruff-Borden et al. (2001) and Harvey et al. (2004) have confirmed the role of self-focused attention across a variety of disorders.

According to the GCM, automatic attention to detail and context facilitate reflective processing, which enables the individual to modify initial interpretations and adjust behavioral responses. Although focus helps to facilitate adaptive responses to significant stimulus situations, it leads to maladaptive reactions when it is applied inappropriately or inflexibly. The involuntary focusing of attention on subjective experiences in panic disorder, for example, often precludes the ability to evaluate the symptoms objectively. Similarly, the fixation of attention on various body sensations is a key element in health anxiety, chronic fatigue syndrome, and anorexia nervosa. Individuals often focus intentionally on their symptoms as a way to control them but, in actuality, make them worse. For example, sustained focus on various mental experiences such as obsessions, auditory hallucinations, and ruminations increase their intensity.

Affect serves as a subjective signal to reinforce the interpretation of the stimulus situation as vital (e.g., concerning danger, failure, loss, success, or offense). The experience of anxiety alerts the individual to physical or psychosocial danger. In exaggerated form, it may be generated by an amplified fear of future negative outcomes (generalized anxiety disorder), medical disaster (panic disorder), and medical illness (health anxiety). The individual is prompted to engage in actions to reduce the unpleasant affect, for example, avoid, escape, or seek help. Sadness signals loss and can help to elicit a number of outcomes: withdrawal, reflection, a change in goals or strategies. In clinical depression, it most frequently leads to withdrawal and inertia. Anger is a spur to deflect the offending agent. It is usually preceded by the perception of being wrongfully diminished in some way (Beck 1999), and in its extreme form, it may be associated with paranoia. Pleasure, or

euphoria, in contrast, may motivate continuation with pleasurable activity until saturation occurs or the circumstances are no longer rewarding. It is represented in exaggerated form in the manic phase of bipolar disorder.

The same behaviors that enable an individual to adapt to challenges such as dangers or deprivation play a key role in psychological disorders. Individuals draw on their repertoire of adaptive behavior to cope with the problem. In the context of disabling psychological problems, these behaviors are maladaptive in that they do not lead to adaptation and relieved distress in the long-term; rather, they maintain distress.

One type of maladaptive behavior, safety behavior, is carried out to reduce the sense of vulnerability in the short run but ultimately perpetuates the disorder. Examples of safety behaviors include reassurance seeking, checking, avoidance, distraction, escape, and rituals. Generally, safety behaviors aggravate and do not forestall reoccurrence of anxiety. A number of factors can account for the paradox. When individuals rely on safety behaviors, they do not gain the opportunity to test their basic beliefs about specific dangers or about the counterproductive nature of safety strategies. Each repetition of these behaviors reinforces a belief such as, "I am safe only if I avoid crowds." Because the strategies bring relief, there is limited opportunity or incentive for the kind of reflective learning (reality testing) that is most effective during structured exposure to the feared stimulus. With the successful use of safety behaviors, the primal schemas have been temporarily de-energized but not changed. Corrective information has not been integrated. The schemas are relatively impermeable to reason and reassurance. New learning requires an experimental intervention. In this context, learning occurs when cognitive dissonance is created between fearful expectations and realistic appraisals. In the treatment of panic disorder, for example, the individual can learn that the various signs and symptoms (dizziness, pain in the chest, numbness of limbs) are benign experiences and do not represent impending death, loss of control, or impending insanity (Beck et al. 1992).

When the individual is totally preoccupied with the idea of a severe outcome, attentional resources are not available to reflect on benign explanations. A shift in attentional focus, however, diminishes the salience of the belief and allows for reframing.

Finally, because the degree of dependency on physician, helper, rituals, drugs, and even social avoidance strategies increases over time and may be emotionally rewarding (e.g., relief from distress), the behavior and the rewards become ends in themselves. In some cases, the person becomes increasingly dependent even though the anxiety and the presumed danger remain the same or are reduced. Eventually, the withdrawn individual may, for example, become so invested in avoidant behavior that he or she is no longer concerned with danger. Rather, the individual's motivational system is engaged in maintaining the status quo, which becomes a way of life.

Schema Activation

The phenomenology of psychological disorders has a number of features that have to be answered. Episodic disorders such as depression and generalized anxiety disorders often follow a similar progression from mild symptomatology to a peak and then gradually diminish to baseline. This cycle may occur without intervention; however, the duration is shortened and severity reduced with psychological or pharmacological treatment. Furthermore, some interventions produce only symptomatic relief and do not prevent recurrence, whereas others have a durable effect.

One challenge to understanding the phenomenology of psychological disorders relates to how information processing is activated and deactivated and how the content is modified. Another challenge is understanding the differential effect of various therapies on symptom change and stability.

We propose that these questions can be answered in terms of activation and deactivation as it relates to modification of the content of cognitive schemas by the accommodation of corrective information into the schemas. When a match is made between a triggering event and a protoschema, the latter becomes activated. The activated schema initiates further information processing, and the beliefs provide the content. The affective, motivational, and behavioral systems become activated, and because their function is congruent with the content of the belief, they facilitate an integrated response.

The concept of schema activation can be applied to the entire course of an episode, from the onset to remission to recurrence. The induced cognitive bias exaggerates the meaning of events, which feeds back, thus activating the schemas. Consider the process of smell. A molecule entering the nasal cavity makes contact with a matching receptor. An electrical signature is transduced and flows to the olfactory region of the brain, where final processing occurs. Similarly, we propose that activation (analogous to the electrochemical action in olfaction) is transduced at the interface of stimulus and protoschema.

Theory of Mode

Up to this point, we have used the stimulus response network or reactivity paradigm to explain maladaptive as well as adaptive behavior. However, humans are not simply moved by events but also play a major role in creating personal events (Epictetus 1865). A large proportion of human activities are driven by a series of self-initiated goals and self-imposed obligations.

The theory of modes refers to a network of cognitive, affective, motivational, and behavioral components and can be invoked to account for the pursuit of life goals and the management of other specific demands or problems (Beck 1996). Modes represent consolidated schema-embedded beliefs, rules, and expectancies, as well as complex concepts such as self-esteem. Together, these components function as an integrated organization. This organization of the mode shares the same characteristics of individual schemas such as activation threshold and permeability, which are especially relevant when we consider psychological disorders.

Self-Expansive Mode

The major sector of personality concerned with the enhancement of personal resources is labeled the self-expansive mode. The self-expansive mode is associated with a desire to increase the value an individual attaches to himself or herself (e.g., increasing one's status, economic position, or affiliation). Positive self-expansion is associated with pleasure and increased self-esteem, whereas negative self-expansion is associated with pain and decreased self-esteem. This self-expansive mode generally facilitates adaptation such as goal attainment; however, in response to aversive circumstances, it is also involved in the conservation of resources (e.g., decreased self-expansion such as withdrawal).

Like other modes, the self-expansive mode constitutes a major organization within the personality, integrated under a specific goal or objective. It is composed of a variety of schemas containing simple or complex beliefs oriented to reactions to events (e.g., conditional beliefs), imperative beliefs (e.g., "I must do well," "I should study harder"), and evaluative beliefs that reflect self-image, self-esteem, and the perceived esteem of others. A unifying theme in this mode is the evaluation or devaluation of the self.

The infrastructure of a goal in the self-expansive mode is composed of expectancies regarding the subjective value and outcomes of goal attainment. Expectancies are framed in the form of conditional beliefs: If x, then y. The clusters of beliefs that represent obligations follow an imperative form: You must, or you should.

Consider the example of a young woman who has decided to become a lawyer. Given the anticipated outcome of this decision, she attaches a high value to this choice. The anticipated outcome (i.e., expectancies) forms conditional beliefs, arranged in the form of an algorithm, "If I become a lawyer, then I will be happy." Underlying this belief is a series of other conditional beliefs, for example, "If I succeed, then my future is set," "If I succeed, then my parents will be proud of me, people will respect me, and I will be proud of myself." Of particular note is the counterpart to these positive beliefs in the context of a negative outcome: "If I fail, then my parents will be disappointed, and I will be unhappy." These negative beliefs have the potential to lead to sadness or depression.

Obligations in the self-expansive mode consist of rules of conduct that serve to reinforce goal attainment by safeguarding momentum when satisfaction diminishes (e.g., when work becomes onerous). Social obligations, such as attention to other people's needs, are based more on unconditional imperatives in the form of "should" and "should not."

The vacillations of everyday life lead to cognitive, emotional, and behavioral responses that facilitate adjustment to the changing conditions. Successful expansion (e.g., admission to law school) is rewarded by increased external as well as internal reinforcement. Dysphoria following a setback provides a warning for individuals to examine their expansive expectations and to determine the need for a change in strategy. Self-esteem serves as the catalyst for leveraging expectations, such that elevated self-esteem increases expectations.

Recall our example of the young woman who aspires to attend law school. Assume that, in fact, the young woman is granted admission to a prestigious law school. She becomes excited and desires to tell everyone about her success. The algorithm related to achievement has been activated, such that her personal self-image and perceived social self-image are enhanced. The young woman becomes more optimistic, feels less inhibited, and is energetic. Taken to the extreme, her state could be considered hypomanic.

Over time, the young woman's expectations and self-esteem stabilize. She becomes less euphoric and begins to focus on the possibility that she may not live up to her expectations and meet the rigors of law school. Consider that in keeping with the experiences of many other students, the young woman does not perform well during her first year. Assuming the young woman's self-image (and perceived social image) are closely linked to success, she begins to question her faculties, and her confidence in her ability to complete graduate school decreases. Technically, she experiences a sharp decline in her self-image. The same set of beliefs that drives goal setting is also involved in processing one's success (e.g., "Since I did well, everyone will be pleased") or failure (e.g., "Since I did badly, I'm not smart enough to succeed") in attaining intermediate or ultimate goals. The evaluation (or devaluation) of the self-image is drawn from the conditional beliefs. Whereas success activates the positive outcome belief, the converse is true for a negative outcome.

As negative beliefs (schemas) about self become energized, the young woman becomes pessimistic about the likelihood that she will reach her goal. This shift in self-esteem reflects a shift to more negative beliefs, which tend to bias her interpretations of events. Taken to an extreme, her distorted cognitions could represent a reactive depression. The degree of depression may be related to the discrepancy between her original expectations and her current evaluation of her performance.

Bipolar and Endogenous Depression

A serious challenge to a psychological theory of clinical disorders is the ability to deconstruct endogenous disorders such as bipolar disorder and nonreactive depression. These disorders have

historically been considered endogenous because they appear to occur without any, or else trivial, preparatory factors. Furthermore, unlike reactive depression, for example, these endogenous conditions do not seem to respond well to attempts by other people to advocate self-control in the case of mania or reasoning to counter extreme negative ideation in the case of depression.

Aberrations in goal setting and expansion form the substrate for mania and depressive disorders. In the case of mania, the normal response to success associated with the self-expansive mode (e.g., expansiveness and positive self-evaluation) becomes transformed into a subsector of escalating expansiveness and self-evaluation. In the case of endogenous depression, the normal response of failure leads to a constriction of investments and self-devaluation. Endogenous depression and bipolar disorder became disassociated from the personality (self-expansive mode) to become displaced autonomous entities impermeable to environmental factors.

Self-Protective Mode

A second major mode or sector of personality, the self-protective mode, forms the substrate for the anxiety disorders and paranoia. This mode is typically concerned with the early detection of a dangerous situation (e.g., protoschema), the evolution of the nature and degree of the threat, and mobilization to counter the threat. The traditional fight-or-flight model is represented in the responses to the usual threats of everyday life (e.g., avoidance, escape, attack), and the typical affective response is anxiety or anger.

The self-protective mode specifies the characteristics of a particular dangerous situation and dictates appropriate rules to reduce the threat. A specific belief and rule might be framed as, "Intoxicated strangers are dangerous, so I should distance myself from them." Such beliefs and rules are usually adaptive unless they are exaggerated. Because survival depends on accurately identifying dangerous stimuli, it is better to have false positives than false negatives. Hence there is an overinclusive bias, which produces errors but is beneficial in the long run. As a result, some degree of anxiety is ubiquitous.

The estimate of threat in a potentially dangerous situation is dependent on the evaluation of risk relative to individual resources (Beck et al. 1985). Internal resources include personal assets such as coping strategies and available help from other individuals. External resources include other reassuring individuals as well as professional helpers. Framed in term of risk, the intensity of the anxiety reaction is dependent upon the subjective probability and severity of harm. Various safety-seeking strategies are adaptive and operate to protect the individual from physical or psychological harm. The normal reactions to risky encounters merge into psychological problems when the individual's perception of risk and the actual degree of danger are exaggerated and the availability of protective resources is minimized. This bias leads to safety-seeking behavior, which may maintain the problem and transition into a clinical disorder. Thus, a natural concern about being the center of attention may develop into a fear of being in a public place, public speaking anxiety, or in the extreme, paranoia. An adaptive concern about being infected could develop into a germ phobia. One of the more unpleasant clinical disorders, generalized anxiety disorder, tends to persist because the underlying fear is continuously activated. In the case of social anxiety disorder, an individual with a belief that he or she is socially inept may worry about being demeaned in all social interactions and might be concerned about rejection from a partner. As previously discussed, the coping strategies used by people to avoid or reduce anxiety tend to perpetuate the disorder. For example, checking to be sure that the oven or water is turned off, trying to block out obsessions, and fleeing the room because of fear of losing control are effective in the short term; however, in the long term these behaviors tend to reinforce the anxiety disorder.

Summary

The GCM proposes that clinical disorders, which share common underlying processes, can be differentiated by the nature of their dysfunctional beliefs. Schemas, which are central to information processing, reflect various beliefs, expectancies, evaluations, and attributions, and serve to order everyday experience. When information processing becomes distorted, other systems (e.g., affective, motivational, behavioral) begin to function in a maladaptive manner, giving rise to symptoms of clinical disorders. Information processing depends upon two interacting subsystems, the automatic system and the reflective system. Stimulus events are initially processed by protoschemas, which provide an initial evaluation of stimuli through the automatic system. The reflective system, aided by attentional processes, refines or corrects the meaning or the product of the protoschemas. Schemas have a number of characteristics with direct implications for the transformation of adaptive to maladaptive functioning. Highly charged dysfunctional schemas are associated with psychological symptoms. Schemas can be modified in response to potent new information (e.g., therapeutic interventions). Adaptively modified schemas deactivate dysfunctional schemas, which leads to a reduction in symptoms. The theory of mode is invoked to account for more complex aspects of individual functioning, such as goal attainment. Modes reflect integrated networks of cognitive, affective, motivational, and behavioral systems that form subsectors of personality. The self-expansive and self-protective modes account for proactive goal setting and the self-protective aspects of personality. Aberrations of the self-expansive mode account for symptoms of mania and endogenous depression, and aberrations of the self-protective mode account for symptoms of anxiety and paranoia.

Although the focus of the GCM is largely represented on the cognitive level, a complete understanding of the etiology and treatment of psychopathology requires a multilevel, process-based approach (Forgeard et al. 2011). Toward this end, the putative role of biased schemas in the GCM must be understood in the context of various genetic, neurobiological, and environment models of psychopathology.

CLINICAL APPLICATION OF THE GENERIC COGNITIVE MODEL

The applied component of the GCM is based on the core cognitive therapy premise that dysfunctional thinking leads to increases in emotional distress and maladaptive behaviors. Although the GCM proposes that various clinical disorders share common underlying processes, these disorders can be reliably distinguished by specific stimuli and the content of beliefs.

An extensive body of research supports the GCM premise that specific dysfunctional beliefs are related to an individual's disorder-specific concern. Although a complete review of the cognitive specificity literature is beyond the scope of this article, we provide several examples. Individuals with depression predictably make overgeneralizations about their experiences, such as interpreting a small mistake at work as evidence that they are incompetent in all areas of their life. In this example, they typically report dysfunctional beliefs such as, "I am worthless, unlovable, incompetent, or helpless" (Dozois et al. 2009, Jarrett et al. 2012). Dysfunctional beliefs, particularly those related to perfectionism, autonomy, and self-criticism, are also associated with bipolar disorder (Alloy et al. 2009, Pavlickova et al. 2013). Beliefs associated with anxiety are generally characterized by threat, danger, and/or vulnerability. Individuals with social anxiety disorder may have the thought, "What I say will probably sound stupid" (Schulz et al. 2008), and individuals with panic disorder may notice that their pulse is racing and have the thought that something is wrong with their heart (Teachman et al. 2010). Individuals who struggle with substance abuse may endorse beliefs such as, "Life without using is boring" or "I don't deserve to recover" (Crits-Christoph et al. 2003).

Individuals with health anxiety are likely to report health-related dysfunctional beliefs such as, "I am not sure that I can handle any serious health problem that I might develop in the future" and "I believe it is likely that I will experience a chronic health condition at some point in the future" (Fergus 2013). Research on individuals with eating disorders suggests that these individuals tend to endorse specific beliefs such as, "I am not a likeable person," "I don't like myself very much," and "I am dull" (Cooper et al. 2006). Finally, recent work has found that individuals with psychotic disorders have defeatist beliefs such as, "If you cannot do something well, there is little point in doing it all," and these beliefs mediate cognitive impairment, negative symptomatology, and poor functioning in schizophrenia (Grant & Beck 2009).

Beyond the clear evidence for the relationship between dysfunctional beliefs and clinical disorders, an impressive body of research has provided direct empirical support for the core premise of cognitive therapy, which holds that changes in beliefs lead to changes in behaviors and emotions. Support for cognitive mediation in treatment studies has been found for a number of disorders, including major depressive disorder (Quilty et al. 2008), bipolar disorder (Totterdell et al. 2012), psychotic disorders (Staring et al. 2013), generalized anxiety disorder (Donegan & Dugas 2012), posttraumatic stress disorder (Kleim et al. 2013), panic disorder with or without agoraphobia (Hofmann et al. 2007), specific phobia (Raes et al. 2011), social phobia (Goldin et al. 2012), obsessive-compulsive disorder (Woody et al. 2011), sexual disorders (ter Kuile et al. 2007), eating disorders (Wilson et al. 2002), sleep disorders (Schwartz & Carney 2012), and substance use disorders (Crits-Christoph et al. 2003).

Applied Model Overview

The GCM, which draws upon basic research on cognitive and behavioral processes common to psychological disorders (Harvey et al. 2004; Mansell et al. 2009, 2008), specifies four interacting components: situation, biased belief, focus, and maladaptive behavior (see **Figure 2**). The applied model proposes that psychopathology is initiated and maintained when the schema-activated components (e.g., beliefs, focus, and maladaptive behavior) are triggered by stimuli and interact. The triggering stimuli may reflect a broad spectrum of possible events, ranging from discrete external events, such as being rejected or abandoned, failing an exam, or being fired, to specific
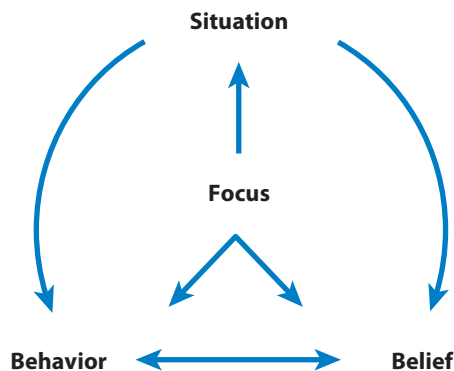

Figure 2

The generic cognitive model emphasizes common putative cognitive and behavioral processes across psychopathology. The common underlying psychopathology is represented by the interplay among environmental events, behavior, focus, and beliefs, and the unique features of mental disorders derive from the belief content.

contexts such as being in an elevator, being in crowds, or making a speech in public. Internal events such as memories, thoughts, ruminations, or somatic sensations such as chest pain or sweating may also function as activating stimuli. The triggering stimuli activate latent schemas, which determine the content of current cognitive processing. Once activated, maladaptive schemas preempt normal information processing and bias the beliefs associated with the stimulus event. Biased information processing produces additional cognitive impairments in interpretation and processing (e.g., worry and/or rumination) as well as aberrations in attention, memory, and behavior.

The applied model proposes that impairment in one area (e.g., belief, focus, or behavior) interacts with activity in the other areas. For example, in the case of an individual with social anxiety disorder, the individual may, in response to walking into a crowded cafeteria (external stimuli), activate the schema (e.g., "My worth depends on what others think of me") and have the thought, "People will notice that I am awkward." The activated belief may influence the individual's focus such that he or she may attend to certain internal sensations (e.g., feeling flushed or shaky) and interpret this as evidence that others will observe and scrutinize his or her sensations. The individual may recall a previous embarrassing experience when he or she dropped his or her cafeteria tray and have the thought, "I'll spare myself the embarrassment and eat at home." The interaction between beliefs and focus may lead to maladaptive behavior such as leaving the situation in order to avoid feared negative evaluation. Leaving the cafeteria would be a successful short-term strategy and would be negatively reinforced by the likelihood that the individual would experience immediate relief. In the long term, escape or avoidance would maintain the beliefs and associated anxiety by preventing the opportunity to collect evidence about the individual's actual ability to function in social settings.

Table 1 depicts typical stimulus events and examples of corresponding beliefs and maladaptive behaviors commonly associated with a variety of disorders.

Interventions

The goal of the applied model is to provide clinicians with a tool of broad clinical utility. The applied model will allow clinicians to develop rapid case conceptualizations for a variety of clinical presentations. Furthermore, clinicians can apply the model to yield specific theory-driven interventions for treatment. Each component of the model represents a point for therapeutic intervention; however, many of the interventions overlap and will likely influence the remaining components. An individual seeking treatment may present with complaints related to one component of the model (e.g., situation, belief, focus, or behavior) or a combination of all four. We propose that addressing one component will lead to symptom reduction; however, the most elegant and durable therapeutic approach is one that addresses each of the components. The following sections provide examples of interventions associated with the belief, focus, and behavior components of the GCM.

Belief interventions. The interventions related to the belief component derive from the theoretical model describing the role of biased beliefs and goal setting. At the outset, the aim of therapy is to identify and set achievable goals, which serve to further motivate the individual during treatment.

Interventions that target biased reasoning processes are designed to evaluate beliefs and assumptions held by individuals. Individuals may present with excessive fear of embarrassment or humiliation, as is the case with social anxiety disorder, or a belief that the only way to avoid being victimized is to maintain an aggressive stance, as is sometimes the case with posttraumatic stress

Table 1   Application of the generic cognitive model to various mental disorders. The model serves as a template to conceptualize typical activating stimuli and associated beliefs and behaviors. For all disorders, the focus is on the situation, beliefs, and behaviors

Disorder	Stimulus	Belief	Behavior
Depression	Loss/rejection	"Nothing I do is right"	Social withdrawal
Bipolar disorder	Feeling more energetic	"I can accomplish many things at once"	Start several overly ambitious projects
Psychotic disorders	Hear voices	"I can't stop them"	Isolate
Generalized anxiety disorder	Uncertainty	"Something bad is likely to happen"	Avoid situation, seek reassurance, procrastinate, excessive planning
Posttraumatic stress disorder/acute stress disorder	Reminder of trauma	"The world is dangerous, and I have no power to protect myself"	Avoid triggers or reminders
Panic disorder with or without agoraphobia	Physical sensation	"My heart is racing; I am probably having a heart attack"	Avoid situations and activities
Specific phobia	Representation of feared stimulus	"I am in danger"	Avoid feared stimulus
Social phobia	Social threat	"If I try to speak I will sound stupid"	Avoid social situations or interacting with others
Obsessive-compulsive disorder	Public restroom	"I am at risk of contracting a deadly disease"	Avoid contaminated stimulus and engage in excessive compensatory behaviors
Somatoform disorders	Physical sensation	"This pain is unbearable"	Avoid doing activity
Health anxiety	Physical sensation	"What if it's cancer?"	Seek reassurance (e.g., medical testing)
Sexual disorders	Intimacy	"I won't be able to satisfy partner"	Avoid intimacy
Eating disorders	Weight/body image	"I would be happier if I weighed less"	Restrict calories, check weight, avoid eating with others, exercise excessively
Sleep disorders	Time	"I won't be able to function tomorrow if I don't fall asleep right now"	Repeatedly check time
Substance use disorders	Going to a party	"I had a stressful day, so I deserve to have a few drinks"	Use substance

Note: The table is not exhaustive; rather, it exemplifies common disorders and associated stimuli, beliefs, and behaviors.

disorder. In either case, cognitive restructuring is used to identify and evaluate erroneous beliefs and interpretations (Beck 1995, Wright et al. 2006).

The clinician can rely on several strategies, such as psychoeducation, to help individuals learn to identify their underlying beliefs and associated thinking patterns as well distinguish between thoughts, feelings, and behaviors. For individuals who have difficulty identifying their thoughts, imagery can be a helpful tool to recognize thoughts, such as negative expectations associated with a certain situation. Once individuals are able to discriminate between thoughts, feelings, and behaviors, they may be encouraged to focus on facts rather than feelings in order to avoid potential pitfalls of emotional reasoning.

Numerous strategies to facilitate cognitive restructuring have been developed to help individuals consider alternative explanations and examine the evidence for their beliefs (Beck 1995, Wright et al. 2006). Guided discovery (e.g., skillful questioning that allows individuals to come to their

own conclusions regarding the helpfulness or validity of their thoughts and behaviors) is used to maximize the potential benefit of considering alternative viewpoints (Dobson 2009). A variety of worksheets have been developed (e.g., the Thought Record Sheet) to help individuals learn how to recognize, examine, and modify inaccurate thoughts and images (Greenberger & Padesky 1995). When beliefs about responsibility dominate a clinical presentation, the completion of a pie chart may assist the individual in examining thoughts related to one's role in a given situation (Beck 1995). Once an individual has adopted an accurate thought, he or she may be encouraged to write the modified thought on a card (e.g., Coping Cards) in order to reinforce the importance of the new thought and to help him or her generalize the thought to situations outside of the therapy session (Beck 1995).

Behavioral tests rely on engaging in explicit learning experiences in order to examine and modify beliefs (Dobson & Hamilton 2004). Exercises are designed to provide individuals with the opportunity to uncouple their negative thoughts about a particular stimulus. Specific predictions such as "Others will laugh at me," "I will have a heart attack," or "I will not be able to tolerate the pain" can be tested with behavioral experiments in order to reduce negative interpretations of ambiguous situations and to evaluate unrealistic expectations and unlikely outcomes. Alternatively, individuals can be encouraged to develop and activate positive adaptive thoughts for dealing with daily life events. In many cases, clinicians may find it appropriate to help individuals identify and eliminate the use of safety behaviors. In certain instances, individuals who approach a feared situation will attribute their ability to navigate the situation to the safety behavior (Wells et al. 1995). Clinicians can suggest behavioral experiments that explicitly require individuals to refrain from using their safety behavior. Through guided discovery, individuals can learn that the use of a particular safety behavior was unrelated to the nonoccurrence of a feared outcome.

Focus interventions. Various cognitive interventions target the role of biased attention and memory in clinical disorders (Teasdale et al. 1995). In order to target an individual's focus, it is necessary to identify the nature of his or her focus and associated meaning. To this end, several strategies can be used; for example, careful review of completed thought records may indicate biases in attention and associated cognitive distortions. With this information in hand, the clinician can help the individual modify his or her focus and the attached meaning by increasing the range of stimuli the individual pays attention to or by practicing the act of disengaging from stimuli. Attentional modification can be achieved by employing simple behavioral experiments designed to broaden one's perspective (e.g., have the socially anxious person look up when walking into a crowded room) or by engaging in practice to monitor and redirect unhelpful tendencies to avoid or indulge attention or memory processes. With practice, for example through the use of mindfulness-based interventions (e.g., meditation), individuals can learn to actively disengage or develop effortful attention to new or different stimuli (Fresco et al. 2010). Over time these interventions can help the individual modify his or her focus and the meanings attached to certain stimuli.

Behavioral interventions. Many individuals present for therapy when they notice that the behaviors they rely upon to cope with emotional distress have begun to impinge on their functioning. For many psychological disorders, the goal is to encourage adaptive behaviors and/or reduce maladaptive behaviors. Behavioral methods are generally used in concert with cognitive restructuring to foster durable treatment change (Wright et al. 2006).

Monitoring and reviewing an individual's activity often helps to identify key behaviors. With a completed activity log, clinicians can use guided discovery to help individuals understand the relationship between thoughts, mood, and behavior. In some cases it may be important to identify

and encourage prosocial behaviors or prescribe engagement in pleasant or meaningful activities. For example, depressed individuals often report being withdrawn and engaged in a very narrowed set of activities. These individuals will likely respond to increased engagement in a greater number of pleasurable and/or meaningful activities (e.g., behavioral activation) in order to increase opportunities for positive reinforcement and for evaluation of negative beliefs about the self, others, and the world.

Other behavioral interventions include engaging in imagery, relaxation, distraction, or adopting a competing behavior to counteract behaviors such as excessive skin picking. Graded task assignments may be indicated for individuals struggling to complete complex tasks by helping them break down the task into smaller, more manageable parts (Beck 1995). In addition, individuals often benefit from behavioral rehearsal or role-playing certain interactions in order to increase their sense of preparedness and self-efficacy.

The GCM is a template that can be tailored to target schema-activated dysfunctional thoughts in order to reduce emotional distress and maladaptive behavior. The goal of the GCM is to make a durable impact on disorder-specific dysfunctional beliefs by relying on a combination of cognitive restructuring, attentional modification, and behavioral interventions.

Case Study

A 19-year-old college junior, Louis, awoke out of a deep sleep by the sound of loud knocking on his apartment door. He checked the clock—3:00 AM—and started to say something to his girlfriend before remembering that she had decided to stay with one of her friends for the night. With a growing sense of dread, Louis got out of bed, opened the door, and was met by two men in suits who were displaying badges. Louis soon learned that his girlfriend had committed suicide by jumping in front of a train.

One year after his girlfriend's death, Louis made an appointment with a cognitive therapist. During the intake session, the clinician worked with Louis to gather information about his clinical condition and any significant aspects of his life history in order to shed light on possible predisposing and precipitating events. Louis reported that since his girlfriend's suicide, he hasn't felt like his normal self. He reported that he feels "on-edge" and "down" most of the time, he has stopped playing sports, he no longer spends much time with his friends who knew his deceased girlfriend, he feels tired all the time even though he sleeps 10 to 12 hours a day, he has trouble focusing in school, he "constantly snaps" when he's around people, he frequently has upsetting dreams, and he drinks six to eight alcoholic drinks each night to fall asleep. The clinician also learned that when Louis was 7 years old, his younger sister was killed in a car accident. Louis mentioned that he was supposed to be in the same car with his sister on the day she was killed, and that it took him a long time to deal with her death.

In order to get a sense for his current reactions to specific stimuli and events, the clinician asked Louis to think about the time when he generally feels the worst. Louis reported that he feels the worst in the evening, when he is alone in his apartment. The clinician asked Louis what specific thoughts go through his head during this time. Louis replied that he has repetitive thoughts such as, "I'm never going to be happy again," "There is no point getting close to people," and "I should have known she was going to kill herself."

The clinician considered the information gathered in the initial interview and used the GCM as a template to begin developing an initial conceptualization of Louis. The clinician considered the belief component of the model and developed a conceptualization based on how Louis thinks about himself, others, the world, and the future. The clinician noted several examples of distorted thinking such as biased expectancies about the future (e.g., "I'm never going to be happy again"),

overgeneralization (e.g., "There is no point getting close to people"), and emotional reasoning (e.g., "I should have known she was going to kill herself").

Next, the clinician considered the nature of Louis's focus, for example, what Louis remembers or attends to in his daily life. In addition to being bothered by recurrent distressing dreams about his girlfriend's suicide, Louis indicated that he spends a lot of time "in his head" thinking about how badly he feels and going over every aspect of his relationship with his girlfriend.

Finally, the clinician considered the behaviors that Louis reported engaging in since his girlfriend's suicide. Louis noted several behaviors that he believed helped him cope with his emotional distress (e.g., drinking alcohol before bed, isolating himself from friends and family).

After considering the components of the GCM, the clinician developed an initial working conceptualization to help formulate Louis's symptoms of depression and posttraumatic stress and direct treatment. The clinician shared the tentative conceptualization with Louis and suggested it was possible that the beliefs he developed after his sister's death predisposed him to unhelpful thinking patterns and depression. The clinician hypothesized that following his girlfriend's suicide, any dysfunctional beliefs Louis developed after his sister's death may have become activated, and Louis had uncritically accepted their veracity. These dysfunctional beliefs may have made Louis vulnerable to interpreting events and focusing on things in a biased way. Moreover, these dysfunctional beliefs likely influenced his everyday thoughts, which negatively affected his mood and in turn led to more negative thoughts. The cycle was likely reinforced by Louis's tendency to avoid people and certain places, which prevented him from having the opportunity to evaluate the accuracy of his negative thoughts or experience positive life events. In this sense, Louis's network of symptoms could be understood as an interaction of a situation, biased beliefs, focus, and behavior.

The clinician worked with Louis to ensure that he understood the conceptualization, the rationale for the cognitive model, and the structure of cognitive therapy. They used the conceptualization to develop specific treatment goals and a plan for meeting those goals. Louis and the clinician collaboratively identified three main goals: (*a*) identify, examine, and modify inaccurate or unhelpful thoughts Louis has about his future and others; (*b*) examine his thoughts about his perceived role in his girlfriend's suicide; and (*c*) increase his level of social interaction.

During the course of therapy, the clinician was able to adequately target Louis's symptoms of depression and posttraumatic stress disorder by using the GCM to select, implement, and evaluate the efficacy of specific interventions. The clinician dedicated a significant amount of time to helping Louis examine the evidence for his thoughts. In particular, a significant number of sessions were dedicated to examining Louis's thought that he should have known his girlfriend was suicidal. The clinician used cognitive restructuring to help Louis examine the evidence and adopt a modified thought that his girlfriend's desire to commit suicide was something he could not have predicted. With practice, Louis was able to independently modify his thoughts so that they were more accurate and helpful.

With time, Louis came to acknowledge that he had a number of close people in his life who cared about him and that it was important for him to maintain those relationships. Louis agreed to slowly increase his social activity, which allowed him to evaluate his belief that it would be too unbearable to see his friends who had known his girlfriend.

Throughout treatment, Louis made important progress toward his treatment goals and reported a reduction in his symptoms. Toward the end of treatment, Louis continued to work on reducing the amount of alcohol he consumed before bed. He independently designed a behavioral experiment to test his thought that it will take him "forever to fall asleep without drinking." Despite remaining hesitant about pursuing romantic relationships, Louis reported feeling grateful that he had reconnected with some of his old friends.

DISCUSSION AND FUTURE DIRECTIONS

We have presented the GCM, which can be used to understand and treat a broad spectrum of psychological disorders. The GCM reflects a broad theoretical model that addresses the phenomenology of psychological disorders and a simplified applied model to help the clinician formulate a rapid conceptualization of an individual case.

In the context of the theoretical model, we view psychological problems as the result of an exaggeration of beliefs, affect, and behaviors that are usually helpful in dealing with problems and satisfying goals. Problems occur when the beliefs are significantly distorted. The escalating spiral of cognitive biases intensifies affect and converts adaptive behaviors into maladaptive behaviors. The composite of maladaptive beliefs, affect, and behavior constitutes the symptoms of a disorder.

The term belief is a proxy for a cluster of expectancies, evaluations, memories, and images that form the content of cognitive schemas. The schemas constitute the central structure in information processing, whereas their content (beliefs) provides the meaning. Schemas have a gradient of activation from latent to highly charged. The progressive activation of a schema from low to high intensity transforms normal adaptation to psychological disorder such that beliefs, affect, and behaviors become hypersalient.

When new information that contradicts the biased beliefs is introduced into the schemas, the schemas may become deactivated, and symptoms may subside. Modification of the belief by this method may be produced by specific interventions or nonspecific factors. The precise impact of medications in symptom improvement is unclear.

Why do clinical conditions reoccur? Research has shown that if the basic beliefs are not substantially modified, they can be reactivated (Segal et al. 2010). Symptom relief is associated with a drop in the degree of conviction in a biased belief; however, the belief remains latent until reactivated. Long-term modification of the belief, as indicated by lack of relapse and nonreactivity of the belief, occurs with cognitive therapy.

The concept of mode addresses the question of how patterns of beliefs, affect, and behavior are consolidated into clinical entities. Two sectors of personality, the self-expansive mode and self-protective mode, describe proactive goal setting and the self-protective aspects of behavior, respectively. Aberrations of the self-expansive mode and the self-protective mode provide the substrate for mania and endogenous depression and for anxiety and paranoia, respectively.

The GCM can help to improve the current classification system for mental disorders. The GCM's emphasis on disorder-specific beliefs in concert with common underlying processes can help improve the reliability of diagnoses and address comorbidity issues. Several lines of research suggest the important role of beliefs in diagnoses. First, studies have shown that specific beliefs correspond to specific personality disorders described in the *Diagnostic and Statistical Manual of Mental Disorders* (4th edition, text revision) (DSM-IV-TR) (Am. Psychiatr. Assoc. 2000, Bhar et al. 2012). Similarly, Fournier et al. (2012) completed a factor analysis of the Personality Belief Questionnaire, which shows that the clusters of specific beliefs corresponding to specific personality diagnoses separated into the relevant factors. An extensive body of research (presented previously) provides strong support for the role of dysfunctional beliefs in virtually every clinical disorder. Moreover, our previous review of the literature revealed an impressive number of treatment studies demonstrating cognitive mediation of treatment outcome using the gold standard in mediational analyses (Kraemer et al. 2002). Incorporating beliefs as disorder-specific criteria should improve the accuracy of diagnoses and consequently improve reliability. We suggest that our hypothesis can be tested by reliability studies that incorporate beliefs as diagnostic criteria.

Ultimately, the GCM may provide an alternative nosological framework to classify patients. Given recent research describing the biological correlates of the cognitive model (Beck 2008,

Disner et al. 2011), future research may look toward integrating the GCM with biological processes (Forgeard et al. 2011). In this sense, the GCM is in line with the National Institute of Mental Health Research Domain Criteria (RDoC) initiative (Insel et al. 2010). RDoC is a major funding initiative designed to promote the development of a more homogenous and etiologically relevant nosology of mental disorders as an alternative to the DSM-IV-TR (Am. Psychiatr. Assoc. 2000).

The GCM has the potential to be the only empirically supported general theory of psychopathology. The GCM is particularly well suited for empirical investigation, given that the components are easily subject to investigation. Although strong support exists for cognitive mediation of treatment outcome, future research should continue to conduct mediational analyses for studying mechanisms of therapeutic change. Similarly, much work remains in terms of refining our understanding of how beliefs, sustained focus, and behavior interact to predict surface-level symptomatology. To this end, researchers will need to continue to improve on the assessment of key common and specific processes (Clark & Taylor 2009). Assessment of these processes could be used to propel important research examining mechanisms of therapeutic change.

A necessary step in the development of the GCM will be to conduct research that compares the applied model to a tailored cognitive treatment approach and to specifically examine which interventions or set of interventions account for the greatest amount of variance in treatment outcome across disorders (Clark & Taylor 2009).

Despite evidence that cognitive therapy is an efficacious and effective treatment for a number of disorders (Butler et al. 2006; Hofmann et al. 2012, 2013; Hofmann & Smits 2008), dissemination efforts have lagged behind. A contributing factor might be that tailored approaches have the unintended consequence of hampering the generalized application of cognitive therapy in routine clinical settings. The applied model may aid in training and dissemination by serving as a complementary alternative to traditional cognitive behavioral therapy protocols. The applied model may be a cost- and time-efficient way to train clinicians and to treat individuals with comorbid disorders. Future studies should determine whether a global approach to training in cognitive therapy will lead to effective clinical skill acquisition for treating a variety of psychological disorders. Similarly, research is needed to identify which candidates are suitable for an initial generic cognitive treatment and which individuals would respond best to disorder-specific treatment (Clark & Taylor 2009).

Although the GCM model has been applied to the majority of adult DSM-IV-TR Axis I disorders (Am. Psychiatr. Assoc. 2000), future research should examine the applicability of the model to personality disorders and to disorders that occur in childhood and adolescence.

Finally, it is possible that a general cognitive approach to understanding and treating mental illness would play an important role in targeting subclinical suffering relief and prevention efforts. Consider the positive impact that could result from including a generic mental health hygiene component in a health education course. Used this way, the applied model could ultimately reduce stigma and help individuals who are at risk or who are experiencing subclinical suffering.

DISCLOSURE STATEMENT

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