

# **Cognitive Therapy for Delusions in Schizophrenia: Models, Benefits, and New Approaches**

**Corinne Cather**

*Massachusetts General Hospital and Harvard Medical School  
Boston, MA*

**David Penn**

*University of North Carolina  
Chapel Hill*

**Michael Otto**

**Donald C. Goff**

*Massachusetts General Hospital and Harvard Medical School  
Boston, MA*

The main purpose of the review is to demonstrate how cognitive models of psychosis translate into cognitive-behavioral approaches for intervening with psychotic symptoms in schizophrenia. Several cognitive-behavioral factors which play a role in the maintenance and possibly formation of delusional beliefs are discussed, including attentional bias to threat, "data gathering" deficits, dysfunctional metacognition, and safety behaviors. Strategies for engagement, problem formulation, and psychoeducation with deluded patients are described. Cognitive-behavioral interventions are presented, specifically, cognitive restructuring, behavioral experiments, and coping skills training. Challenges to conducting cognitive-behavioral therapy (CBT) with delusions in schizophrenia are reviewed. Novel cognitive therapies, which address these challenges, are presented.

**Keywords:** cognitive behavioral therapy; delusions; schizophrenia

**A**dvances in the pharmacologic management of schizophrenia spectrum disorders have not eliminated the need for new psychosocial strategies. Moreover, research over the last decade has supported an expanded role for cognitive-behavioral interventions for psychosis. In particular, cognitive-behavioral approaches have been used for residual psychotic and negative symptoms not adequately managed by medication. In this article, we present cognitive models of delusional beliefs and examples of interventions. The main purpose of the review is to demonstrate how cognitive models of psychosis translate into cognitive-behavioral interventions for psychosis. Consistent with this purpose, we have provided brief clinical examples of the processes described by the models reviewed herein.

We also review some of the limitations of cognitive-behavioral therapy (CBT) in schizophrenia and suggest how alternative cognitive-behavioral therapies may circumvent some of these shortcomings.

## COGNITIVE PERSPECTIVES ON DELUSIONS

Cognitive models of delusions are useful insofar as they clarify the mechanisms through which CBT may exert its positive effects. Additionally, these models provide a theoretical framework from which corresponding cognitive-behavioral interventions are derived. Cognitive-behavioral models of psychosis bear strong resemblance to cognitive-behavioral models of anxiety and depressive disorders. This similarity may assist cognitive-behavioral clinicians without experience in psychosis to apply these interventions skillfully to psychosis and thereby facilitate the dissemination of CBT in psychosis. The examination of delusional beliefs from a cognitive perspective suggests that cognitive biases not unlike those described in depressive and anxiety disorders may explain the formation and maintenance of delusional beliefs.

Historically, delusional beliefs were conceptualized as qualitatively different from normal beliefs. Challenging delusional beliefs was viewed as a futile and possibly harmful enterprise; accordingly, cognitive interventions were considered inappropriate. Recently, however, delusional beliefs have been conceptualized as belonging on a continuum with normal beliefs (Harrow, Rattenbury, & Stoll, 1988; Johns & van Os, 2001). This shift has been based on several lines of evidence, including a fairly high prevalence of irrational or paranormal beliefs in nonpsychotic samples, fluctuations over time in the degree of conviction with which delusional beliefs are held, and evidence that cognitive approaches can decrease delusional conviction and distress. One of the benefits of conceptualizing delusions on a continuum with other forms of illogical thinking is that it encourages the application of cognitive assessments and interventions that are more common for depressive and anxiety disorders, which are assumed to involve distortions of normal cognitive processes. This formulation has provided the groundwork for cognitive models of the formation and maintenance of delusional beliefs. Attention has focused on the conditions under which delusional beliefs may arise, and the factors that may influence the type, severity, or chronicity of these beliefs.

In applying a cognitive model to the understanding of delusions, including early cognitive approaches to understanding the etiology of delusional thought (e.g., Maher, 1988), it is important to remember that examination of the factors that may affect the intensity of delusions can be distinct from the confluence of factors that may have placed an individual at risk for psychotic experiences in the first place. Schizophrenia, albeit a heterogeneous disorder, has been relatively well characterized in terms of neurocognitive deficits. Deficits in executive functioning are likely to affect the ability to maintain linear and goal-directed thoughts, particularly on complex tasks. The ability to acquire new information may be slowed by impairments in attention and memory as well. These neurocognitive deficits construct another layer through which individuals with schizophrenia are more likely to misinterpret experience and may interact with the formation and maintenance of beliefs that are sufficiently unusual to be termed delusions.

Individuals with schizophrenia have deficits in almost all cognitive functions, including attention, memory, executive functions, and social cognition; neuropsychological functioning has been found to predict treatment response for patients with schizophrenia (Smith, Hull, Romanelli, Fertuck, & Weiss, 1999). Additionally, training in cognitive strategies has been demonstrated to exert independent effects on amotivation, positive symptoms, and relapse rates in a randomized controlled trial with 45 recently discharged patients with schizophrenia (Velligan & Miller, 1999). Thus, evidence suggests that patients may benefit from

an intervention combining training in compensatory strategies and CBT. It is important to acknowledge that the cognitive deficits associated with schizophrenia necessitate the use of a slower pace and modified interventions.

These sources of impairments in information processing may help engender some of the illogical, confused, or rigid thinking that is characteristic of delusions, and a central feature of schizophrenia. At the same time, delusional beliefs may be facilitated or maintained by a variety of other cognitive factors. Cognitive accounts of delusions have included attention to the role of abnormal perceptions, cognitive biases, dysfunctional metacognition, and avoidance behaviors in facilitating delusional thinking (Beck & Rector, 2002; Blackwood, Howard, Bentall, & Murray, 2001; Morrison, 1998). Each of these factors will be addressed below in turn.

### **Abnormal Perceptions and Delusional Thinking**

A relatively early cognitive perspective on delusions focused on the role of anomalous perceptual experiences in setting the stage for delusional beliefs. Maher (1988) proposed that delusional beliefs result when an individual uses normal reasoning to make sense of these perceptual experiences. Approximately 70% to 75% of individuals with schizophrenia report auditory hallucinations (Mueser, Bellack, & Brady, 1990; Satorius, Shapiro, & Jablensky, 1974) and the report of additional perceptual abnormalities—possibly somatic hallucinations (e.g., electric-shock-like sensations in the body) and unpleasant sensations in the head (e.g., tightness or pressure)—are also common among individuals with schizophrenia. The experience of these symptoms may disrupt the clarity and accuracy of cognitions, but there are reasons to doubt whether they are sufficient to explain the occurrence of delusions in schizophrenia.

Significant numbers of patients have delusions without apparent hallucinations or perceptual hallucinations. In some cases, the hallucinations may influence the content of delusions, for example, one patient's evidence for being possessed by the devil was that he heard a voice saying, "It's Satan himself." Another patient developed the sensation in the back of the head of pressure and determined that his body had been invaded by a "queen" alien parasite, which meant that he would need to kill himself to save the human race. However, many patients have delusions that appear to be unrelated to hallucinations. Additionally, it is possible for individuals to experience hallucinations that occur in the absence of delusions, for example, individuals with Charles Bonnet syndrome, a neurological visual disorder, do not develop delusional beliefs associated with the visual hallucinations of small gnome-like people characteristic of the disorder (Menon, Rahman, Menon, & Dutton, 2003). Thus, it can be concluded that hallucinations are not necessary or sufficient for delusions.

### **Attentional Biases and the Perpetuation of Delusions**

Attentional biases can help determine which information is gleaned and processed from the environment and consequently, can play an important role in producing or maintaining delusional thinking. The confirmation bias is the tendency of nondeluded individuals to seek belief-confirming evidence rather than belief-incongruent evidence (Jonas, Schulz-Hardt, Frey, & Thelen, 2001). Consistent with the premise that individuals who feel paranoid are more likely to selectively attend to and recall evidence consistent with the presence of a threat, experimental paradigms employing neutral and threat-laden words indicate that individuals with persecutory delusions tend to preferentially attend to and recall threat-related stimuli (Bentall & Kaney, 1989; Bentall, Kaney, & Bowen-Jones, 1995; Kaney, Wolfenden, Dewey, & Bentall, 1992; Kinderman, 1994). In the case of persecutory delusions, for example, a woman

with the delusional belief that police are out to arrest her becomes hypervigilant around police, scans the environment, and selectively attends to information indicating that the police “have it in for her.” Following an encounter with police, she is apt to recall that the policeman “looked unfriendly and stared at her,” evidence that she uses in support of her persecutory belief.

Attentional biases may play a role in strengthening other delusions, not just persecutory ones. In the same way that attentional biases to internal states may predispose an individual to panic disorder (Clark, 1988), overly focused attention to one’s internal state may predispose to the development of somatic delusions. For example, imagine a young woman who believes that she is the object of “black magic” and that her nose is growing bulbous as a result. In an effort to track the growth of her nose, she stares in the mirror for long periods of time, while patting and pinching her nose to check as to whether the contours have changed. Her staring in the mirror causes feelings of derealization, which she uses as evidence to support the feeling that her mind is being worked on by magicians. Furthermore, her pinching and prodding of her nose contributes to a nose that appears red and swollen, which she invokes to further support the idea that her nose is changing in shape and size.

Normal samples show a self-serving attributional bias; the tendency to blame external factors (e.g., circumstances or other people) for negative outcomes and take credit for positive ones. Different diagnostic groups have been shown to differ in the causal attributions they make for events that affect them. For example, depressed samples demonstrate a preference for negative internal personal attributions, or the tendency to engage in self-blame for bad things that happen to them and take little credit for the negative things that happen to them (Seligman, Abramson, Semmel, & von Baeyer, 1979). Individuals with persecutory delusions demonstrate an extreme form of the self-serving bias, such that they are more likely than normal samples to make external attributions for negative events and to make internal attributions for positive ones (Kaney & Bentall, 1989). Moreover, whereas nonclinical samples are likely to make a range of external attributions for negative events, individuals with persecutory delusions are more likely to attribute negative events to the malfeasance of others, rather than adverse circumstances (Kinderman & Bentall, 1987).

In clinical practice, one often encounters individuals with persecutory delusions where the function of the delusional belief appears to help the individual compensate for perceptions of failure. For example, a man who believes that he was discharged from the Air Force because he “knew too much,” or the woman who attributes losing custody of her children to a Department of Social Services employee’s jealousy and wish for custody of the children herself. In both examples, the delusional belief that others are responsible for one’s failings (rather than oneself or mental illness) is the preferred explanation.

Individuals with delusional beliefs have been shown to exhibit a “data gathering bias,” such that when they are free to gather as much evidence as they want before making a judgment on a neutral probabilistic reasoning task, they gather less information than nondeluded subjects (Dudley, John, Young, & Over, 1997a; Garety, Helmsely, & Wessely, 1991). They are also overconfident in their judgments (Huq, Garety, & Hemsley, 1988). When forced to consider the same amount of data, however, their decision-making performance and confidence in their judgments are comparable to nondeluded participants, suggesting that the deficit is specific to data collection rather than logical inference (Dudley et al., 1997a). This tendency to jump to conclusions is further exaggerated in delusional subjects when the stimuli are affectively laden (Dudley, John, Young, & Over, 1997b), and preliminary evidence suggests that nonpsychotic individuals holding irrational beliefs demonstrate a similar reasoning style, suggesting faulty data collection could play a role in adoption of nonscientific beliefs (Linney, Peters, & Ayton, 1998).

In our clinical practice, however, it often seems that patients not only base their beliefs on too little evidence, but also have deficits discerning good-quality from bad-quality evidence. For example, one patient believed that he was at risk of having his home vandalized by his persecutors. The morning after painting his porch railing he noticed water droplets on the surface where he had painted. His conclusion was that the vandals had thrown water on his porch in an effort to sabotage his paint job. Similarly, a woman asserted that a small perforation in her screen door was proof that she was raped daily by an intruder. Another individual attributed his hearing voices to his entering a synagogue in 1994, despite also recounting that the voices began years earlier. These failures of logic seem a function of cognitive deficits in logical reasoning processes that interfere with the way in which a deluded individual goes about collecting data in support of a particular belief. Despite this deficit, cognitive therapy interventions may exert beneficial effects by training individuals to collect more good-quality data.

### **Dysfunctional Metacognition**

Metacognition refers to the thoughts that an individual has about the nature of one's thoughts. For example, the belief that having an aggressive or obscene thought is the same as acting in an aggressive or obscene way is an example of a metacognitive belief ("thought-action fusion") addressed by cognitive approaches to obsessive-compulsive disorder (Wilhelm, 2000). Some investigators have proposed that psychotic symptoms are partly formed and maintained by metacognition (Morrison, 2001). For example, one patient with a delusional belief of being persecuted by aliens traced the origins of this belief to hearing voices detailing ways that he could violently maim his brother. He believed that only a horrible person would have this belief, that having the thought was as terrible as acting on the thought, and concluded therefore that it could not be his own thought. Global worry concerning the control of delusional thoughts (e.g., "I worry that I cannot control my thoughts about being harmed as well as I would like to") may amplify delusional beliefs (Freeman, Garety, & Kuipers, 2001). Another example of metacognitive belief may be illustrated by the degree to which a delusional individual accepts the "possibility of being mistaken." Endorsement of the "possibility of being mistaken" about a delusional belief has been found to be a positive predictor of response to CBT (Garety et al., 1997). The "possibility of being mistaken" may tap into the higher order beliefs that one holds about the nature, meaning, and necessary behavioral consequences of having a particular thought. For example, an individual might believe that having a thought means it must be an accurate thought ("I had the thought that I am Jesus, so I must in fact be Jesus"), or that it is always necessary to act on thoughts ("I must do things that Jesus would do").

### **Avoidance (Safety) Behaviors**

Similar to the prevailing cognitive-behavioral models of anxiety disorder (Wells et al., 1995) avoidance and safety behaviors are thought to play an important role in the maintenance of delusional beliefs by blocking exposure to disconfirmatory evidence (Morrison, 1998). For example, an individual who avoids the subway for fear that he will be pushed in front of a train by his persecutors has a low probability, due to his insulation from corrective experiences, of disconfirming this belief. Such avoidance appears especially common among individuals with persecutory delusions. Freeman, Garety, Kaney, and colleagues (2001) found that 92% of a sample of individuals with persecutory delusions reported using avoidance as a safety behavior in the past month; the degree of anxiety correlated positively with the level of avoidance (Freeman, Garety, & Kuipers, 2001).

Comprehensive cognitive models of delusional maintenance integrate abnormal perceptions, attentional biases, avoidance behaviors, and dysfunctional metacognition. Cognitive-behavioral therapists intervene by assisting patients to develop alternative appraisals of

abnormal perceptions, training them to become better “data collectors,” and employing behavioral experiments to intervene with dysfunctional metacognition (e.g., “thought suppression”) and facilitating exposure to disconfirmatory evidence through the removal of safety behaviors. The following section begins with a review of engagement and assessment strategies and follows with examples of cognitive-behavioral interventions suggested by the models discussed above.

## ELEMENTS OF TREATMENT

Engaging the delusional patient in treatment requires attention to the therapeutic alliance as well as providing a rationale for assessment of the delusional system. Forming a therapeutic alliance with a psychotic patient can be challenging due to a variety of factors, including social skills deficits, paranoia, embarrassment, concerns that the therapist will challenge his or her account of what has been happening, or previous negative experiences with mental health professionals and the mental health system. In view of these factors, additional time and effort may be required to foster a therapeutic alliance with the psychotic patient.

### Engaging the Delusional Patient in Treatment

Individuals with paranoia may require protracted contact with the therapist before talking openly about their delusional beliefs. Although in later stages of treatment the therapist may play a particularly active role in helping patients evaluate the accuracy of their beliefs, early treatment is marked by nonevaluative empathy for the patient’s distress or confusion regarding her experiences. Early treatment of paranoid patients should also include discussions of how suspicious feelings about the therapist should be handled. Regular encouragement of patients to share these beliefs, coupled with prediction that such beliefs will likely arise at some point in therapy can help create the conditions for safe discussion of these topics. In addition, therapists may need to repeatedly and concretely review the role of the therapist—to help and respect the patient while protecting her privacy during and after the course of therapy. At times, discussion of the consequences of misleading and mistreating the patient, as well as concrete reasons why the therapist would not want to violate confidentiality (e.g., the desire to not lose one’s license, pay court fees, be expelled from professional organizations, etc.) may help the patient develop an accurate conceptualization of treatment and the therapist (Kingdon & Turkington, 1994; Nelson, 1997).

Paranoid beliefs about the therapist may also arise when a patient is surprised by the information known by the therapist. There are several ways that this can occur, namely, when patients forget information that they have relayed to the therapist, when information has come from alternate sources (e.g., other treatment providers, chart, family members), or when the therapist deduces information from the patient’s nonverbal behavior. In these situations, it is important to clarify how the information was obtained in a calm, nondefensive manner. By providing accurate information and emphasizing the patient’s control, the therapist increases the likelihood that the perceptions of threat and concomitant paranoid beliefs will be diminished.

It may also be important for therapists to be aware that idiosyncratic and illogical beliefs can develop about the therapist. For example, one of our patients noticed that the clinician across the hallway kept his door open while meeting with other patients. The patient’s explanation for this was that the clinician was keeping watch, expecting the patient to act dangerously. Another patient observed his clinician choke on water and concluded that the evil forces responsible for his somatic changes were now targeting his clinician. Therapists are unlikely to be able to avoid cues that spark delusional thinking, but vigilance to changes in the patient’s behavior (e.g., a sudden staring at the door) may help the therapist attend to

these factors early. Asking the patient about apparent concerns, and providing corrective information or choices are potential ways for the therapist to gain patient confidence, while also helping the therapist learn more about the patient's susceptibility to delusional beliefs.

## Assessment

Assessment provides an opportunity for determining the basis on which the clinician is likely to engage the patient to examine delusional beliefs *per se*. At least three topics are important for assessment. First, therapists will need to catalogue the nature and elements of the delusional system, including the degree of preoccupation, distress, conviction, and interference with functioning, coping strategies, reaction to contradiction, and the patient's willingness to consider the possibility of being mistaken (Brett-Jones, Garety, & Helmsely, 1987; Haddock, McCarron, Tarrier, & Faragher, 1999). These aspects of delusional beliefs have been found desynchronous, in other words, greater delusional conviction does not necessarily correspond to greater distress. One way in which clinicians can easily quantify conviction is to ask a patient to rate the degree to which he believes *x* true on a scale of 0% to 100%. The clinician can capitalize on any rating that is not 100% by reinforcing the patient's uncertainty and offering to investigate this further in collaboration with the patient. Most clinicians suggest that it is useful to use cognitive restructuring with the less firmly held delusional beliefs, before moving to those held with greater conviction.

Second, assessment needs to include a functional analysis of potential cues associated with enhanced delusional beliefs, including situational cues, common cognitions, and attentional biases that may enhance delusions. A full history of the delusional belief, taking into account the individual's life circumstances at the time the client first began to have thoughts in line with this belief can be used to develop a model of the onset of the psychosis that highlights factors such as stress and early attempts to make sense of unusual experiences in the formation of the delusional belief (Fowler, Garety, & Kuipers, 1995; Zubin & Spring, 1977). Often, this portion of the assessment provides additional benefits; patients may be pleasantly surprised by the therapist's attention to their belief systems, and this questioning serves an important purpose in priming patients to foster a more curious attitude toward their experiences, a prerequisite of cognitive restructuring of approaches to delusional beliefs (Chadwick, Birchwood, & Trower, 1996).

Third, assessment needs to include the patient's motivations for change. What might motivate the patient to engage in a collaborative examination of his delusional belief? What avoided activities and goals might be achieved by reductions in delusional beliefs, and what might help the patient challenge a delusional belief? The answers to these questions can be difficult to uncover, especially in cases in which the patient has grandiose delusions or delusions that are so systematized that they dominate the patient's sense of meaning and purpose. For example, it is not immediately apparent what is gained by challenging beliefs about being a prophet, having a special relationship with a celebrity, or being an accomplished inventor, because these beliefs are often viewed by the individual as evidence of being special, intelligent, or worthy. It is only through systematic evaluation that the clinician may uncover evidence that the individual finds it stressful to have the fate of the world hanging on his invention or prophesy.

Successful assessment culminates in the collaborative formulation of a problem list. In order to teach the patient about the collaborative nature of CBT, and build the therapeutic alliance, the problem list empathetically frames problems from the patient's perspective. For example, the list might include "Psychic energy is coming through my walls and making me feel weak and nervous," or "People are out to kill me, and I'm so worried that I can't sleep." As always, it is important to proceed slowly in assessment with individuals who are paranoid; some will find direct questions intrusive and others will be worried for their own safety or for the clinician's safety in the event that they disclose information believed to be of a sensitive nature.

## Psychoeducation and Destigmatization

The role of psychoeducation in psychosis is to provide patients with an alternative way of thinking about their symptoms, enhance insight, and destigmatize the illness. Even the more well-informed individuals are unlikely to have full understanding of their medications including their side-effect profile and mechanism of action. Education about medication can be important in correcting misperceptions about medication, some of which may provide scaffolding for potential delusional beliefs (e.g., “My doctor is trying to dull my brilliant mind with these medications”). Because the majority of individuals with schizophrenia do not accept the accuracy of their diagnosis, perhaps the most difficult part of psychoeducation is communicating information about symptoms and medication without alienating the patient. Whereas anxiety disorder patients tend to be relieved by the knowledge that their symptoms taken together are part of a syndrome, the “naming” of their diagnosis rarely comforts individuals with schizophrenia. Therefore, it is often more useful for psychoeducation to focus on the “unusual experiences” or “psychosis,” rather than on the diagnosis. Many individuals with residual positive symptoms are intrigued by written or videotaped autobiographical accounts of other people’s similar unusual experiences (e.g., “First Person Accounts” in *Schizophrenia Bulletin*).

Certain experiences resulting from psychosis, such as involuntary hospitalizations or violent episodes, can be traumatic (Mueser & Rosenburg, 2003). Many individuals who have experienced psychosis as traumatic will limit their activities based on the belief that they are at risk of becoming acutely psychotic “out of the blue.” Education should focus on the differences between their life circumstances and relationship to treatment when they were acutely psychotic compared to their current situation. Education about early warning signs of relapse can be used to develop a relapse prevention plan so that the individual has a way to intervene when increased positive symptoms and an understanding that not all exacerbations will lead to frank psychosis. Herz and colleagues (2000) developed a relapse prevention program, which trains the patient, treatment team, and family to identify, monitor, and intervene with prodromal signs of symptom exacerbation. The program is structured as weekly didactic groups combined with a multifamily group component. During an 18-month follow-up, the integrated psychosocial program outperformed treatment as usual (TAU) in preventing relapse and maintaining functional capacity. Relapse occurred in 17% of CBT patients compared to 34% of TAU patients and rehospitalization in 22% of the CBT group and 39% of the TAU group. Interestingly, Herz found that participation in multi-family groups was a strong negative predictor of relapse, suggesting that family may be particularly adept at identifying “warning sign” symptoms (Herz et al., 2000). A detailed step-by-step guide for engaging family members in relapse prevention is provided in Mueser and Gingerich (1994).

Destigmatization refers to an array of interventions designed to decatastrophize current and past experiences of psychosis and treatment (Kingdon & Turkington, 1991). These techniques may be particularly appropriate for patients who hold self-stigmatized views of themselves that are directly linked to having a mental illness, evidenced, for example, by the individual who states “Schizophrenia is a dirty word.” Often patients will be ashamed of having to take medication or attend the clinic regularly. The individual can be helped to reframe involvement in treatment as a personal strength, rather than as a weakness. The following brief excerpt illustrates how the therapist uses a combination of reframing and psychoeducation to destigmatize psychosis.

Therapist: You said you don’t want to come to the clinic any longer because it means you are “not normal” and can’t have a normal life if you keep coming?

Patient: That’s right. Seeing you and everyone here is useless.



Therapist: Because one of the things that I see as one of your strengths is how seriously you take your visits here and how well you communicate with your doctor and me about the good and bad parts of your medication.

Patient: You do?

Therapist: Let me ask you a question. Your mother has high blood pressure, right? Because of the high blood pressure, she sees a doctor, watches what she eats, and exercises, right?

Patient: Yes.

Therapist: So, what would you think if she said that she was going to stop all of her treatments because she wanted to feel more normal?

Patient: She wouldn't do that. Anyway, high blood pressure is different from schizophrenia—it's a medical illness, not a psychological one.

Therapist: I guess that is where we might disagree, because the way I see it, schizophrenia is a medical illness, too. High blood pressure seems to be the result of problems in the kidneys and heart, but part of high blood pressure also has to do with the interruption of chemical signals in the brain, too—like schizophrenia.

## Cognitive Restructuring

Once a therapeutic alliance has been formed, cognitive interventions with the delusional beliefs themselves may be undertaken. This approach is most useful with individuals who question to some extent the accuracy of the belief. Cognitive restructuring employs a process of guided discovery to uncover evidence that supports the belief as well as evidence that contradicts the belief. Nelson posits that effective cognitive restructuring of delusional beliefs requires the clinician to determine the reasons that she doubts its plausibility together with what else would be true if the belief *were* true (Nelson, 1997). For example, if a metal rod was surgically inserted in a person's head, there should be a scar (Kingdon & Turkington, 1994) and it would show up on a CT scan. Similarly, if one's psychiatrist were trying to make a person less intelligent by prescribing antipsychotic drugs, there would presumably be other evidence that the psychiatrist wishes the patient harm.

The following example comes from work with a middle-aged man with schizophrenia with fairly severe cognitive impairment who believed that his psychiatrist was trying to hurt him by prescribing antipsychotic medication. In this case, a modified version of a dysfunctional thought record (Beck, 1995), a two-column "evidence for" and "evidence against" the belief that the psychiatrist did not like the patient, was employed. Evidence in support of the belief was that the psychiatrist tended to spend only a short time with him and did not listen to his complaints about the side effects of the medication. Evidence against the belief was that the psychiatrist asked him, "How are you doing?" each time he saw him, smiled at him, and had written a letter that permitted the patient to be excused from jury duty. This patient also benefited from skills training aimed at improving his communication with his psychiatrist by writing down one question that he wanted to ask the psychiatrist before attending each meeting. Together with the clinician, the patient also conducted an experiment to monitor the amount of time that three consecutive patients spent with the psychiatrist, which allowed a test of the belief that the psychiatrist was spending less time with him than other patients, because he did not like him. These interventions were effective in decreasing his conviction in his delusional belief as well as improving his medication adherence.

Another type of cognitive intervention entails an evaluation of the usefulness (rather than the truth) of a belief that guides behavior. For example, one patient believed that he needed to patrol the perimeter of his property nightly in order to ward off intruders. For the

past 10 years, he and his therapist calculated that he had spent an average of 3,000 hours patrolling his property. In that same time, only once had he found an intruder on his property, suggesting that this behavior was effective 1/3000 (.0003%) of the time. Given the extremely small probability of this behavior serving a useful purpose, this individual decided that it was no longer worth engaging in this safety behavior, which subsequently decreased his degree of distress that his house would be invaded.

## Behavioral Experiments

Devising, clarifying predictions, and coaching patients through behavioral experiments is an extremely important part of cognitive restructuring with delusional patients. The goal is for the results of the experiments to allow access to disconfirmatory evidence that was previously blocked from awareness, so that insight can improve together with decreasing distress. Behavioral experiments can involve graded exposure to previously feared situations while blocking the use of situational safety behaviors (for a case example, see Townend, 2002), or gathering data to test a particular hypothesis. In the latter case, the therapist seeks to remediate data collection biases by collaborating with the patient to devise experiments that test the prediction of events in the future that relate to their delusional beliefs. (It is our experience that the modification of delusional explanations for events that occurred in the past is much more difficult to achieve than is the modification of beliefs related to future predictions.)

Interviews often reveal that patients have conducted their own behavioral experiments from which they have results that support their delusional belief. Apparent deficits in the specification of what constitutes disconfirmatory evidence often biases the outcome of the experiment in favor of the delusional hypothesis. For example, a man who believed that the government was out to get him would periodically enter government buildings and attempt to enter restricted areas to determine whether or not the government was still focused on monitoring his activities. Similarly, a woman who reported moving away from her home in an effort to evade a conspiracy to kill her tested to see whether her persecutors had followed her to the new city by walking down dark alleyways in an effort to see if her attackers would confront her. A passerby noticed her in the alley, asked her if she needed help, and suggested to her that it might not be safe for her to be in the alleyway. Her interpretation of this encounter was that it represented a message that her appearance in the new city was known to her conspirators.

In the following section, a transcript of a therapy session in which a behavioral experiment is devised is described. The patient described below had the belief that others could read his mind.

Therapist: Let's say that I was sitting down with you in the waiting room and someone read your thoughts. What would that other person do or how would they act, in order for me to know that they read your thoughts?

Patient: I guess they might look at me, maybe respond to me, something like that.

Therapist: That's what I was thinking. So, what could you say to someone in your head that would really force them to respond?

Patient: I'm not sure. Maybe to tell them to smile.

Therapist: That might work. But, I was thinking about something even more specific—because someone might smile at you for a variety of reasons, right? What could someone say to you that would make you respond in a very specific way immediately?

Patient: Maybe that there was a spider crawling up my leg?

Therapist: That's a great example! What would that make you do?

Patient: Probably look down at my leg and see if there was a spider there.

Therapist: So if you had that thought in the waiting room while someone else was

there, how will we know if that person could read your thoughts?

Patient: I guess they would look down at their leg.

Therapist: How soon would you expect them to look at their leg after you had the thought “There is a spider crawling up your leg?”

Patient: I guess right away—like within a second or two.

Therapist: And what if they didn’t look down at their leg—what would that mean?

Patient: Well, I guess it would mean they didn’t hear my thoughts.

Therapist: Would there be any other way to interpret it if they didn’t look down at their leg? For example, might you think “I guess my thoughts weren’t loud enough.” Or something like that?

Patient: Maybe.

Therapist: Okay so maybe we should practice in here so that you can work on making the thought as loud as possible?

## Coping Skills Training

Coping skills refer to active cognitive or behavioral responses to symptoms such as auditory hallucinations or paranoia employed to lessen the distress or impairment associated with these symptoms. Most patients report using their own coping strategies (Falloon & Talbot, 1981)—cognitive-behavioral therapists seek to optimize the usefulness of coping responses. Through a process of trial and error, the therapist and client select coping strategies to be used either as a way of decreasing distress, or of facilitating engagement with previously avoided situations. Behavioral analysis is done to identify situations in which symptoms occur most frequently or intensely. In collaboration with the therapist, these situations are then used as triggers to elicit symptoms so that coping strategies can be practiced in vivo. Coping strategy enhancement is a treatment developed by Tarrier and colleagues that has focused on developing more effective responses to psychotic symptoms. Although coping strategy enhancement is a behavioral intervention rather than a cognitive one, coping strategy enhancement may exert its beneficial effects by changing secondary appraisals of voices or paranoia. Inherent in such an approach is the presumption that the individual is more powerful in regard to her psychotic symptoms than he or she may currently believe. As discussed by Chadwick and colleagues, beliefs about the malevolence, intent, power of voices as well as the individual’s assessment of her ability to exert some control of the voices play an important role in determining the amount of distress voices engender (Chadwick et al., 1996). As applied to delusional belief, a therapist may employ cognitive techniques to modify the perceived malevolence or powerfulness of a perceived persecutor in the aim of alleviating distress.

Examples of the types of coping strategy found effective for patients include distraction techniques (e.g., listening to music, relaxation), changes in the amount of social activity, reading aloud, or exercise. Coping strategy enhancement has been found to foster the development of a greater number of coping strategies and their perceived effectiveness (Tarrier et al., 1993). Behavioral interventions like coping strategy enhancement may contribute greater efficacy to CBT approaches in psychosis, as evidenced by the larger effect sizes of randomized controlled trials employing these techniques (Tarrier et al., 1993, 1998) relative to those which emphasize cognitive techniques (Sensky et al., 2000).

## Challenges to a Cognitive Approach to Delusions

Shifting psychotic beliefs is a difficult enterprise, especially when patients are adept at accommodating or ignoring contradictory evidence in line with the delusional belief

(Freeman, Garety, Kuipers, Fowler, & Bebbington, 2002). This ability makes progress using such strategies as logical analysis or behavioral experiments exceedingly slow. For example, a behavioral experiment concerning beliefs about the presence of the devil in the walls of one's apartment can be instantaneously undone with the assumption that the devil is omnipotent and can alter the natural world. No behavioral test can stand against this belief. These concerns comport well with findings that benefit from cognitive treatment was more easily achieved among psychotic patients who already doubted the veracity of their psychotic experience (Kuipers et al., 1998).

It is interesting that in many of the recent approaches developed in the United Kingdom, cognitive restructuring of delusional beliefs tends to be emphasized as a necessary element of treatment. Emphasis is placed on helping patients gain insight, with the goal of modifying psychotic thinking processes, including beliefs about voices (Chadwick et al., 1996; Fowler et al., 1995; Kingdon & Turkington, 1994; Nelson, 1997). We do not disagree with the potential value of cognitive-restructuring interventions in psychotic patients, but worry that a focus on insight into these symptoms (delusional conviction) may fail to translate into lower distress and improved functioning for many patients. In particular, although the process of cognitive therapy appears useful for psychotic patients, it often presents therapists with the "uphill climb" of trying to help patients overcome a shifting focus of delusions, which may be driven by a central defect in the labeling of the affective valence of stimuli (Kapur, 2003). As an alternative to restructuring individual delusions, a more efficient focus of treatment could be on changing the relationship of delusional beliefs, behavior, and affect.

## ALTERNATIVES TO COGNITIVE RESTRUCTURING

An important alternative to traditional cognitive-restructuring is a focus on changing the relationship patients have with their thoughts. This approach seeks to avoid a therapeutic approach of trying to replace dysfunctional thoughts with functional alternatives. Instead, it is focused on helping individuals attend less to their cognitive machinations altogether and shift attention to adaptive behavior. Acceptance and Commitment Therapy (ACT) (Hayes, Strosahl, & Wilson, 1999), is a treatment approach that stresses a mindful acceptance of thoughts and emotions, while reducing avoidance and overmanagement of these events. The commitment focus of ACT involves the articulation of personal values and goals as guiding forces and seeks to minimize effects of thoughts, behavior, and affect on attaining those goals. Bach and Hayes (2002) conducted a randomized controlled trial of ACT in 80 inpatients with psychotic symptoms and found the ACT group to have significantly decreased hospitalization rates after a 4-month follow-up period compared to the control group, despite no group differences in distress (Bach & Hayes, 2002).

In an attempt to capitalize on the treatment advances being made, and to minimize potential limitations, we have developed a modified approach that utilizes some of the same elements of treatment, but delivers them to different targets and with a different philosophy. Because of its unique emphasis on functionality, we have named this approach to treating the residual symptoms of schizophrenia "functional cognitive-behavior therapy (fCBT)." Specifically, we apply cognitive-restructuring and behavioral coping skills to psychotic symptoms, but limit our approach to only those symptoms that interfere with functional goals. That is, the central context for any intervention is not the direct reduction of psychotic symptoms but persistence toward goals in the face of these symptoms. These differences in approach to CBT are illustrated by a patient with concerns about the CIA watching him and reporting that he cannot complete pleasurable or goal-directed activities because "the CIA will follow me." A focus on enhancing insight as an initial goal for the change process would work to help the patient evaluate the veracity of this belief, prior to working to increase adaptive

activities. An alternative approach is to work from the start to help the patient complete these activities “regardless of whether the CIA is following.” This approach involves cognitive-restructuring, but these efforts are aimed at helping the patient evaluate the personal cost of having the CIA know his activities as opposed to the personal cost of missing out on the activities. For a patient who believes his home is bugged and he is followed at all times, it may be easier to help the patient develop a rationale for having more fun while being watched than to eliminate the belief system altogether. In the sense that the delusional belief itself may not be challenged in fCBT, the style of treatment agrees well with what Fowler and colleagues term “working within the delusion” (Fowler et al., 1995). The distinguishing feature of fCBT from this method is the central focus on goal attainment rather than the “softening” of delusional beliefs to more benign interpretations (e.g., “The mafia definitely has it in for me—although it’s possible that they are not out to kill me”).

## CONCLUSION

Despite the challenges of conducting CBT with psychotic individuals, these interventions hold substantial promise for alleviating distress and improving the functional capacity of psychotic patients. Cognitive models of the formation of delusional beliefs may be different from those underpinning the maintenance of these beliefs. Factors that seem to play a role in delusional beliefs include abnormal perceptions, attentional biases, dysfunctional metacognitive beliefs, and avoidance behaviors. Cognitive-behavioral interventions such as cognitive restructuring, coping skills training, and behavioral experiments have demonstrated efficacy in reducing the distress associated with psychotic symptoms. Alternative approaches may rely more heavily on working within the delusion to determine how cognitive and behavioral responses can be optimized in the service of an individual’s most important life goals and values.

## REFERENCES

- Bach, P., & Hayes, S. (2002). The use of acceptance and commitment therapy to prevent the rehospitalization of psychotic patients: A randomized controlled trial. *Journal of Consulting and Clinical Psychology, 70*, 1129-1139.
- Beck, A. T., & Rector, N. A. (2002). Delusions: A cognitive perspective. *Journal of Cognitive Therapy: An International Quarterly, 16*, 455-468.
- Beck, J. S. (1995). *Cognitive therapy: Basics and beyond*. New York: Guilford Press.
- Bentall, R. P., & Kaney, S. (1989). Content specific information processing and persecutory delusions: An investigation using the emotional Stroop test. *British Journal of Medical Psychology, 62*, 355-364.
- Bentall, R. P., Kaney, S., & Bowen-Jones, K. (1995). Persecutory delusions and recall of threat-related, depression-related, and non-threatening propositions. *Cognitive Therapy and Research, 19*, 331-343.
- Blackwood, N. J., Howard, R. J., Bentall, R. P., & Murray, R. M. (2001). Cognitive neuropsychiatric models of persecutory delusions. *American Journal of Psychiatry, 158*, 527-539.
- Brett-Jones, J., Garety, P. A., & Hemsely, D. R. (1987). Measuring delusional experiences: A method and its application. *British Journal of Clinical Psychology, 26*, 257-265.
- Chadwick, P., Birchwood, M., & Trower, P. (1996). *Cognitive therapy of delusions, voices and paranoia*. Chichester, England: John Wiley & Sons.
- Clark, D. M. (1988). A cognitive model of panic attacks. In S. Rachman & J. Maser (Eds.), *Panic: Psychological perspectives*. Oxford, England: Erlbaum.
- Dudley, R. E. J., John, C. H., Young, A. W., & Over, D. E. (1997a). Normal and abnormal reasoning in people with delusions. *British Journal of Clinical Psychology, 36*, 243-258.
- Dudley, R. E. J., John, C. H., Young, A. W., & Over, D. E. (1997b). The effect of self-referent material on the reasoning of people with delusions. *British Journal of Clinical Psychology, 36*, 575-584.

- Falloon, I. R., & Talbot, R. E. (1981). Persistent auditory hallucinations: Coping mechanisms and implications for management. *Psychological Medicine, 11*, 329-339.
- Fowler, D., Garety, P., & Kuipers, E. (1995). *Cognitive behaviour therapy for psychosis theory and practice*. Chichester: John Wiley & Sons.
- Freeman, D., Garety, P. A., Kuipers, E., Fowler, D., & Bebbington, P. E. (2002). A cognitive model of persecutory delusions. *British Journal of Clinical Psychology, 41*, 331-347.
- Freeman, D., Garety, P. A., & Kuipers, E. (2001). Persecutory delusions: Developing the understanding of belief maintenance and emotional distress. *Psychological Medicine, 31*, 1293-1306.
- Garety, P., Fowler, D., Kuipers, E., Freeman, D., Dunn, G., & Bebbington, P. (1997). London-East Anglia randomized controlled trial of cognitive-behavioural therapy for psychosis. II: Predictors of outcome. *British Journal of Psychiatry, 162*, 524-532.
- Garety, P. A., Helmshley, D. R., & Wessely, S. (1991). Reasoning in deluded schizophrenic and paranoid patients: Biases in performance on a probabilistic inference task. *Journal of Nervous and Mental Disease, 179*, 194-201.
- Haddock, G., McCarron, J., Tarrier, N., & Faragher, E. B. (1999). Scales to measure dimensions of hallucinations and delusions: The Psychotic Rating Scales (PSYRATS). *Psychological Medicine, 29*, 879-889.
- Harrow, M., Rattenbury, F., & Stoll, F. (1988). Schizophrenia delusions: An analysis of their persistence, of related premorbid ideas, and of three major dimensions. In T. F. Oltmanns & B. A. Maher (Eds.), *Delusional beliefs* (pp. 147-161). New York: Wiley.
- Hayes, S. C., Strosahl, K. D., & Wilson, K. G. (1999). *Acceptance and commitment therapy: An experiential approach to behavior change*. New York: Guilford Press.
- Herz, M. I., Lambert, S., Mintz, J., Scott, R., O'Dell, S. P., McCartan, L., & Nix, G. (2000). A program for relapse prevention in schizophrenia. A controlled study. *Archives of General Psychiatry, 57*, 277-283.
- Huq, S. F., Garety, P. A., & Hemsley, D. R. (1988). Probabilistic judgments in deluded and non-deluded subjects. *Quarterly Journal of Experimental Psychology, 40A*, 801-812.
- Johns, L. C., & van Os, J. (2001). The continuity of psychotic experiences in the general population. *Clinical Psychology Review, 21*, 1125-1141.
- Jonas, E., Schulz-Hardt, S., Frey, D., & Thelen, N. (2001). Confirmation bias in sequential information search after preliminary decisions: An expansion of dissonance theoretical research on selective exposure to information. *Journal of Personality & Social Psychology, 80*, 557-571.
- Kaney, S., & Bentall, R. P. (1989). Persecutory delusions and attributional style. *British Journal of Medical Psychology, 62*, 191-198.
- Kaney, S., Wolfenden, M., Dewey, M. E., & Bentall, R. P. (1992). Persecutory delusions and recall of threatening propositions. *British Journal of Clinical Psychology, 31*, 85-87.
- Kapur, S. (2003). Psychosis as a state of aberrant salience: A framework linking biology, phenomenology, and pharmacology in schizophrenia. *American Journal of Psychiatry, 160*, 13-23.
- Kinderman, P. (1994). Attentional bias, persecutory delusions, and the self-concept. *British Journal of Medical Psychology, 67*, 53-66.
- Kinderman, P., & Bentall, R. P. (1987). Causal attributions in paranoia and depression: Internal, personal and situational attributions for negative events. *Journal of Abnormal Psychology, 106*, 103-107.
- Kingdon, D. G., & Turkington, D. (1991). The use of cognitive behaviour therapy with a normalizing rationale in schizophrenia: Preliminary report. *Journal of Nervous and Mental Disease, 179*, 59-79.
- Kingdon, D., & Turkington, D. (1994). *Cognitive-behavioral therapy for schizophrenia*. Hove: Lawrence Erlbaum.
- Kuipers, E., Fowler, D., Garety, P., Chisholm, D., Freeman, D., Dunn, G., et al. (1998). London-East Anglia randomized controlled trial of cognitive-behavioral therapy for psychosis III: Follow-up and economic evaluation at 18 months. *British Journal of Psychiatry, 173*, 61-68.
- Linney, Y. M., Peters, E. M., & Ayton, P. (1998). Reasoning biases in delusion prone individuals. *British Journal of Clinical Psychology, 36*, 575-584.
- Maher, B. (1988). Delusions as the product of normal cognitions. In T. F. Oltmanns & B. A. Maher (Eds.), *Delusional beliefs* (pp. 333-336). New York: Wiley-Interscience.

- Menon, G. J., Rahman, I., Menon, S. J., & Dutton, G. N. (2003). Complex visual hallucinations in the visually impaired: The Charles Bonnet syndrome. *Survey of Ophthalmology, 48*, 58-72.
- Morrison, A. (2001). The interpretation of intrusions in psychosis: An integrative cognitive approach to hallucinations and delusions. *Behavioural and Cognitive Psychotherapy, 29*, 257-276.
- Morrison, A. P. (1998). A cognitive analysis of auditory hallucinations: Are voices to schizophrenia what bodily sensations are to panic? *Behavioural and Cognitive Psychotherapy, 26*, 289-302.
- Mueser, K. T., Bellack, A. S., & Brady, E. U. (1990). Hallucinations in schizophrenia. *Acta Psychiatrica Scandinavica, 82*, 26-29.
- Mueser, K. T., & Gingerich, S. (1994). *Coping with schizophrenia*. Oakland, CA: New Harbinger.
- Mueser, K. T., & Rosenburg, S. D. (2003). Treating the trauma of first episode psychosis: A PTSD perspective. *Journal of Mental Health, 12*, 103-108.
- Nelson, H. E. (1997). *Cognitive behavioural therapy with schizophrenia: A practice manual*. Cheltenham, England: Stanley Thornes.
- Satorius, N., Shapiro, R., & Jablensky, A. (1974). The international pilot study of schizophrenia. *Schizophrenia Bulletin, 1*, 21-35.
- Seligman, M. E., Abramson, L. Y., Semmel, A., & von Baeyer, C. (1979). Depressive attributional style. *Journal of Abnormal Psychology, 88*, 242-247.
- Sensky, R., Turkington, D., Kingdon, D., Scott, J. L., Scott, J., Siddle, R., et al. (2000). A randomized controlled trial of cognitive-behavioral therapy for persistent symptoms in schizophrenia resistant to medication. *Archives of General Psychiatry, 57*, 165-172.
- Smith, T. E., Hull, J. W., Romanelli, S., Fertuck, E., & Weiss, K. A. (1999). Symptoms and neurocognition as rate limiters in skills training for psychotic patients. *American Journal of Psychiatry, 156*, 1817-1818.
- Tarrier, N., Sharpe, L., Beckett, R., Harwood, S., Baker, A., & Yusupoff, L. (1993). A controlled trial of two cognitive behavioural methods of treating drug-resistant residual psychotic symptoms in schizophrenic patients: II. Treatment specific changes in coping and problem solving. *Social Psychiatry and Psychiatric Epidemiology, 28*, 5-10.
- Tarrier, N., Yusupoff, L., Kinney, C., McCarthy, E., Gledhill, A., & Haddock, G. (1998). A randomized controlled trial of intensive cognitive behavior therapy for patients with chronic schizophrenia. *British Medical Journal, 317*, 303-307.
- Townend, M. (2002). Individual exposure therapy for delusional disorder in the elderly: A case study of a 71-year-old man. *Behavioural and Cognitive Psychotherapy, 30*, 103-109.
- Velligan, D. I., & Miller, A. L. (1999). Cognitive dysfunction in schizophrenia and its importance to outcome: The place of atypical antipsychotics in treatment. *Journal of Clinical Psychology, 60*(Suppl. 23), 25-28.
- Wells, A., Clark, D. M., Salkovskis, P. M., Ludgate, J., Hackmann, A., & Gelder, M. (1995). Social phobia: The role of in-situation safety behaviors in maintaining anxiety and negative beliefs. *Behavior Therapy, 26*, 153-161.
- Wilhelm, S. (2000). Cognitive therapy for obsessive-compulsive disorder. *Journal of Cognitive Psychotherapy, 14*, 245-259.
- Zubin, J., & Spring, B. (1977). Vulnerability: A new view of schizophrenia. *Journal of Abnormal Psychology, 86*, 103-126.

**Offprints.** Requests for offprints should be directed to Corinne Cather, PhD, Massachusetts General Hospital, Freedom Trail Clinic, 25 Staniford Street, Boston, MA 02114. E-mail: [ccather@partners.org](mailto:ccather@partners.org)

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.