
Cognitive Behavioral Therapy of Negative Symptoms



Dimitri Perivoliotis

University of Pennsylvania



Corinne Cather

Massachusetts General Hospital

Negative symptoms account for much of the functional disability associated with schizophrenia and often persist despite pharmacological treatment. Cognitive behavioral therapy (CBT) is a promising adjunctive psychotherapy for negative symptoms. The treatment is based on a cognitive formulation in which negative symptoms arise and are maintained by dysfunctional beliefs that are a reaction to the neurocognitive impairment and discouraging life events frequently experienced by individuals with schizophrenia. This article outlines recent innovations in tailoring CBT for negative symptoms and functioning, including the use of a strong goal-oriented recovery approach, in-session exercises designed to disconfirm dysfunctional beliefs, and adaptations to circumvent neurocognitive and engagement difficulties. A case illustration is provided. © 2009 Wiley Periodicals, Inc. *J Clin Psychol: In Session* 65:815–830, 2009.

Keywords: schizophrenia; psychotherapy; cognitive behavioral therapy; negative symptoms

Negative symptoms are fundamental to schizophrenia due to their predominance in the prodromal phase and their tendency to be fairly stable over the course of the disorder. Negative symptoms comprise the following four symptom clusters: affective flattening, avolition, anhedonia, and alogia. An important distinction has been made between primary negative symptoms and symptoms secondary to positive psychotic symptoms, depression, anxiety, or medication side effects (Buchanan, Kirkpatrick, Heinrichs, & Carpenter, 1990).

Controversy surrounds whether second generation antipsychotics are more effective than first generation antipsychotics in the treatment of negative symptoms (Buchanan et al., 2007; Liberman et al., 2005). Undisputed, however, is that negative symptoms persist in many cases despite pharmacological treatment. Moreover, it has

Correspondence concerning this article should be addressed to: Dimitri Perivoliotis, University of Pennsylvania, 3535 Market St. Room 2032, Philadelphia, PA 19104; e-mail: dimitrip@mail.med.upenn.edu

become clear that it is the negative symptoms (more than the positive symptoms) that account for much of the functional disability of schizophrenia (Brier, Schrieber, Dyer, & Pickar, 1991; Milev, Ho, Arndt, & Andreasen, 2005). Accordingly, the development of effective treatments for negative symptoms has the potential to remediate the often substantial functional disability associated with schizophrenia.

A very promising adjunctive psychosocial intervention for negative symptoms is cognitive behavioral therapy (CBT). A review determined the mean weighted effect size of CBT on negative symptoms across 34 randomized controlled trials (RCTs) to be .44 (Wykes, Steel, Everitt, & Tarrrier, 2008). Although modest in effect size, CBT tended to show its greatest effects on negative symptoms even though negative symptoms have rarely been the primary focus of treatment. This finding suggests either the effect of a common active ingredient of CBT on disparate outcomes or the presence of underlying functional relationships between different symptom clusters in schizophrenia.

Negative symptoms have been conceptualized in a number of different ways and from these diverse viewpoints have sprung heterogeneous psychosocial interventions. The earliest attempts to target negative symptoms conceptualized skill deficits as central to the negative symptom presentation and, therefore, employed social skills training (Dobson, McDougall, Busheikin, & Aldous, 1995). Social skills training resulted in modest improvements in social skills as measured in the research context; however, these improvements lacked durability and did not typically generalize to community functioning (Penn & Mueser, 1996). More recent conceptualizations emphasize an affective etiology of negative symptoms, suggesting negative symptoms represent a retreat in the face of extreme stress (Kingdon & Turkington, 1994). Some of the earliest interventions recommended for negative symptoms bore resemblance to those used in CBT for depression. These early CBT methods targeted the anhedonia and amotivational components of negative symptoms, particularly with activity scheduling with ratings for mastery and pleasure (Kingdon & Turkington, 1994; Sensky et al., 2000).

In this article, we outline and illustrate innovations in tailoring CBT for negative symptoms and functioning. These methods include the use of a goal-oriented recovery approach, in-session exercises designed to disconfirm dysfunctional beliefs, and adaptations to circumvent neurocognitive and engagement difficulties.

CBT for Negative Symptoms

To have a diagnosis of schizophrenia, an individual must demonstrate a significant decline in functioning, indicating that there will be at least one significant social or occupational “failure” in the life of every person with this disorder. A close look at the history of many individuals with schizophrenia, however, often reveals repeated failures, particularly in school, work, and social domains. One probable source of these failures is neurocognitive impairment, which is often manifested as difficulties sustaining concentration, culling information from the environment, generating and implementing plans, and solving problems for which solutions are not immediately apparent. Neurocognitive impairment is associated with negative symptoms more than with positive or disorganized symptoms and has been repeatedly found to be the best predictor of functional outcome in schizophrenia. Neurocognitive impairment may lock patients into cycles of repeated setbacks and failures, including inappropriate goal-setting (e.g., taking a full course load after failing the previous

semester) and a reduced ability to learn from errors (Shepard, Holcomb, & Gold, 2006).

The cognitive underpinnings of negative symptoms may help practitioners provide cognitive targets for CBT. Repeated setbacks and failures are theorized to foster dysfunctional beliefs, including low expectancies for pleasure and success, a perception of limited resources, defeatist beliefs about performance, and negative beliefs about social affiliation (see case illustration and Figure 1 for examples). These beliefs in turn may perpetuate the disengagement and avoidance that characterize negative symptoms and that result in poor treatment outcome (Beck, Rector, Stolar, & Grant, 2009). Consistent with this theory, greater dysfunctional beliefs have been associated with higher negative symptom levels and have been found to mediate the relationship between neurocognitive impairment and negative symptoms in schizophrenia (Grant & Beck, 2009; Rector, 2004).

According to this cognitive model, negative symptoms function partly as a maladaptive strategy aimed to protect individuals from expected pain and rejection associated with engagement in constructive activity. Additionally, beliefs triggered by the stigma of mental illness (e.g., “I won’t be able to achieve anything or have meaningful relationships because I have schizophrenia”) compound the dysfunction. CBT includes interventions from recovery and empowerment movements designed to address self-stigmatized views (Mueser et al., 2006) as part of its broad aim to modify the dysfunctional beliefs that maintain negative symptoms. Table 1 offers

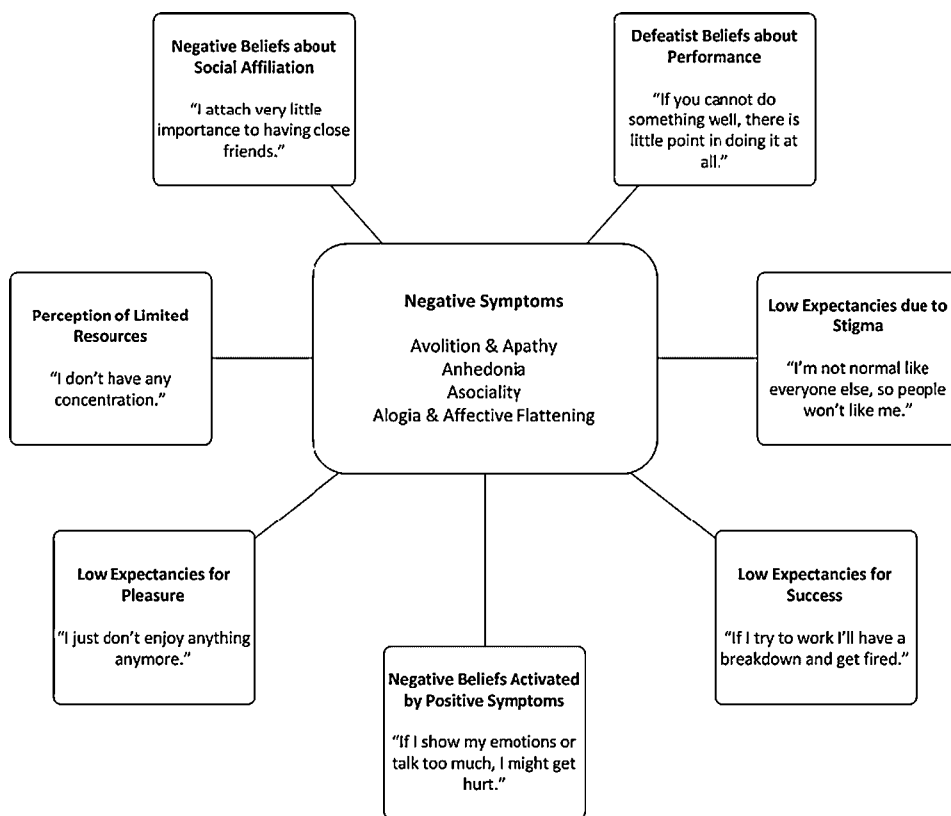


Figure 1. Cognitive case formulation of Kelly’s negative symptoms.

Table 1
Functional Cognitive Behavioral Analysis of Negative Symptoms

Negative symptom	Beliefs	Behaviors	Possible benefits	Possible drawbacks
Anhedonia-Asociality	"It won't be that much fun anyway."	Does not engage in leisure or social activities	Resource-sparing; limits possibility of failure	Limits exposure to potential sources of enjoyment or sense of productivity
Avolition-Apathy	"I just don't have the energy to follow through with it."	Does not engage in effortful activity	Resource-sparing; limits possibility of feeling overly taxed; others' expectations of him/her are low in terms of initiative	Limits exposure to activities that are potential sources of enjoyment or sense of productivity
Affective flattening	"It is better not to give too much away by showing emotion on my face."	Blunted affect, decreased communication with others, loss of connection with his/her own emotions	Assists him/her to recede into the background; not draw others' attention	Contributes to low level of social connectivity; others mistakenly assume individual has a muted affective experience
Alogia	"I don't know what to say." "I'm not going to say things right."	Replies are brief and unelaborated	Others' expectations of him/her are low in terms of conversation	Low levels of social connection; low self-efficacy regarding communication

frequently held beliefs and associated behaviors that may underlie specific negative symptoms.

Perceived criticism has been identified as a contributory factor to the severity of negative symptoms. Individuals with schizophrenia in critical families demonstrate more severe negative symptoms but not more positive symptoms (Barraclough et al., 2003). Accordingly, clinicians increasingly educate individuals as well as family members about negative symptoms. One function of the education is to combat negative views of the self (“I guess I am just lazy”) and another is to reframe family members’ causal attributions for the behaviors. One piece of data that frequently proves useful is that individuals with schizophrenia report experiencing a full range of affect. In fact, individuals with schizophrenia demonstrate no impairment in consummatory pleasure (e.g., ratings of enjoyment while engaged in a pleasurable activity), but do evince deficits in anticipatory pleasure (e.g., predicting how much enjoyment will be gained by participating in a pleasurable activity in the future or actually experiencing pleasure in anticipation of a future event; Gard, Kring, Gard, Horan, & Green, 2007).

In light of the impoverished social networks of individuals diagnosed with schizophrenia, one of the ways that supportive therapy may function to improve symptoms is by providing a social context for the components of pleasure. The components of the experience of pleasure have been outlined as requiring anticipating, savoring, and reminiscing about pleasurable events (Bryant, Smart, & King, 2005; Bryant & Veroff, 2006). One of our current studies is testing this notion by using therapist-assisted anticipation, savoring, and reminiscence of pleasurable activities as a key intervention for negative symptoms.

CBT for schizophrenia is goal-oriented, and begins with identifying the client’s goals and breaking them down into smaller, concrete, achievable subgoals. Any goals that lead to improved self-efficacy, greater pleasure, reduced stigma, and a perception of greater personal resources have the potential to reduce negative symptoms and improve functioning. The treatment does not target symptoms in a vacuum, but instead addresses obstacles that interfere with goal attainment, whether they are symptoms, social skill deficits, or anger management. Goals are used as leverage to facilitate therapeutic engagement, which tends to be especially tenuous in clients with negative symptoms due to their lack of motivation and reduced capacity for relatedness.

Case Illustration

Presenting Problem/Client Description

Kelly was a 28-year-old single unemployed man suffering from schizophrenia and living in a group home a few miles from his parents’ home. He was referred by his psychiatrist after his parents complained of Kelly’s lack of motivation, inactivity, and social isolation. Kelly was hesitant, stating that he did not “feel like” leaving his home once a week and traveling to the therapist’s office 20 minutes away. Kelly complained “nothing feels good” and spent much of his day alone inside the group home, listening to the radio, watching TV, and smoking. He had no friends, and his main social contacts were his parents, whom he would usually visit on weekends. His brother lived in town, but Kelly only saw him on holidays. Kelly did not have a romantic relationship and did not express interest in pursuing one.

Kelly had a long history of anxiety and academic difficulty stemming from attentional problems dating back to childhood. He was screened for ADHD in grade

school but did not fully meet diagnostic criteria. He was teased and bullied repeatedly during the first few years of school due to being overweight. He was generally a loner, despite having a couple of friends with whom he interacted during the school day. As a teenager, he was close to his older brother and enjoyed reading and painting. During his junior year, he failed to make the basketball team and discovered that his long-hidden affections for a female classmate were unrequited. These events triggered a depressive episode, during which he isolated and spent many hours playing video games by himself in his room.

Kelly moved to an out-of-state college where he found it difficult to make meaningful friendships and to adhere to a daily schedule. He started using marijuana to cope with increasing anxiety, briefly participated in supportive counseling but dropped out, and underwent neuropsychological testing in an attempt to obtain special accommodations due to his attentional problems. Over the first two years of college his role and social functioning steadily worsened and he became more symptomatic—his grades dropped, he became increasingly isolated, and eventually developed paranoia about the college staff conspiring to make him fail and the students wanting to kill him. He heard voices that he believed emanated from students' heads saying, "We're gonna get you," which distressed him greatly and fueled his isolation. Kelly cut ties with his small handful of casual friends and later transferred to a less rigorous community college near home. There, he lived in a studio apartment but was isolated and friendless. These changes left him feeling ashamed.

Over the next 2 years, his condition worsened as his paranoia spread to include his family members, whom he came to believe were involved in a plot masterminded by his brother to poison him. His first hospitalization was triggered by an incident in which he threatened his brother. Kelly eventually had to drop out of school and move to a group home due to worsening self-care and isolation. After a year of medication adjustments, Kelly's psychotic symptoms reduced to a residual level—he still believed that people were out to kill him, but he was less preoccupied by these thoughts. His hallucinations decreased in frequency but tended to occur during times of stress and distress and when he was alone in his room. His relationship with his parents improved somewhat but because of the lingering paranoia, remained tense, and he avoided his brother.

Kelly was hesitant to engage in psychotherapy but acknowledged long-term goals of returning to school and living independently. He saw himself, however, as not yet ready to go back to school primarily because of the belief that he has "no attention span anymore" and therefore "can't read." The only thing he saw as standing in his way of having his own place was not being able to afford it, yet he also did not think he was ready to get a job, stating "I'm too anxious to work; if I do, I'll have a breakdown, end up in the hospital, and get fired."

Assessment and Case Formulation

Cognitive behavioral therapy for negative symptoms depends on careful assessment of neurocognitive functioning, symptomatology, daily functioning and quality of life, beliefs, behaviors, and images. Assessment is an ongoing process achieved through several methods, including formal measures, functional assessment of the client's behavior, and self-monitoring of thoughts, images, behaviors, and emotions. As a starting point, it is important to have a basic understanding of the client's neurocognitive functioning to have a realistic sense of the functioning achievable by

the client and to understand how the therapy might be adapted (e.g., use of memory aides for a client with severe memory impairment).

Kelly's therapist assessed him with a formal neuropsychological test battery, asked him and his family to elaborate on Kelly's history of attentional impairments, and obtained consent to access a copy of his college neuropsychological assessment results. These data indicated a moderately severe attentional impairment as well as moderate memory and problem-solving difficulties, which interfered with reading, making appointments, using public transportation, and conversing with people.

At the start of therapy, Kelly completed several other assessment measures to index his symptoms and functioning. He scored in the moderate range of severity for delusions and hallucinations on the Scale for the Assessment of Positive Symptoms (Andreasen, 1984b). His ratings on the Scale for the Assessment of Negative Symptoms (SANS; Andreasen, 1984a) indicated severe avolition and apathy, moderate anhedonia and asociality, and mild alogia. His responses on the Dysfunctional Attitude Scale (DAS; Weissman & Beck, 1978) indicated a high level of defeatist beliefs such as, "Taking even a small risk is foolish because the loss is likely to be a disaster," "If you cannot do something well, there is little point in doing it at all," and "If I fail partly, it is as bad as being a complete failure." He endorsed numerous negative beliefs about social affiliation on the Revised Social Anhedonia Scale (RSAS; Eckblad, Chapman, Chapman, & Mishlove, 1982) including, "I attach very little importance to having close friends." His daily functioning was poor across all domains, especially in recreational activities, which reflected his lack of structure and inactivity. His intake GAF score was 31.

Self-monitoring is an important part of the treatment for negative symptoms because it provides concrete information on the client's activity level and social contacts between sessions, helps to reveal problem areas, and tracks progress. Starting with the first session, Kelly was asked to keep a weekly running log of his activities throughout the day in a simple calendar format.

In addition to standardized measures and self-monitoring, functional assessment provides fine-grain detail about situational, cognitive, and behavioral features associated with the activation and persistence of the client's negative symptoms. The following transcript illustrates a functional assessment of Kelly's difficulty getting up at a consistent time every morning:

- T: Kelly, how did you wake up today? Did you have an alarm clock set?
- P: No, I don't use one. I just naturally woke up.
- T: Okay, what was the first thing that went through your mind when you woke up?
- P: Oh great another day of nothing. There's nothing for me to get up for.
- T: Nothing?
- P: Yeah, like I have nothing going on. It'll probably be another boring day.
- T: And how did you feel when you had that thought?
- P: I don't know, just kind of blah. I don't remember really—I just went back to bed because what's the point? It's not like I had anywhere to go or anything to do.
- T: I see. What happened next?
- P: I woke up at around noon. This time I got out of bed because I was hungry.
- T: What went through your mind this second time?
- P: I just felt really sluggish—like my mind was mush.
- T: I bet. Do you remember what you told yourself at that moment?

- P: Yeah, why I can't be like normal people who get up in the morning and have a normal life? I'm so sick of this schizophrenia and these meds that make me so sleepy. I didn't feel like doing anything.
- T: That must have been really tough; it sounds like you started beating yourself up. What did you do the rest of the day?
- P: Well, I just smoked and had some breakfast. That's about it. I watched some TV until I had to get ready to come here.
- T: So just to make sure I understand what happened, it sounds like when you first woke up, you had this thought, "Why bother getting up?" and went right back to bed. When you woke up 4 hours later you started thinking "Why can't I be normal?" which made you frustrated and sapped your motivation for doing anything the rest of the day, almost like the day had been lost.
- P: Yes, that's it. This happens all the time.

In this exchange, the therapist closely examined a recent event and focused on relevant situational elements (e.g., the lack of an alarm clock and a plan for what to do upon waking), as well as the client's thoughts, emotions, and behaviors. Kelly's low expectancies of pleasure and success ("Oh great, another day of nothing") interfered with his ability to engage a daily structure, and his stigma-related beliefs (that he is not "normal") compounded the problem. The therapist summarized the chain of events, trying to emphasize the causal link between Kelly's thoughts, emotions, and behavior, which helped to familiarize Kelly with the cognitive model.

Kelly's family history of mood disorders and chronic bullying in elementary school may have served as predisposing factors to his mental illness. His neurocognitive impairments, especially in attention, served as a source of distress and likely limited his academic and social achievement throughout life. Kelly's onset cannot be traced to one specific precipitating event, but rather a series of stressors, starting with failure to make the basketball team and being romantically rejected in high school, followed by the stress of moving to a new distant school and mounting academic and social failures. Kelly's avoidance, social isolation, and low frustration tolerance were likely perpetuating factors because they prevented him from experiencing new and potentially rewarding activities that would disconfirm his negative beliefs. For example, by avoiding reading or painting, his belief that he could no longer do these activities remained untested. Kelly's protective factors included a supportive family, a reserve of functional living skills (as opposed to someone who, for example, has always been dependent on parents), and a stable living arrangement.

All of his information was assembled into a continuously refined cognitive case formulation that guided the treatment. This formulation is summarized in Figure 1.

Course of Treatment

Goal setting and tracking. Initial sessions were spent collaboratively identifying Kelly's goals and breaking them down into smaller subgoals and identifying obstacles to maximize his chances for success. Kelly and his therapist agreed that he would approach his school goal by first getting up to speed with reading, then attending free lectures, followed by taking one class for no credit, and then enrolling as a part-time student at a local community college. Because Kelly believed that he could not have his own apartment because he could not afford it, he agreed with his therapist's advice that he needed a job first. He felt that his main obstacle to work was his anxiety, so the plan was to learn how to manage the anxiety, then find a

volunteer position, get part-time work, and finally get full-time work. Kelly believed that going back to school was more important than working, so this goal was given priority.

His therapist explained that both school and work require adherence to a daily schedule and pleasurable activities to provide balance. Kelly agreed to work on these subgoals as well. The therapist created a goal progress meter on a piece of poster board to track Kelly's progress and to help him avoid getting derailed by a perceived lack of progress or by inevitable setbacks. The progress meter had demarcations for all of Kelly's subgoals; periodically throughout the treatment, his therapist asked him to rate his level of progress by coloring in the meter with a colored pencil.

The treatment was tailored to circumvent Kelly's neurocognitive impairments by using multiple modes of learning. For example, a whiteboard was used to orient Kelly's attention and clarify complex topics. The therapist facilitated Kelly's retention of session material at the end of every session by asking, "What were the take home points from today's session?" and writing these summary points down. Salient points were also communicated on wallet-sized "coping cards" and simple handouts. Kelly was given a "therapy binder" to store all of his session handouts to help organize him. The therapist also spoke succinctly and in a concrete manner, frequently summarized, and used repetition to get important points across. (Additional techniques for adapting treatment for neurocognitive impairment can be found in Draper, Stutes, Maples, & Velligan and Friedman-Yakoobian, this issue).

Avolition and apathy. Kelly complained of a pervasive sense of apathy and noted that it was extremely difficult for him to do anything without encouragement from his family. His therapist provided psychoeducation on avolition and apathy by explaining that it is easy for people who are inactive to get drawn into a vicious cycle of continued inactivity and apathy because the mind and body simply become understimulated and activity takes increasingly more effort. The therapist also explained that avolition and apathy can result from difficulties with learning from rewarding experiences (Gold, Waltz, Prentice, Morris, & Heerey, 2008). Kelly was surprised that there were words and research for his experiences, and he said he felt better knowing that he was not alone.

Activity scheduling was used to help build structure into Kelly's life. The addition of daily activities was done in a graded process, starting with routine tasks such as waking up at the same time every morning and having consistent meal times, followed by gradual addition of pleasurable activities (e.g., going for coffee) and mastery-building activities (e.g., doing laundry). Kelly tracked his activities on a simple calendar, rated each one from 0–10 for pleasure and mastery, and reviewed his progress with his therapist every week.

Kelly's avolition and apathy also interfered with his engagement in the treatment—in early sessions, he sat slumped down in his chair and had poor eye contact. The therapist appealed to his past love of video games by playing quick online games with him for the first few minutes of those sessions, which helped to break the ice and engage him. With time, as the relationship strengthened and Kelly began to see benefits from therapy, his engagement improved significantly. Homework assignments were called "action plans" to avoid the negative reaction to the word "homework" and to emphasize the goal-directed nature of the therapy.

Problems that interfered with Kelly's daily routine were addressed on both the situational and the cognitive level. To help him get up at a consistent time every

morning, for example, the therapist instructed Kelly to set two alarms—his alarm clock was set at one time and placed at the end of his bedroom, while his cell phone alarm was set for 5 minutes later and placed in the bathroom, pulling on him to get out of bed to turn it off. Kelly agreed to then shower and go out for a cup of coffee. To manage the negative beliefs Kelly had about getting up early, he and his therapist collaboratively devised a list of “reasons to get up on time” (e.g., “because this is good practice for when I go back to school or have a job”), which he read every night before going to bed and every morning upon waking.

Kelly recognized the relevance of getting back into reading again for his goal of returning to school, but his low expectancies for success and perception of limited resources (e.g., “I can’t read anymore because I have no concentration”) interfered with this subgoal. Simply scheduling small periods of reading time every day failed to work. Because Kelly wanted to learn more about history, his therapist assigned small excerpts for reading (initially, one page at a time) and created short quizzes. Before reading, Kelly described his predicted performance and estimated what he expected to score on the quizzes, and he usually exceeded his expectations. Table 2 presents the form used to track his progress. These experiences served to directly disconfirm his dysfunctional beliefs. As time went on, the readings became substantially longer, and Kelly eventually started to read fiction books for pleasure too.

Typically, disconfirmation of maladaptive beliefs is most effectively accomplished through behavioral tests such as the above; however, Kelly also learned how to identify and evaluate his beliefs with the “3Cs method” (McQuaid et al., 2000): “catch” the thought (identify it), “check it” by determining whether it is accurate and helpful for goal attainment, and if not, “correct it.” After practicing the 3Cs for a while, a pattern appeared in the kinds of thoughts that came up for Kelly. His most common “corrected” thoughts were written on a coping card that he kept in his wallet for easy reference. For example, he wrote: “Trying new things gives me a sense of accomplishment and gets me closer to my goals of school and work” and “Even though I might feel like I have no energy, pushing myself to do something usually gives me a boost of energy.”

After his therapist explained that family involvement can help support and catalyze his recovery, Kelly agreed for his family to become somewhat involved in his treatment. The therapist had a private session with the family in which he

Table 2
Performance Tracking Form for Reading Exercises

Date	What I think will happen when I read	Expected quiz score	What actually happened while I read	Actual quiz score
2/3	My concentration will be so bad I won't be able to read at all. I'll get very frustrated.	0%	I lost my focus twice but brought it back. I was a little annoyed.	50%
2/10	I'll get through half of the reading but then won't be able to continue.	10%	I got through all of it but had to re-read a few sentences.	55%
2/17	I'll read all of it but won't remember much afterwards.	30%	I read all of it and was surprised that I remembered the main points.	67%

assessed their current approaches, including what was and was not working. The therapist provided psychoeducation that helped modify their unhelpful beliefs that Kelly “is just lazy” and “he doesn’t want to get better” and coached them on using positive reinforcement to help change Kelly’s behavior (e.g., complimenting him on his increasing activity level instead of nagging him to do things). The therapist also asked them to facilitate Kelly’s adherence to his action plans by checking in with him about scheduled activities and providing transportation if needed. They also assisted in the process of finding new activities for him to do, including searching for free classes in the area.

Anhedonia. Kelly complained that he no longer enjoyed “anything” in his life, and this was distressing to him. His therapist provided him with psychoeducation on anhedonia, including research findings that showed that the problem is not so much a difficulty in experiencing pleasure, but rather in anticipating and remembering positive experiences. Kelly was surprised but skeptical. The therapist took every opportunity to demonstrate this phenomenon in Kelly’s everyday life, especially during the sessions themselves. Kelly had let go of his beloved hobby of painting during his stressful transition to college “because I just didn’t enjoy anything anymore.” No amount of encouragement by his family helped him return to the hobby. In the following example, his therapist arranged for an experiment to test out Kelly’s negative beliefs about pleasure by asking him to paint during the session:

- T: I’m glad that you brought your painting materials in today, Kelly. How much pleasure do you expect to feel while painting for 10 minutes, on a scale of 0–100?
- P: Zero. I know I won’t like it. I don’t even see the point of doing this.
- T: Well, like I said last week, this exercise will help me to better understand what it’s like for you to have trouble feeling pleasure, and it’s an experiment to see what really happens when you paint. Tell me, what exactly do you think will happen once you pick up that brush and start painting?
- P: I’ll just feel numb, like I’m going through the motions.
- T: I see. How numb do you think you’ll feel, from 0–100%?
- P: 100%.

Kelly then started to paint. The therapist noted that at one point he cracked a little smile and seemed to get fairly absorbed in the painting.

- T: Okay, time’s up. How much pleasure did you really get from that, on a 0–100 scale?
- P: I dunno, it was okay. Maybe 15%.
- T: That’s interesting; that is 15% higher than what you were expecting. I also noticed that you cracked a smile there for a second.
- P: Yeah, I guess so. But a few years ago my pleasure would have been 100%. I just can’t feel pleasure any more.
- T: That must be frustrating, I imagine.
- P: It is.
- T: What about feeling numb, like you’re going through the motions? How numb did you feel, from 0–100%?
- P: Probably around 30%.
- T: 30%? Wow. That’s not too terrible is it, at least compared to the 100% you were expecting?

- P: Yeah I guess, but painting used to come so naturally to me. Once I get over my schizophrenia, I'll be able to have that again.
- T: I see. So, just to summarize, you were 100% convinced that painting today would bring you no pleasure at all (0%) but you actually felt 15% pleasure. You also thought that you would feel completely numb, like you were going through the motions, but that feeling was 70% less than you thought it would be. What is the take-home message here?
- P: I guess that I might be able to feel *some* pleasure still.
- T: Exactly. It goes back to what we were saying about the pleasure we expect to feel when doing something doesn't always equal the pleasure that we really end up feeling. Of course you're frustrated that the pleasure from painting is a lot weaker than it used to be—most people would feel the same way. But, the more you paint, the higher your pleasure will be. It just will take practice and patience.

Kelly agreed to implement 10 minutes of painting three times per week into his activity schedule. The therapist reminded him periodically that painting was also one of the stepping-stones toward his ultimate goals of working or having a job, because everyone needs to balance work with play. Kelly applied the ingredients of pleasure (Bryant & Veroff, 2006) to his painting goal. His anticipation was strengthened by discussing aspects of painting that he expected to be most pleasurable (e.g., starting with a fresh canvas, using vivid colors) and enhancing the experience by painting by his window while his favorite CD played. Finally, Kelly's reminiscence skills were strengthened by reviewing his painting sessions—the therapist would ask questions such as, "What was fun about it?" "What surprised you?" "Did you notice anything interesting or beautiful while you were painting?" Over time, Kelly began to enjoy painting more and increased to 30-minute painting sessions. His parents contributed by helping to find a free local painting class that provided social contact and helped prepare him for the classroom environment.

Asociality. Kelly's social isolation was conceptualized as an avoidance response that served to protect him from anxiety and social threat; it was also closely related to his paranoia and auditory hallucinations. The treatment, therefore, involved training in anxiety reduction including diaphragmatic breathing and progressive muscle relaxation, as well as cognitive behavioral therapy techniques for positive symptoms (see Grant et al., this issue).

Initially, treatment focused on helping Kelly to reconnect with his brother. As with his other goals, this was approached in a stepwise manner, starting with talking to his brother on the phone and gradually increasing the frequency and intensity of their interactions. Getting together with his brother and playing video games like they once did was especially effective because it chained a pleasurable activity with a social one and took pressure off Kelly for having to maintain lengthy conversation. Many of the same beliefs that maintained his other negative symptoms (e.g., low expectancies of pleasure and success) fueled his asociality as well. Especially prominent during social interactions were his stigma-related beliefs—a typical one was, "I'm not normal like everyone else, so people won't like me." Kelly's therapist shared normalizing information with him such as a list of famous people who were diagnosed with schizophrenia; he was surprised at how successful and popular some of them were.

Alogia and affective flattening. As Kelly became more socially involved, his tendency to speak in a brief, unelaborated manner and to display little facial emotion

became a larger focus of the therapy. Kelly was not fully aware of how much he displayed these symptoms until his therapist showed him a video-recording of himself speaking in session. Kelly was surprised at how he came across and conceded that his presentation might interfere with socializing and school or work performance. A functional analysis of his symptoms determined that they were partially triggered and maintained by anxiety, stigma, and suspiciousness, as reflected in beliefs such as, “It’s safer not to stand out” and “If I show my emotions or talk too much, I might get hurt or look weird.”

His therapist initially used interactions with Kelly in sessions to practice increased expressiveness and communication by having him study and mimic photos of emotional facial expressions and by reviewing conversational skills. He practiced these skills with his therapist and they reviewed his performance by studying video-recordings of the interactions afterwards. The therapist made it a point to reinforce him for even the smallest signs of improvement (e.g., “You explained that very nicely—I didn’t have to ask you a lot of questions”) as well as providing specific examples of things he could improve upon (“Your voice tone was too quiet and we have really found that speaking more loudly goes along with being more communicative, so we should work on that”). For severely impaired clients, a more structured reinforcement plan involving small rewards (e.g., stickers or points toward earning snack items) can be useful here. The therapist then arranged for more difficult practice by having Kelly talk to colleagues and the clinic receptionist. He also practiced with his family members who the therapist had coached on how to provide feedback, especially praise for increased communication.

Outcome and Prognosis

Kelly made significant progress during 1 year of mostly weekly sessions. He established a more consistent daily schedule buttressed by routine activities such as laundry, cleaning, and regular meals. He started painting and reading again and eventually found these activities moderately pleasurable. He attended several free local lectures despite an initial bad experience where he could not concentrate and ended up leaving. Near the end of treatment he enrolled in a non-credit course on American history at a local community college. He also started volunteering at an animal shelter with his mother every weekend, and this experience allowed him to discover his affinity for animals. Kelly’s parents noted substantial improvement in his initiative, self-care, and overall presentation. They said he was more pleasant to be around and more responsive, and his brother observed that their relationship had improved. Kelly was still quite uncomfortable around strangers, but by the end of treatment, he was more open to making some friends.

Kelly’s improvements were reflected in decreased scores on the symptom measures. On the SANS, he dropped from severe to mild on the Avolition-Apathy subscale and from moderate to mild on the Anhedonia-Asociality subscale. His discharge GAF score was 50.

Kelly kept his anxiety largely under control with the anxiety reduction techniques he learned, especially diaphragmatic breathing. He had occasional setbacks during which he slipped into old patterns of isolation and inactivity, and, not surprisingly, during these periods, his paranoia and auditory hallucinations worsened. However, with some prompting and extra support (e.g., phone contact and twice weekly sessions), he resumed his previous gains. As his activity level and social engagement

increased over time, he became less preoccupied with paranoid thoughts and voices and the distress triggered by these symptoms decreased.

A number of factors suggest Kelly's prognosis is good. First, he successfully dealt with setbacks and temporary relapses during the treatment. Second, he managed to reduce his avoidance by initiating several reinforcing and mastery-building activities, thereby breaking the earlier vicious cycle. Third, thanks to repeated disconfirmations and consistent cognitive practice with the 3Cs, he showed a considerable reduction in the severity of his dysfunctional beliefs, thereby undercutting an important maintenance factor behind his negative symptoms. Fourth, he had the support of his family, who were coached by the therapist on how to facilitate and reinforce his recovery.

Clinical Issues and Summary

Kelly's case illustrates that CBT for negative symptoms is built upon traditional cognitive behavioral therapy principles but also relies critically on the therapist's creativity and openness to use the session as a laboratory in which entrenched dysfunctional beliefs are examined and debunked. Kelly's case illustrates a common etiological pathway in which neurocognitive impairment contributes to setbacks and failures that, in turn, result in dysfunctional beliefs that freeze clients into a shell of avoidance and withdrawal that shields them from further disappointment. The goal of CBT for negative symptoms is not necessarily to restore clients to their premorbid level of functioning, but rather to help them break out of this shell by mobilizing their personal and situational resources and fostering emotionally meaningful re-engagement with the world around them. Despite his significant progress and the relatively long duration of treatment, Kelly still has much to accomplish. Negative symptoms can persist long after other symptoms of schizophrenia have resolved. Realistically, CBT for negative symptoms may entail openness to longer term treatment that includes interval booster sessions after the completion of an initial course of therapy, much like we have begun to conceptualize, extended and episodic treatments in general medicine for chronic illness to ensure sustained effects, a reduction in the rate of demoralizing relapses, and maintenance of positive functional outcomes.

Selected References and Recommended Readings

- Andreasen, N.C. (1984a). The scale for the assessment of negative symptoms (SANS). Iowa City: University of Iowa.
- Andreasen, N.C. (1984b). The Scale for the assessment of positive symptoms (SAPS). Iowa City: University of Iowa.
- Barracough, C., Tarrier, N., Humphreys, L., Ward, J., Gregg, L., & Andrews, B. (2003). Self-esteem in schizophrenia: Relationships between self-evaluation, family attitudes, and symptomatology. *Journal of Abnormal Psychology, 112*, 92–99.
- Beck, A.T., Rector, N.A., Stolar, N., & Grant, P.M. (2009). *Schizophrenia: Cognitive theory, research and therapy*. New York: Guilford.
- Brier, A., Schrieber, J., Dyer, J., & Pickar, D. (1991). National Institute of Mental Health longitudinal study of chronic schizophrenia. *Archives of General Psychiatry, 48*, 239–246.
- Bryant, F.B., Smart, C.M., & King, S.P. (2005). Using the past to enhance the present: Boosting happiness through positive reminiscence. *Journal of Happiness Studies, 6*, 227–260.

- Bryant, F.B., & Veroff, J. (2006). *Savoring: A new model of positive experience*. Mahwah: Lawrence Erlbaum Associates, Inc.
- Buchanan, R., Javitt, D., Marder, S., Schooler, N., Gold, J., McMahon, R., et al. (2007). The cognitive and negative symptoms in schizophrenia trial (CONSIST): The efficacy of glutamatergic agents for negative symptoms and cognitive impairment. *American Journal of Psychiatry*, 164(10), 1593–1602.
- Buchanan, R., Kirkpatrick, B., Heinrichs, D., & Carpenter, W.J. (1990). Clinical correlates of the deficit syndrome of schizophrenia. *American Journal of Psychiatry*, 147, 290–294.
- Dobson, D., McDougall, G., Busheikin, J., & Aldous, J. (1995). Effects of social skills training and social milieu treatment on symptoms of schizophrenia. *Psychiatric Services*, 46, 376–380.
- Eckblad, M.L., Chapman, L.J., Chapman, J.P., & Mishlove, M. (1982). The revised social anhedonia scale. University of Wisconsin at Madison.
- Gard, D.E., Kring, A.M., Gard, M.G., Horan, W.P., & Green, M.F. (2007). Anhedonia in schizophrenia: Distinctions between anticipatory and consummatory pleasure. *Schizophrenia Research*, 93(1–3), 253–260.
- Gold, J.M., Waltz, J.A., Prentice, K.J., Morris, S.E., & Heerey, E.A. (2008). Reward processing in schizophrenia: A deficit in the representation of value. *Schizophrenia Bulletin*, 34(5), 835–847.
- Grant, P.M., & Beck, A.T. (2009). Defeatist beliefs mediate cognitive impairment and negative symptoms in schizophrenia. *Schizophrenia Bulletin*. Advance Access published on February 27, 2008; doi: 10.1093/schbul/sbn008.
- Kingdon, D., & Turkington, D. (1994). *Cognitive-behavioral therapy of schizophrenia*. New York: Guilford Press.
- Lieberman, J., Stroup, T., McEvoy, J., Swartz, M., Rosenheck, R., Perkins, D., et al. (2005). Clinical antipsychotic trials of intervention effectiveness (CATIE) investigators: Effectiveness of antipsychotic drugs in patients with chronic schizophrenia. *New England Journal of Medicine*, 353, 1209–1223.
- McQuaid, J.R., Granholm, E., McClure, F.S., Roepke, S., Pedrelli, P., Patterson, T.L., et al. (2000). Development of an integrated cognitive-behavioral and social skills training intervention for older patients with schizophrenia. *Journal of Psychotherapy Practice and Research, Schizophrenia*, 9, 149–156.
- Milev, P., Ho, B., Arndt, S., & Andreasen, N. (2005). Predictive values of neurocognition and negative symptoms on functional outcome in schizophrenia: A longitudinal first-episode study with 7-year follow up. *American Journal of Psychiatry*, 162, 495–506.
- Mueser, K., Meyer, P., Penn, D., Clancy, R., Clancy, D., & Salyers, M. (2006). The illness management and recovery program: Rationale, development, and preliminary findings. *Schizophrenia Bulletin*, 32(Suppl 1), S32–S43.
- Penn, D., & Mueser, K. (1996). Research update on the psychosocial treatment of schizophrenia. *American Journal of Psychiatry*, 153, 607–617.
- Rector, N. (2004). Dysfunctional attitudes and symptom expression in schizophrenia: Differential associations with paranoid delusions and negative symptoms. *Journal of Cognitive Psychotherapy*, 18, 163–172.
- Sensky, T., Turkington, D., Kingdon, D., Scott, J., Scott, J., Siddler, 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.
- Shepard, P., Holcomb, H., & Gold, J. (2006). The presence of absence: Habenular regulation of dopamine neurons and the encoding of negative outcomes. *Schizophrenia Bulletin*, 32(3), 417–421.

- Weissman, A.N., & Beck, A.T. (1978, November). Development and validation of the dysfunctional attitude scale: A preliminary investigation. Paper presented at the annual meeting of the Association for the Advancement of Behavior Therapy, Chicago, IL.
- Wykes, T., Steel, C., Everitt, B., & Tarrier, N. (2008). Cognitive behavior therapy for schizophrenia: Effect sizes, clinical models, and methodological rigor. *Schizophrenia Bulletin*, 34 523–537.