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Anxiety-Based Cognitive-Behavioral Therapy for Paranoid Beliefs

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Seven patients with chronic paranoid schizophrenia or schizoaffective disorder, in remission from substance dependence, received 8 sessions of cognitive-behavioral treatment (CBT) aimed at reducing their conviction in paranoid beliefs and associated anxiety (both measured on a 0% to 100% scale). Treatment was modeled on established CBT treatments for anxiety and included psychoeducation, relaxation training, and cognitive restructuring. Starting with neutral situations and gradually addressing paranoid situations, participants were taught to generate and evaluate alternative explanations for events. Participants were assigned diagnoses using the SCID-IV. They were assessed at baseline, posttreatment, and 1-month follow-up using interview, self-report, and cognitive measures. A multiple-baseline-across-subjects design was used. Results indicated clinically significant improvement by 3, mixed results for 1, and no change for 3.

The belief that one is being harassed, persecuted, attacked, cheated, or conspired against falls on a continuum ranging from paranoid ideation to persecutory delusions (*DSM-IV*; American Psychiatric Association, 1994). Such beliefs are features of many disorders, including schizophrenia. Clinically, paranoid beliefs bear some similarities to anxiety. Both involve excessive vigilance for danger, misinterpretation of threat where other people do not see it, and attentional and memory biases for threat-related material (Bentall & Kaney, 1989; Cameron, 1959; Fear, Sharp, & Healy, 1996; Mathews & MacLeod, 1985). Behaviorally, both involve some type of avoidance (Freeman

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& Garety, 2001). Cameron (1959) even described the behavior of delusional persons as "attack or flight," neatly mirroring the fight-or-flight system associated with anxiety.

Clinical and research data support a relationship between symptoms of paranoia and anxiety. Patients with delusions have been described clinically as "badly frightened"—anxious, socially withdrawn, and reluctant to confide in others (Cameron, 1959). Evaluation of delusional themes led Kinderman and Bentall (1998) to describe 50% to 55% of their sample of psychotic patients as having "anxiety psychosis." Another study looked at the elements that contributed to state and trait anxiety among 30 patients with paranoid schizophrenia, and found that suspiciousness best explained trait anxiety (Chlewinski, Grzywa, & Sawala, 1987). Increasingly, anxiety disorders and anxious symptoms among those with psychotic disorders are becoming a research focus—e.g., prevalence rates (Cosoff & Hafner, 1998), the etiological relationship of panic and schizophrenia symptoms (Bermanzohn, Arlow, Albert, & Siris, 1999; Hofmann, 1999), and the treatment of anxiety in patients with schizophrenia (Halperin, Nathan, Drummond, & Castle, 2000; Hofmann, Bufka, Brady, Du Rand, & Goff, 2000).

For decades, researchers paid little attention to the possibility that psychosocial procedures may be useful in reducing psychotic symptoms. Notable exceptions included several case studies that foreshadowed current work (Beck, 1952; Davison, 1966; Watts, Powell, & Austin, 1973). Davison, for example, blended behavioral (deep muscle relaxation training) and cognitive techniques (encouragement to consider alternative explanations and to test them as hypotheses) to treat a patient who interpreted "pressure points" on his body as being caused by external forces. Watts and colleagues used a hierarchy, asking patients to generate alternatives to delusional beliefs, beginning with those beliefs held with the least conviction. The use of cognitive-behavioral therapy (CBT) with psychosis is now a fast-growing area of research. Large and well-controlled studies have had broader targets, aiming to reduce positive symptoms of schizophrenia (Kingdon & Turkington, 1991; Sensky et al., 2000; Tarrier, 1998) and several multiple-baseline designs have targeted delusions (e.g., Chadwick, Lowe, Horne, & Higson, 1994; Jakes, Rhodes, & Turner, 1999). Fewer, mostly uncontrolled case studies, have attempted to reduce paranoid beliefs: using "attributional therapy" (Kinderman & Benn, 2002; Kinderman & Bentall, 1997a), using cognitive dissonance via a graded hierarchy for cognitive restructuring (Levine, Barak, & Caspi, 1995; Levine, Barak, & Granek, 1998); and using cognitive restructuring and behavioral experiments (Renton, 2002). Although some of these studies with chronic schizophrenia are methodologically rigorous randomized clinical trials of CBT, little research has focused purely on treatment of paranoid psychosis, and even less on the relationship between paranoia and anxiety.

The current study examined the effect of an eight-session intervention on conviction in paranoid beliefs and associated symptoms of anxiety. The focus was narrowly on paranoid beliefs rather than delusions or psychotic symptoms

in general. A secondary goal was to evaluate the relationship between anxiety and paranoid beliefs. The treatment package, including psychoeducation, relaxation, and cognitive restructuring, in major respects mirrored conventional CBT for anxiety disorders, as well as published reports of cognitive therapy for psychosis. It was grounded in literature on the cognitive bases of paranoia, including attentional, memory, and attributional biases (Garety, Hemsley, & Wessely, 1991; Kinderman & Bentall, 1997b), and the perspective that paranoia can be part of a normal reasoning process to make sense of experiences (Maher, 1988, 1992; Schmidt, 1987). A wide range of assessment measures were employed, including a careful measurement of cognitive functioning of participants before they entered treatment. Reliable diagnoses were assigned via a structured interview. In addition, medication was monitored carefully. A treatment manual was written to clarify and standardize treatment across patients. Patients' behavior was carefully tracked throughout baseline, treatment, and follow-up phases. Therefore, the design allowed a thorough consideration of individual differences that may have influenced treatment outcome.

Method

The design was multiple-baseline, across-subjects. Seven patients were recruited and received the same treatment. Once a participant signed informed consent, his baseline began immediately. Baselines, intended to last 2, 4, or 6 weeks, in some cases lasted longer because of therapist availability. Assessments were conducted at pretreatment, posttreatment, and the end of a 1-month follow-up.

Participants

Participants were recruited from the Dual Diagnosis Treatment Program (DDTP) at the West Los Angeles Veterans Affairs Medical Center, which is a day-treatment program for patients with psychotic disorders who abuse substances. To be eligible, participants had to report paranoid beliefs, meet diagnostic criteria for schizophrenia (paranoid subtype) or schizoaffective disorder, prove sobriety (defined as at least 3 months without using illegal street drugs, documented by weekly urine toxicology screens), and be stabilized on antipsychotic medication (defined as 3 months on the same medication as of the start of the study).

Participants were identified primarily by referrals from a staff psychologist and case managers. In addition, the eight-item Paranoid Ideation and Suspiciousness scale (Hewitt & Claridge, 1989) was given to patients in a large group meeting at the DDTP. Referrals and patients who exceeded the group mean were asked if they were interested in participating in a free treatment study of paranoia.

To select patients most likely to benefit from treatment, those who expressed interest were screened for their ability to learn, understand, and express verbal material. They were required to score in the normal range on three of four verbal tests: the Vocabulary, Comprehension, and Similarities subtests from

the Wechsler Adult Intelligence Scale (WAIS-III; Wechsler, 1997) as well as the Rey Auditory Verbal Learning Test (RAVLT; Rey, 1964).

Next, patients were interviewed using the Brief Psychiatric Rating Scale (BPRS; Ventura et al., 1993). We operationalized paranoia as a score of at least 5 (out of 7), which is considered "moderately severe," on the BPRS Suspiciousness scale. Those who obtained such a score were administered the Structured Clinical Interview for *DSM-IV* (SCID-IV; First, Spitzer, Gibbon, & Williams, 1997) by an interviewer (F.K.) trained through the UCLA Diagnosis and Psychopathology Unit's Training and Quality Assurance Program for the SCID-I/P (Ventura, Liberman, Green, Shaner, & Mintz, 1998). The SCID yields highly reliable diagnoses for most Axis I disorders (Segal, Hersen, & Van Hasselt, 1994). Medical records of all participants were examined to increase confidence in diagnoses.

Those who met eligibility criteria were invited to join the study. They were offered individual treatment for their paranoia and, for time in assessment and treatment and for completion of homework, they received the same number of "points" that are given at DDTP for attending a regularly scheduled class. These points could be redeemed for VA canteen vouchers. Upon completion of treatment and the follow-up assessment, participants received a $35 gift certificate to a major area department store. Throughout the study, they received regular case management and medication at the DDTP. Their psychiatrists agreed to be conservative in changing medications during the study and necessary changes were monitored closely.

Twelve male patients were screened. Two withdrew during the screening process because of stated discomfort sharing personal details of their lives, and 3 were excluded because of very low scores on cognitive tests. The mean age of participants recruited was 44.14 years (SD = 6.67). Educational attainment averaged 12.14 years (SD = 1.57). Two were Caucasian, 4 African American, and 1 Latino. Their psychotic disorder was chronic, averaging 23 years' duration (SD = 6.37). On the three WAIS verbal tests, participants' mean score was 51st percentile (SD = 10.12), range = 16th to 84th percentile. On the RAVLT, the mean percentile score was 33 (SD = 23.71), range = 1st to 59th percentile. For details on diagnoses and paranoid beliefs, see Table 1. All participant names are pseudonyms.

Measures

Clinician ratings. The BPRS, an interview-based measure of symptoms, yields ratings on 24 clinical scales, including anxiety and suspiciousness, as well as a global score that provides a standard index of severity of illness. The BPRS has no standard norms; instead, researchers generally use it to compare patients from one point in time to another (J. Ventura, personal communication). The BPRS was administered at baseline, posttreatment, and follow-up by two trained graduate students in clinical psychology who were familiar with this population. A minimum of two taped interviews from each assessment point were corated by a trained rater for reliability of coding. Intraclass correlation scores were

TABLE 1
DEMOGRAPHIC AND CLINICAL DATA

Participant	*DSM-IV* Diagnoses at Baseline	Paranoid Belief(s) Tracked During Study
John	Schizophrenia Cannabis, Opioid, ETOH Dep.‡	"The federal government is trying to kill me. They drugged my food in the chow line, poison gases made me cough up blood."
Peter	Schizophrenia Cannabis, Cocaine Dep.† Social Phobia Specific Phobia Generalized Anxiety Disorder	"The Devil is trying to control me—to put thoughts in my head (to run off or say I want to handle my money and then end up homeless and on drugs)." "Everyone at the VA hates me."
Daniel	Schizoaffective Disorder Major Depressive Disorder Alcohol, Polysubstance Dep.† Generalized Anxiety Disorder Posttraumatic Stress Disorder	"Gang members are out to get me. They are following me and will shoot me when they find me."
Anthony	Schizoaffective Disorder Major Depressive Disorder Opioid, ETOH Dep.‡ Social Phobia	"Police watch and follow me because they think I have information about methamphetamine labs." "Agents from the State Department watch and follow me." "People on the street are watching me."
Jake	Schizophrenia Cocaine, Cannabis, ETOH Dep.‡ Panic Disorder w/o Agoraphobia	"A group of people (maybe the government) watches what I do and wants to destroy me." "A friend will try to destroy me, break me down."
Stan	Schizoaffective Disorder Major Depressive Disorder Cocaine, Cannabis Dep.‡ Posttraumatic Stress Disorder Generalized Anxiety Disorder Personality Disorder (R/O)	"Law enforcement are watching me." "People are watching me. They conspire against me and want to put me in a situation where I can get into trouble."
Alfredo	Schizoaffective Disorder Major Depressive Disorder Cocaine, Cannabis, ETOH Dep.‡ Generalized Anxiety Disorder Posttraumatic Stress Disorder	"People are talking about me." "People are following me."

† Early full remission; ‡ sustained full remission.

calculated for corated BPRS tapes (two out of seven from each assessment point). The single-measure intraclass correlation for total BPRS score was .98, $F(5, 5) = 89.21, p < .001$. For the Suspiciousness scale, the single-measure intraclass correlation was .78, $F(5, 5) = 8.06, p = .02$. For the Anxiety scale, the single-measure intraclass correlation was .88, $F(5, 5) = 15.06, p < .01$.

At the end of treatment, all treating clinicians provided ratings of their patients' improvement on a 5-point scale ranging from *much worse* to *much improved*. They also described qualitatively what they believed was most and least helpful for the patient they treated, and why.

Self-ratings of conviction in paranoid beliefs and associated anxiety. Using the participant's own words, each patient's paranoid belief(s) were identified at the study's start. We obtained direct ratings of the strength of conviction in these beliefs on a 0% to 100% scale (Hole, Rush, & Beck, 1979) throughout the study as a primary outcome measure. In addition, on the same scale, subjects rated the intensity of their fear responses to the paranoid situations (0% = *not at all anxious*; 100% = *could not be worse*). The number of beliefs monitored ranged from one to three per participant.

Self-ratings of anxiety and depression. The Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988) and the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) were administered at baseline, posttreatment, and follow-up. The first offered an alternate, self-report measure of anxiety and provided information about the relationship between paranoia and anxiety; the second helped evaluate whether treatment effects generalized to depression.

Interpretation bias. Participants were presented with 20 brief, ambiguous scenarios where they could choose either a threatening or a nonthreatening explanation. These scenarios were modeled on ones developed and later rewritten by Butler and Mathews (1983). Subjects first answered a factual question to assess their understanding of the scenario and then rated which of the two outcomes was more similar in meaning to the original story. For example: "The group leader asks you to tell a story in her class. You get to your feet. As you speak, you notice some people in the audience start to laugh." Choices: "As you speak, some people in the audience find your efforts ridiculous" or "As you speak, people in the audience laugh appreciatively." Similar measures have been used frequently with anxious individuals—for example, panic disorder (Clark, Salkovskis, Ost, & Breitholtz, 1997), generalized anxiety disorder (Eysenck, Mogg, May, Richards, & Mathews, 1991), and social phobia (Amin, Foa, & Coles, 1998).

Self-rating of improvement. At the end of treatment, participants assessed the treatment on a scale ranging from 1 (*made me feel much worse*) to 5 (*made me feel much better*). In addition, they wrote about which components were most helpful, which would remain with them the longest, and why.

Medication. At the end of follow-up participants estimated medication compliance (percentage of time they took antipsychotic medication from the prescriptions they filled). Using the VA computer network, we tracked antipsychotic medication orders and prescriptions filled at the pharmacy.

Procedure

Five therapists, all advanced clinical psychology graduate students experienced in providing CBT for anxiety, administered the treatment (manual

available from F.K.). An initial draft of the treatment was piloted with a non-study participant and adaptations were made based on this experience.

All sessions were audiotaped. For each participant, two entire audiotapes of treatment sessions (one drawn from sessions 1 through 4; the second from sessions 5 through 8) were rated for adherence to the content and philosophy of the manual. Independent raters used a yes/no checklist (about 25 items per session) tailored to the content of each session. For example, "Did the therapist go over the major points in evaluating evidence (strength of belief, attributions, coincidences, and stress)?" "Did the therapist attempt to connect with the patient, making discussion comfortable by encouraging questions and/or humor?"

Treatment was scheduled to last for 1 month—eight 45-minute sessions, two per week. Missed appointments in some cases slightly stretched the treatment period. Treatments were compressed because participants were considered less likely to drop out and more likely to retain what they learned from one session to the next. Participants received summary sheets of each session at its end to keep and review.

The overarching philosophy of the treatment was to ally with, rather than challenge, the participant (Alford & Beck, 1994; Bentall & Kinderman, 1998; Kingdon & Turkington, 1998). The treatment began with psychoeducation aimed at normalizing paranoid beliefs—a theme that ran throughout the treatment protocol—and at promoting a therapeutic alliance. We taught participants that beliefs exist on a continuum, and it is logical for certain phenomena, such as auditory hallucinations, experiences with certain substances, or being the victim of violence or severe racism, to prompt a person to seek explanations. If they find no logical explanations, they may construct their own, often including suspicion of other people, which can evolve into paranoid beliefs. We explained that stress exacerbates symptoms and taught slow diaphragmatic breathing as a stress-reduction technique.

During cognitive restructuring, we taught patients to generate and evaluate alternative explanations for a paranoia-inducing event by relying on two axioms. The first axiom was, "A wise person sees more than two alternatives in every situation," as described in 1995 and 1998 by Levine and colleagues. After generating multiple possible explanations for neutral events (e.g., traffic jams, cancellation of a sporting event), participants agreed formally to the "wise person" axiom. The second axiom was, "Coincidences can happen." Again, the discussion began with a neutral situation (e.g., you share a birthday with several others in the program), and led to a formal agreement that sometimes things that seem connected to each other are not. Participants were assigned to generate coincidences, either hypothetical or real. These axioms were derived not only from the techniques reported by Levine's group, but also on research suggesting that individuals with paranoia tend to make decisions based on less evidence than those without such beliefs (Bentall & Kinderman, 1998) and to see connections where none exist (Brennan & Hemsley, 1984).

Once agreements were obtained, events were presented in a hierarchy, starting with neutral ones and gradually moving toward more personally

relevant paranoia events, such as being followed. With reference to the wise-person axiom, participants generated at least three possible explanations for each occurrence; when appropriate, they were encouraged to consider coincidences as one of them. For example, Jake reported seeing the same car in two different places and said he believed he was being followed; his therapist suggested that this could have been a coincidence. Between sessions Jake considered the idea and then agreed it was a possibility. Participants also assessed the percentage likelihood of each explanation. For example, presented with the event, "I think someone is following me," Daniel generated three alternatives, "I'm tripping—80%," "It's true—10%," and "I'm mistaken about being followed—80%." He was asked if he had ever been followed during the past 6 months, and responded no. After thinking about this evidence, he revised his likelihood for the second alternative to 0%.

Finally, participants were encouraged to test paranoid hypotheses: to make explicit a prediction, decide in advance how to test it, and evaluate whether the evidence supported the prediction. For instance, Anthony reported that he had seen police officers carrying a cooler enter a building across from his residence. He predicted that it was filled with camera equipment and they were filming him. His test was to cross the street and ask them why they were in that particular location and to observe whether they were trying to cover up filming equipment. He worried that the police would lie to him, so he and his therapist agreed that, if he saw neither equipment nor efforts to hide anything, his prediction would not be supported.

Assessments using the BPRS, Interpretation Bias, BDI, and BAI were conducted at baseline, posttreatment, and follow-up. We obtained percentage ratings of conviction and associated anxiety two to four times per week during the baseline, treatment, and follow-up periods, each of which lasted approximately 1 month.

Data-Analytical Strategy

We observed the timing of changes in percentage ratings (conviction in paranoid belief[s] and associated anxiety) that participants provided during baseline, treatment, and follow-up phases. The effect size (the slope of the least squares fit for a line) for each phase of the study was calculated for each participant. A zero or positive slope of conviction ratings indicated stability of baseline; if fluctuation occurred during this phase, baseline assessment continued until the slope was stable. To determine treatment effects, the slopes for the treatment and follow-up periods were examined for each individual.

Data from standardized self-report instruments (BDI, BAI, Interpretation Bias) and clinician ratings (BPRS anxiety and suspicion scales and total score) from baseline to follow-up were analyzed across subjects (effect size) and within subjects (percentage change for each participant from baseline to follow-up).

Self-reports by participants were supplemented by observations of their performance during treatment (e.g., responses to homework assignments, interaction with the therapist), as well as the experiences reported by therapists,

participants, and others in contact with the participants at the end of treatment and during follow-up.

Results

Attrition

All seven participants completed the eight-session treatment protocol. Treatment duration ranged from 3½ weeks to 6 weeks, with most lasting 1 month. Six of the seven participants completed the 1-month follow-up assessment; the seventh patient moved out of the area and provided partial follow-up data. Self-reports, confirmed by results from twice-weekly urine toxicology screens, indicated that all participants maintained sobriety throughout the study.

Treatment Integrity

Across all therapists, the mean adherence rating was 89.36% (SD = 4.52). The range was 76% to 100%.

Psychiatric Medication

John self-discontinued 500 mg of clozapine per day because of side effects experienced on Day 22. On Day 45 temazepam was increased from 15 to 30 mg per day, and on Day 61 he started taking 25 mg of olanzapine. John was on a stable dose of 80 mg of methadone per day throughout the study. Peter's daily 15 mg of temazepam was discontinued on Day 7; quetiapine was increased from 500 mg to 550 mg on Day 55 and to 600 mg on Day 62; and on Day 72, 20 mg of citalopram hydrobromide was suspended. Daniel's daily risperidone was reduced on Day 85 from 4 mg to 3 mg per day, nefazadone was increased from 200 mg to 300 mg on Day 50 and discontinued on Day 85; 50 mg of sertraline was discontinued on Day 85. Anthony took 30 mg of olanzapine and 200 mg doxepine per day throughout the study; his changes were as follows: On Day 46, risperidone (3 mg) was discontinued; on Day 55, haloperidol (10 mg per day) was discontinued; and on Day 102, quetiapine was increased from 500 mg to 700 mg per day. Jake's 4 mg of risperidone per day was stable, but during follow-up he reported taking it only 75% of the time. Stan's antipsychotic regime was also stable: 12 mg of risperidone and 15 mg of thiothixene per day; he also took 200 mg of sertraline, which was discontinued on Day 43 and restarted on Day 72. Alfredo's daily risperidone was increased from 2 to 4 mg on Day 26; 200 mg of sertraline was discontinued on Day 16 and restarted on Day 42.

Percentage Ratings of Conviction and Associated Anxiety

Stable baselines against which to compare future changes were established for self-ratings of percentage of conviction in paranoid belief(s). Conviction ratings of Anthony, John, and Jake initially dropped, but assessment was continued until ratings were clearly stable for at least 2 weeks (Anthony and John) and 5 days (Jake). Self-ratings of associated anxiety about the paranoid

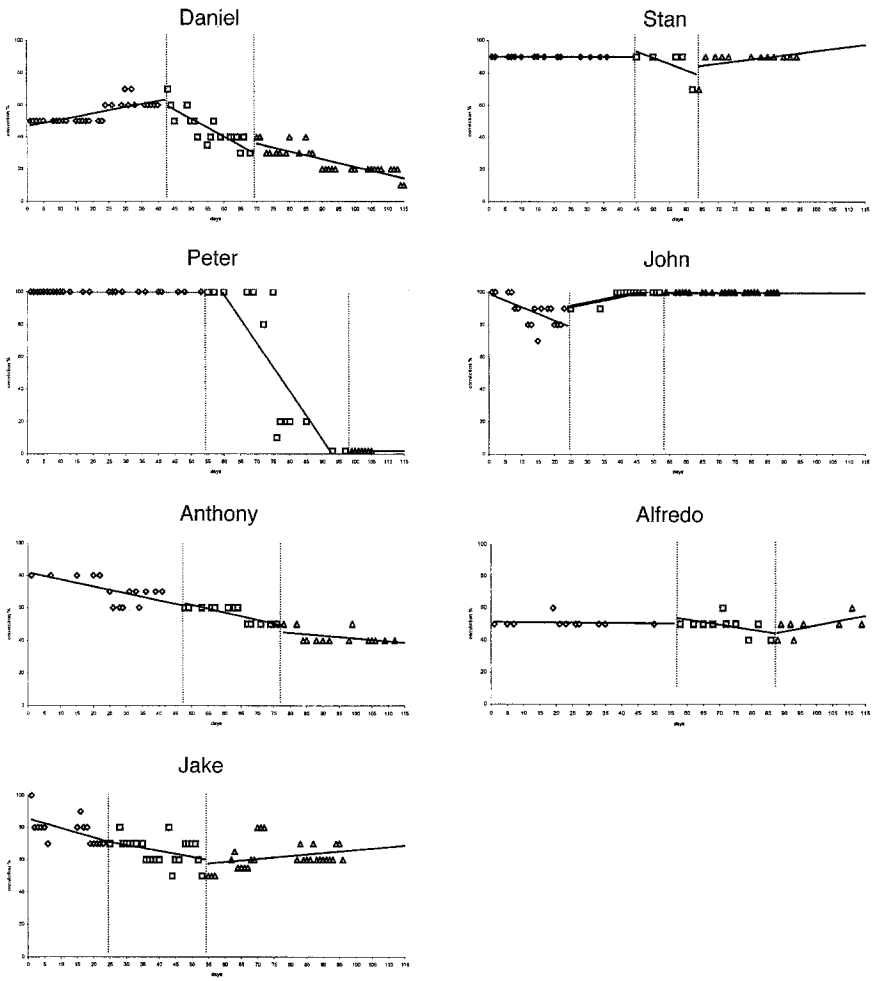

FIG. 1. Percentage conviction for paranoid belief(s) for the 7 participants during each stage of the study: baseline, treatment, and follow-up. Vertical dotted lines indicate when the intervention started and ended. When the participant rated more than one belief, maximum conviction was graphed. Best-fit trend lines are displayed for each of these phases.

belief(s) also were collected throughout baseline, treatment, and follow-up. When participants rated more than one belief, the maximum percentage of conviction or anxiety was used for analyses. See Figures 1 and 2.

Across all participants, mean conviction and anxiety ratings correlated significantly at all stages of treatment (baseline, $r = .76, p < .05$; posttreatment, $r = .82, p < .05$; and at follow-up, $r = .94, p < .01$). In addition, change in conviction from baseline to follow-up was significantly correlated with change

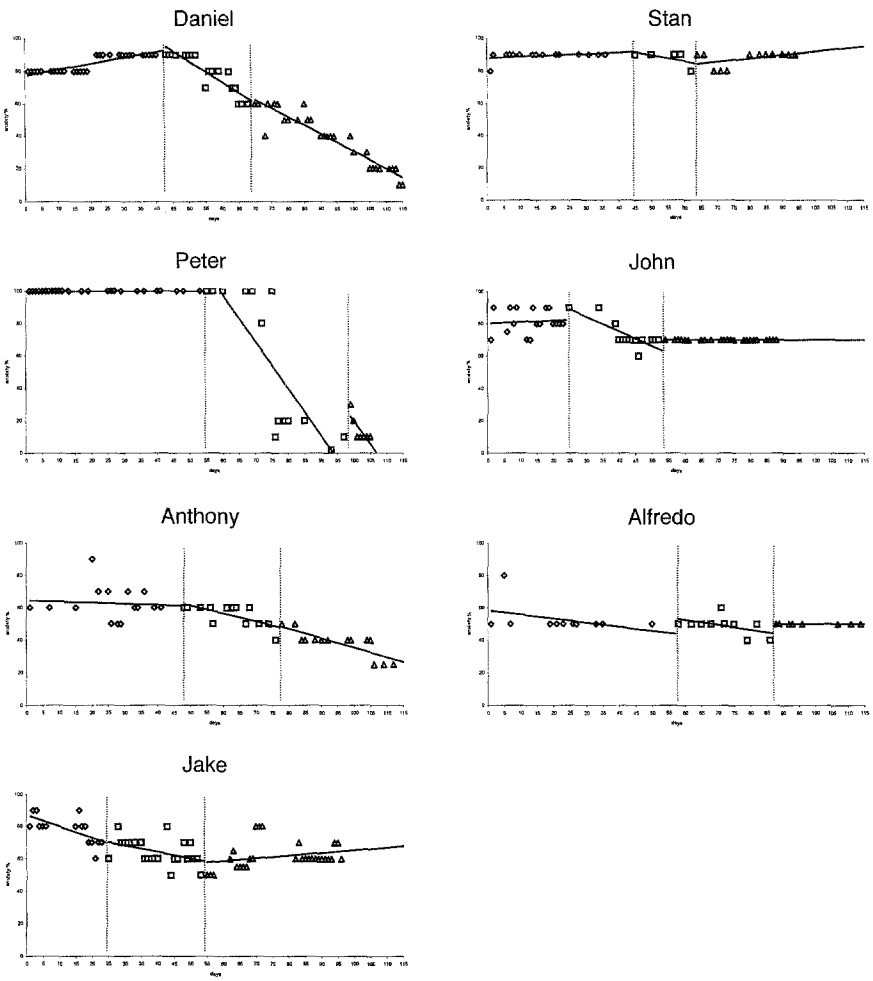

FIG. 2. Percentage anxiety associated with paranoid belief(s) for the 7 participants during each stage of the study: baseline, treatment, and follow-up. Vertical dotted lines indicate when the intervention started and ended. When the participant rated more than one belief, maximum conviction was graphed. Best-fit trend lines are displayed for each of these phases.

in associated anxiety during this same period, $r = .95, p < .01$. Responders tended to be younger and to have less time sober. Nonresponders had poor verbal memory scores on the RAVLT and reported less motivation to target their paranoid conviction.

Clinically speaking, there were three treatment responders (Peter, Daniel, and Anthony), three nonresponders (John, Stan, and Alfredo), and one mixed case (Jake). These outcomes were determined in three ways. First, we

observed the timing of changes on percentage ratings. Reports by Daniel, Peter, and Anthony of reduced conviction in and anxiety about their paranoid beliefs coincided directly with the intervention, and their improvement was maintained or continued throughout follow-up. The estimated effect sizes for reduced conviction (the slope of the least squares fit for a line) for these participants (treatment phase, follow-up phase) were as follows: Daniel (−1.12, −0.48), Peter (−2.98, 0), Anthony (−0.46, −0.17). In contrast, nonresponders produced the following effect sizes for conviction: Stan (0.77, 0.25), John (0.40, 0), and Alfredo (−.31, 0.38), the mixed case: Jake (−0.37, 0.19). Estimated effect sizes for changes in self-reported associated anxiety for the responders (treatment phase, follow-up phase): Daniel (−1.27, −1.07), Peter (−2.89, −2.86), Anthony (−0.49, −0.59); the nonresponders: Stan (−0.38, 0.21), John (−0.91, 0), Alfredo (−0.31, 0); the mixed case, Jake (−0.40, 0.17). Second, we defined significant improvement as a decrease of three points in clinician-rated BPRS Suspiciousness score between baseline and 1-month follow-up. Clinical significance has been measured as 50% improvement at posttreatment (Tarrier, 1998; Tarrier et al., 1993) and as 20% at 1-year follow-up (Kuipers, Garety, Fowler, & Dunn, 1997; Tarrier et al., 1999); a change of 3 points on this scale is at least a 43% change. Finally, we considered clinical judgment as informed by posttreatment and follow-up interview responses on other measures, by observations of participant performance during treatment (e.g., responses to homework assignments, interaction with the research assistants and therapist), and by reports of VA staff (unconnected to this study) in their progress notes. The clinical outcomes and BPRS changes corresponded, except in the case of Peter, for whom our evaluation was based on his posttreatment assessment and behavior and scores from percentage ratings during only a 1-week follow-up. In all cases, therapists' and patients' own posttreatment assessments of the effectiveness of the therapy corresponded with the clinical evaluations reported above: Peter, Daniel, and Anthony as "much better," John, Stan, and Alfredo as "no change," and Jake as "a little better."

Other Measures of Change

The percentage changes per participant in self-report and clinician-rated scores from the start of baseline to the end of follow-up are shown in Table 2.

Discussion

This study examined whether cognitive-behavioral techniques, derived both from those used for anxiety reduction and for treatment of psychotic symptoms, were effective in reducing paranoia and anxiety among a small group of participants with schizophrenia or schizoaffective disorder. Three of the seven participants showed a clinically significant reduction in belief conviction and associated anxiety. One participant showed a mixed outcome picture, and three did not improve. Associated anxiety decreased slightly more

TABLE 2
PERCENTAGE CHANGE FROM BASELINE TO FOLLOW-UP BY PARTICIPANT

	BAI	BDI	Interpretation Bias	BPRS Total	BPRS Anxiety	BPRS Suspicion
John	−1.00	−0.77	−1.00	−0.55	−0.86	−0.14
Peter	−0.18	−0.33	0.13	−0.17	0.00	−0.50
Daniel	−0.77	−0.81	−0.71	−0.25	−0.60	−0.60
Anthony	−0.20	−0.31	−0.73	−0.45	−0.67	−0.50
Jake	−0.76	0.63	−0.53	−0.04	0.00	0.00
Stan	0.65	0.17	−0.10	0.05	0.40	0.17
Alfredo	−0.21	0.40	−0.38	0.07	0.50	0.00

Note. Negative number indicates symptoms decreased. Figures for Peter are based on his posttreatment assessment. BAI = Beck Anxiety Inventory; BDI = Beck Depression Inventory; BPRS = Brief Psychiatric Rating Scale.

than conviction in paranoid beliefs, which may reflect the focus on breathing training that all participants, regardless of their treatment outcome, described as useful. Our findings partially support the hypothesis that techniques narrowly targeted to reduce paranoia result in decreased conviction and associated anxiety about paranoid beliefs. The findings are particularly significant given the symptom severity of the sample, the short duration and restricted focus of the treatment, and the limited expertise of the therapists.

The reduction in conviction was in line with results from a recent multiple-baseline study by Jakes and colleagues (1999) examining CBT for delusions in which six patients reduced their conviction, seven did not, and five showed a variable response. Our results also were consistent with the outcome of a randomized clinical trial testing the use of intensive CBT for psychosis, where 50% improved at the end of 9-month treatment (Kuipers et al., 1997). Improvement measured in the present study, however, was less substantial than that cited in some other studies. For example, across their three studies, Chadwick and Lowe (1994) reported that 10 out of 12 patients experienced reductions in their levels of conviction and 5 completely rejected their delusions. Watts et al. (1973) reported that all three participants experienced a significant decrease in strength of belief.

Secondary measures of change indicated overall decreases on self-report (BAI, BDI, and Interpretation Bias) and clinician-rated (BPRS scores) measures. However, the decreases in these scores were not always associated with reductions in percentage conviction or anxiety ratings collected throughout the study. For example, two of the three participants whose paranoia declined markedly nevertheless continued to report strong anxiety symptoms on the BAI, and one who failed to respond to treatment reported zero symptoms on the BAI at follow-up. These discrepancies could reflect different constructs measured (e.g., the BAI tapped a more global and somatic anxiety and lower scores could result from participants' success with relaxation training; the

percentage ratings asked only about anxiety associated with the paranoid belief). They also may be related to medication changes (e.g., the participant who reported zero on the BAI had his temazepam dose doubled toward the end of the treatment phase and started an antipsychotic during the follow-up month). The discrepancies also may spring from the nature of the instruments; the Interpretation Bias Test was similar to the cognitive-restructuring component in treatment, and individuals who did not benefit from the treatment may have learned not to jump to threatening conclusions when a situation is presented hypothetically. The absence of improvement on standardized measures may in some cases reflect a failure of the paranoia intervention to generalize to other situations.

Several factors should be considered when comparing these outcome data to those from other studies. First, with one exception (Barrowclough et al., 2001), other studies have excluded individuals with substance use problems. Although all participants maintained sobriety for at least 5 months before being recruited (most for much longer) and for the duration of the study, the experience of continually striving to avoid drug relapse may have differentiated them from individuals previously studied. Also, our participants had a host of comorbid psychiatric conditions. Comorbid diagnoses were not generally reported in earlier studies, so direct comparisons cannot be made. The severity of the sample lends a more positive light to the current set of results.

Most participants in this study were ethnic minorities and had experienced poverty, homelessness, and a series of minor and major hardships. All had come from and were currently inhabiting environments where a certain amount of suspicion was adaptive. For example, Jake, an African American, had been raised in a region known for racial prejudice; had lived for many years in an area notorious for gang violence; and reported being threatened, his daughter having been beaten and raped, and ongoing hassles with gang members. Trying to tease apart his oft-stated need to "protect myself" from excessive paranoia was not entirely effective. Members of ethnic minorities continue to experience prejudice and to contend with social inequalities. Forming strong therapeutic alliances with such individuals and engaging in intelligent discussion of their beliefs requires explicit acknowledgment of these realities, especially if the therapist is not from a historically disadvantaged group.

Our intervention was briefer than most typically reported. For example, Jakes et al. (1999) planned 16 sessions, and some participants received more as needed. Rigidly limiting the length of treatment may be ineffective for some patients who need more time to form therapeutic alliances or to practice new skills. In addition, our focus on paranoid beliefs to the exclusion of other features of psychosis was a strength, but it may have decreased the treatment's potency.

A final consideration concerns the therapists providing the treatment. While they were well trained in delivering CBT for anxiety disorders, they were graduate students, and therefore had relatively little clinical experience.

Perhaps more important was their very limited training in treating those with psychoses, which makes more dramatic the positive treatment responses.

Several patient characteristics seemed related to outcome. All three treatment responders were in their late 30s; in contrast, the three who did not benefit were approximately 50. Age may act as a proxy for chronicity of mental illness, especially schizophrenia (they were significantly correlated), and delusions, like other beliefs, may become more fixed with the passage of time. Shorter duration of illness has been associated with positive outcome (Tarrier, 1998). In addition, because the therapists were relatively young, building trusting therapeutic relationships may have been more difficult for older patients. As the literature suggests (Green, 1996), verbal memory seemed linked to successful outcome. Not every participant who received a high score on the RAVLT fared well in treatment (i.e., Stan), but each who received a low score or refused to take the test was either not successful or had a mixed outcome. In cognitive therapy, the ability to recall information learned is critical. Finally, participants with less sober time benefited more from this treatment than those with longer periods of sobriety. Sobriety was not correlated with age. Newer sobriety may represent a time of greater cognitive flexibility, which in turn might aid in the consideration of nonparanoid interpretations.

This study examined the relationship between paranoia and anxiety. Two findings suggest that the relationship is strong. First, based on participants' percentage ratings, conviction was significantly correlated with associated anxiety at each stage of assessment, and the overall reduction in conviction was significantly correlated to the reduction in anxiety. Second, six out of seven patients in this study met criteria for comorbid diagnoses of anxiety disorders. These results support published findings, clinical reports, and self-reports from patients—namely, that anxiety very frequently accompanies paranoia.

A question still exists as to the source of anxiety for these patients with comorbid diagnoses. If anxiety symptoms spring from the frightening nature of many delusional beliefs, then does successfully targeting the delusions themselves effectively reduce the anxiety? Such a result is difficult to determine from this study. Participants whose paranoia reduced tended to report lower anxiety symptoms on standardized measures, but not uniformly. The trend toward decreased anxiety symptoms among these participants supports the conclusion of Freeman and Garety (2002) that neurotic and psychotic processes interact, and each may exacerbate or help maintain the other. A related question is the distinction between subsyndromal anxiety symptoms resulting from severe stressors (e.g., believing others intend you harm) and comorbid diagnoses of anxiety disorders. This study did not assess diagnostic status at its conclusion; such information would inform recommendations for further treatment.

The generalizability of the data is limited by high selectivity of the sample (12 were screened, 2 refused, 3 excluded). Further investigation is needed to

elucidate the applicability of this treatment to a wider sample of individuals with paranoia. The goal here was to provide an initial test of this treatment with highly motivated participants, in whom neither current substance use nor cognitive difficulties were likely to interfere. Barrowclough and colleagues (2001) reported that considering individuals' readiness to change increased their engagement in treatment. In this study, all seven participants completed the full eight sessions.

Confounding factors cloud the interpretability of results for most participants. Of those who did not respond to the intervention, John had chosen to cease taking antipsychotic medication and both Alfredo and Jake experienced a series of minor hassles (e.g., theft, problems with landlord) that exacerbated their paranoia. Of those who improved, the greatest confound was the resolution of a disability claim and receipt of a very large check from the VA that certainly helped disprove Peter's belief that the VA was against him. Medication changes occurred for Anthony. It is unlikely, however, that these positive events singularly brought about improvement for these three participants; all had experienced positive life events in the past and yet all had long histories of unremitting psychopathology, including paranoia and anxiety. More likely is that the treatment, buttressed by a favorable environment, proved beneficial for these individuals.

Effective interventions for paranoia have potential applications beyond psychoses. Individuals who have problems trusting others (e.g., posttraumatic stress disorder) or who easily see malevolence in others' intentions (e.g., anger problems) may benefit. One extension of our methods might be to start patients with individual therapy and then move them into group therapy. Our participants stated they would have been unwilling to disclose paranoid beliefs in a group, but after an initial trial of individual treatment, group therapy might serve the double purpose of offering patients the chance to test beliefs about other people's trustworthiness in a safe setting and providing more sessions in a cost-effective manner. Future research might also examine more closely the role anxiety plays in the maintenance and treatment of paranoia.

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