Cognitive Behavior Therapies for Psychotic Disorders: Current Empirical Status and Future Directions

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Although cognitive behavior therapy (CBT) has strong empirical support for treating a diverse array of psychological conditions, only recently has research begun to examine its efficacy in treating the symptoms associated with schizophrenia and other psychotic disorders. Several randomized controlled trials have been conducted on CBT for psychosis with some positive results, but trials comparing CBT to other nonspecific interventions have yielded less impressive findings. No well-controlled trial to date has attempted to dismantle the components of CBT for psychosis, to compare it to another empirically supported psychosocial intervention for this population, or to identify the specific mechanisms responsible for treatment effectiveness. In this paper, a review of the empirical status of CBT for psychosis is presented. In addition, promising but preliminary new research in this area is reviewed, including prevention and early intervention approaches and acceptance/mindfulness-based strategies. Within this context, limitations in the current literature are reviewed, and recommendations for future research are discussed.

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Even with advances in pharmacological treatments, schizophrenia and other psychotic disorders are typically chronic and debilitating conditions. Many patients continue to experience residual symptoms and related problems associated with these disorders even when treatment compliance is not an issue. Research suggests that between 25–60% of patients who adhere to drug treatment continue to experience psychotic symptoms (Curson, Patel, Liddle, & Barnes, 1988). Furthermore, 25–40% of individuals who experience psychosis often have comorbid mood and anxiety symptoms (Johnstone, Owens, Frith, & Leavy, 1991). Each psychotic episode is associated with an increase in residual positive symptoms (Wiersma, Nienhuis, Slooff, & Giel, 1998) and the experience of positive symptoms is one of the best predictors of rehospitalization (Tarrier, Barrowclough, & Bamrah, 1991). Therefore, the development of efficacious adjunctive psychosocial treatments is imperative for treating patients with psychotic-spectrum disorders.

Recently, cognitive behavior therapy (CBT) has been found in a number of randomized controlled trials (RCTs) to be useful in the treatment of schizophrenia and associated conditions in patients already receiving pharmacotherapy. CBT, which focuses on the modification of dysfunctional beliefs to promote behavior change, originally was developed for the treatment of depression and anxiety in the 1960s and 70s, primarily by Beck, Rush, Shaw, and Emery (1979) and Ellis (1962). In the intervening years, CBT has been successfully adapted for treating a diverse array of conditions, including anxiety disorders, substance abuse, bulimia nervosa, childhood disorders, and personality disorders (Salkovskis, 1996). However, only recently has substantial attention been directed toward adapting CBT for patients with psychotic disorders. Perhaps this is because the prevailing wisdom in the mental health field historically has been

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that patients who experience delusions and hallucinations are not amenable to "talk therapy" (Jaspers, 1963). Furthermore, early studies of traditional psychotherapy (i.e., psychoanalytic approaches) with these patients generally reported negative outcomes (McGlashan, 1994). Studies of CBT have produced preliminary but promising results in this population. This paper reviews the empirical evidence for CBT for psychotic disorders and offers recommendations for future research.

COGNITIVE-BEHAVIORAL TREATMENT OF PSYCHOSIS

A detailed discussion of cognitive-behavioral case conceptualization and assessment procedures is beyond the scope of this article (see Haddock & Tarrier, 1998 for a review). However, a brief description of cognitive-behavioral treatment for psychosis follows. In contrast to traditional psychodynamic therapies, newer psychotherapies tend to be structured, symptom-focused, and goal-oriented. Various authors have proposed cognitive-behavioral treatment approaches for psychosis that differ somewhat from one another (e.g., Rector & Beck, 2002; Tarrier & Haddock, 2002). Although no one CBT protocol has been used predominantly with this population, most studies have employed a treatment package that includes several core elements. Kingdon and Turkington (1994) describe a comprehensive CBT approach for treating psychosis that provides a representative example. First, a rationale for treatment is provided through patient education about psychotic symptoms and diagnoses. Next, the antecedents of psychotic episodes are identified and the interaction between thoughts and behaviors is explained. Typically, comorbid mood and anxiety problems are treated first through standard cognitive-behavioral techniques (i.e., cognitive restructuring and behavioral activation or exposure). Once a strong rapport has been established, patients are taught "reality testing" skills for dealing with positive symptoms such as hallucinations. For example, after irrational thoughts about hallucinations are delineated, behavioral experiments are conducted to examine the validity of the beliefs. Delusions are challenged via cognitive restructuring techniques in similar ways. Later sessions focus on techniques for addressing negative symptoms (e.g., social skills training) and preventing relapse after discharge.

CLINICAL TRIALS OF CBT FOR PSYCHOTIC DISORDERS

Cognitive and behavioral techniques for treating delusions and hallucinations have been reported in the literature over the years (e.g., Watts, Powell, & Austin, 1973), mostly in the form of case studies. Furthermore, over 50 years ago, Beck (1952) reported the successful cognitive treatment of a patient with treatment-resistant delusions. Also, Hole, Rush, and Beck (1979) treated 8 delusional patients with cognitive therapy and reported promising results. Unfortunately, these early reports lacked experimental controls and thus provided little support for the systematic use of CBT with this population. Numerous researchers have studied the application of cognitive-behavioral principles to treat hallucinations or delusions with moderate success (e.g., Chadwick, Sambrooke, Rasch, & Davies, 2000; Haddock, Slade, Bentall, Reid, & Farager, 1998; Layng & Andronis, 1984; Medalia, Revheim, & Casey, 2002; Wykes, Parr, & Landau, 1999). Furthermore, researchers have begun conducting RCTs of comprehensive CBT packages for treating the wide range of symptoms and problems associated with chronic or acute psychosis. See Table 1 for a summary of published RCTs of CBT for treating psychosis.

Outpatient Samples

Additional treatment comparisons. Some studies have evaluated the efficacy of CBT beyond the effects of pharmacotherapy or treatment as usual that includes other psychosocial interventions. These designs control for common confounding factors, including regression to the mean, natural remission of symptoms over time, maturation effects, and personal history. They also test the hypothesis that additional treatment produces incremental benefits. However, these trials cannot provide evidence to support the specific efficacy of CBT relative to other treatments for psychosis. It is important to note that there are few empirically supported treatments (ESTs) for this population in general. However, alternate approaches that may prove useful for comparison purposes include social skills training, rehabilitation, family intervention, and assertive community treatment (Mueser, Bond, & Drake, 2001).

Garety, Kuipers, Fowler, Chamberlain, and Dunn (1994) reported on a pilot study of CBT for drug-resistant psychosis. Outpatients were nonrandomly

Table 1. Summary of Published RCTs of CBT for Treating Psychosis*

Study	Sample	CBT Duration and Frequency	Design	Post-Improvement	Follow-Up Improvement	Limitations
Durham et al. (2003)	*n* = 66, outpatient Patients with schizophrenia	9 months of individual treatment (20 30-min sessions)	RC RC+ST RC+CBT	CBT > RC or ST in overall symptoms	3 months CBT or ST > RC in delusions	Treatment confounds; medication differences between groups
Dury et al. (1996a,b) Dury et al. (2000)	*n* = 40, inpatient Patients with acute psychosis	12 weeks of individual and group treatment (8 h weekly)	RC+RT vs. RC+CBT	CBT > RT in positive symptoms	6 months CBT > RT in residual symptoms and recovery time 5 year CBT > RT in limited positive symptoms in those with 1 relapse	Assessors not blind; comparison group only controlled for therapist contact
Granholm et al. (2002)	*n* = 15, outpatient Older patients with schizophrenia	12 weeks of group treatment (12 sessions)	Meds vs. Meds+CBT	CBT > Meds in positive and depressive symptoms	None	Pilot study; no control for extra treatment; assessors not blind
Gumley et al. (2003)	*n* = 144, outpatient Patients with schizophrenia and signs of relapse	12 months of individual treatment (*Med* = 5 over 12 weeks and *Med* = 5 during risk for relapse)	RC vs. RC+CBT	CBT > RC in relapse rates, psychotic and general symptoms and social functioning	None	Assessors not blind; no control for extra treatment
Haddock et al. (1999)	*n* = 21, inpatient Patients with schizophrenia	5 weeks of individual treatment (*M* = 10 sessions with boosters)	RC+ST vs. RC+CBT	CBT = ST	2 year CBT > ST in relapses (trend)	Small sample size; group differences in amount of therapy delivered
Hall & Tarrier (2003, 2004)	*n* = 25, inpatient Patients with a psychotic disorder	7 weeks of individual treatment (7 sessions)	RC vs. RC+CBT	CBT > RC in self-esteem, psychotic symptoms, and social functioning	3 months CBT > RC same as post 12 months CBT > RC same as post	Small sample size; high participation refusal; high attrition rate; assessors not blind to condition
Kuipers et al. (1997) Kuipers et al. (1998)	*n* = 60, outpatient Patients with medication-resistant psychosis	9 months of individual treatment (*M* = 19 sessions)	RC vs. RC+CBT	CBT > RC in positive and general symptoms and responder status	9 months CBT > RC in psychotic and general symptoms	No control for extra treatment; assessors not blind
Lewis et al. (2002)	*n* = 315, inpatient and outpatient Patients with early schizophrenia	5 weeks of individual treatment (15–20 h with booster sessions)	RC vs. RC+ST vs. RC+CBT	CBT > RC in recovery speed during acute treatment phase only	18 month follow-up planned	RC was not standardized; brief treatment
McGorry et al. (2002)	*n* = 59, outpatient Patients "ultra-high risk" for first-episode psychosis	6 months individual treatment (*M* = 11 sessions)	ST vs. Meds+CBT	Meds+CBT > ST in decreasing progression to psychosis	6 month Meds+CBT = ST	Assessors not blind; cannot differentiate effects of medication vs. CBT
Pinto et al. (1999)	*n* = 41, outpatient Patients with schizophrenia	6 months of individual treatment (24 sessions)	RC+ST vs. RC+CBT+SST	CBT > RC in general and positive symptoms CBT = ST on negative symptoms	6 months CBT > ST in psychotic and general symptoms	Group differences in amount of treatment received; assessors not blind
Rector et al. (2003)	*n* = 42, outpatient Patients with schizophrenia	6 months of individual treatment (20 sessions)	E-RC vs. E-RC+CBT	CBT = E-RC; both showed significant improvement	6 months CBT > ERC in negative symptoms	High attrition rates; low power; inadequate control for extra treatment
Sensky et al. (2000)	*n* = 90, outpatient Patients with medication-resistant schizophrenia	9 months of individual treatment (*M* = 19 sessions)	RC+BF vs. RC+CBT	CBT = BF on all measures	9 months CBT > BF in psychotic, depressive, and general symptoms	BF intervention lacked external validity

Table 1. *Continued*

Study	Sample	CBT Duration and Frequency	Design	Post-Improvement	Follow-Up Improvement	Limitations
Tarrier et al. (1993)	*n* = 27, outpatient Patients with medication-resistant schizophrenia	5 weeks of individual treatment (sessions unspecified)	RC+CBT vs. RC+PS	CBT > PS in psychotic symptoms	6 months CBT > PS in psychotic symptoms	High attrition and refusal rate; equivocal group differences; assessors not blind
Tarrier et al. (1998)	*n* = 87, outpatient	10 weeks of individual treatment	RC vs. RC+ST vs. RC+CBT	CBT > ST > RC in positive symptoms and responder status	12 months	Medication not monitored and few patients on atypical antipsychotics
Tarrier et al. (1999) Tarrier et al. (2000)	Patients with chronic schizophrenia	(20 sessions)			CBT > ST > RC on positive symptoms CBT > RC in negative symptoms 24 months CBT/ST > RC	
Turkington et al. (2002)	*n* = 422, outpatient Patients with schizophrenia	3 months of individual treatment (6 sessions)	RC vs. RC+CBT	CBT > RC in insight, general and depressive symptoms	9 month follow-up planned	Higher drop out rate in CBT; no control for extra treatment; improper blinding

Note: *Only published RCTs that examined comprehensive cognitive-behavioral interventions to treat psychotic symptoms and associated problems are presented. BF = "befriending" intervention; CBT = cognitive behavior therapy; E-RC = enhanced routine care; Meds = neuroleptic medication; PS = problem-solving therapy; RC = routine care; RCT = randomized controlled trial; RT = recreational therapy; SST = social skills training; ST = supportive therapy.

assigned to treatment as usual (TAU) plus CBT versus TAU plus a wait-list condition. Those receiving CBT showed greater reductions in delusional conviction, general symptom severity, and depression. In a larger study by the same group, patients with psychotic symptoms categorized as "medication resistant" were randomly allocated to standard care plus 9 months of individual CBT or to standard care alone (Kuipers et al., 1997). Only patients in the CBT condition showed reductions on symptom measures at post-treatment as rated by a nonblind rater. Treatment outcome in the CBT condition was predicted by cognitive flexibility about delusions and recent inpatient admissions (Garety et al., 1997). At 18 months (78% of the original sample), patients in the CBT condition showed continued improvements in symptoms with no change in the control condition (Kuipers et al., 1998).

Granholm, McQuaid, McClure, Pedrelli, and Jeste (2002) presented pilot data on an integrated CBT and social skills package for treating older patients with schizophrenia. Patients were randomly assigned to pharmacotherapy or pharmacotherapy plus 12 weeks of group-based Cognitive Behavioral Social Skills Training (CBSST). Greater reductions in positive and depressive symptoms were found in the CBSST condition than in the group receiving only pharmacotherapy.

Most recently, Rector, Seeman, and Zegal (2003) randomly allocated 42 patients with chronic schizophrenia to an "enhanced" treatment as usual (ETAU) condition or to ETAU plus CBT. A statistical advantage in the CBT group was only demonstrated in improvements in negative symptoms at 6-month follow-up. The authors concluded that low power and the enhanced nature of the TAU condition resulted in less dramatic group differences. However, this study highlights the importance of controlling for nonspecific factors when treating psychosis.

Alternative treatment comparisons. The previous studies using additional treatment or wait-list control comparison groups do not address the question of whether CBT is specifically efficacious for this population. With these designs, positive results in the CBT condition could be the result of extra therapist contact compared to TAU only, which may be reproducible by

many forms of additional treatment (but not necessarily all; see Mueser & Berenbaum, 1990). In addition to controlling for factors related to natural remission and history, comparisons of CBT with other active treatments help control for further confounds, including a variety of nonspecific treatment effects such as therapist contact and expectancy (Lohr, DeMaio, & McGlynn, 2003). Depending on the quality of the comparison conditions used, these studies have the potential of examining the specific efficacy of CBT relative to other psychosocial interventions in the treatment of psychosis.

Several studies have compared those receiving CBT to a comparison group receiving a nonspecific supportive intervention. For example, Pinto, La Pia, Mennella, Giorgio, and DeSimone (1999) randomly assigned patients with schizophrenia who were receiving clozapine to CBT plus social skills training or supportive therapy. Interviewer-rated symptoms were significantly better at post-treatment and at 6-month follow-up in those receiving CBT as compared to supportive therapy. However, assessors were not blind to treatment condition.

Tarrier et al. (1998) randomly allocated participants with chronic schizophrenia to CBT and routine care (CBT-RC), supportive counseling and routine care (SC-RC), or routine care only (RC). Assessors were blind to treatment condition. At post-treatment, a significant improvement in positive symptoms was demonstrated for those receiving CBT-RC, but not SC-RC or RC; CBT-RC was significantly better than RC. At 3-month follow-up, those receiving RC showed higher relapse rates compared to those in the other two conditions. At 12-month follow-up, CBT showed similar superiority to RC and some benefits over SC-RC (Tarrier et al., 1999). At 2-year follow-up, there were no differences between SC and CBT, although both were superior to RC alone (Tarrier et al., 2000).

Sensky et al. (2000) conducted a RCT comparing CBT with a nonspecific "befriending" comparison treatment, which included comparable therapist contact and discussion of neutral topics, but no explicit intervention for psychotic or affective symptoms. Assessors were blind to treatment condition, and results revealed that both interventions resulted in significant reductions in positive and negative symptoms at post-treatment with no group differences. However, at 9-month follow-up, those who received CBT demonstrated sustained improvement, whereas those in the comparison condition did not.

Little research has been conducted comparing CBT to other active treatments or to its components. In an early study, Tarrier et al. (1993) compared a cognitive intervention (coping strategy enhancement) with a problem-solving intervention in patients with drug-resistant residual psychotic symptoms. Patients were randomly assigned to conditions and both groups improved significantly in psychotic symptoms at post treatment relative to a baseline assessment period, with limited evidence for greater symptom reduction in the cognitive condition.

Recently, Durham et al. (2003) randomly assigned 66 patients with schizophrenia and active psychosis to TAU, TAU plus CBT, or TAU plus psychodynamic supportive therapy. Trained nurse specialists in the community delivered treatment. Those receiving CBT showed greater overall improvement in psychotic symptoms compared to the other groups at post-treatment and 3-month follow-up. Also at follow-up, those receiving CBT or supportive therapy showed greater improvements in delusions compared to the TAU group.

Acute Treatment

The studies reviewed to this point examined CBT for treating individuals in the community experiencing chronic or residual symptoms of psychosis. However, effective psychosocial treatments may be especially important to implement in the acute phase of psychosis. Shepherd, Watt, Falloon, and Nigel (1989) conducted a 5-year follow-up of schizophrenic patients, and found that for one third of the sample, increased impairment in functioning and residual symptoms occurred after each acute psychotic episode. Therefore, it would be beneficial to identify treatments that could shorten the length of acute psychosis and also lengthen the time between episodes. Unfortunately, there is a paucity of such research.

Although some studies have been conducted on samples of patients starting in inpatient and continuing through outpatient treatment, few RCTs have been conducted examining CBT exclusively in acutely hospitalized patients. As continuity of care may be difficult to achieve in this population, interventions

administered during a hospital stay may have the best external validity. In a small pilot study, Haddock and colleagues (1999) randomly assigned 21 inpatients with schizophrenia to routine care plus supportive counseling or CBT. They found no differences between the groups at post-treatment on symptom measures or discharge time, but they did find trends toward fewer relapses in the CBT compared to the supportive counseling group at 2-year follow-up.

In an early RCT, Milton, Patwa, and Hafner (1978) randomly assigned inpatients with delusions to 5 weeks of either a confrontation (i.e., direct confrontation of the patient's delusional beliefs) or a belief modification (i.e., gentle questioning and seeking alternative interpretations for beliefs similar to cognitive therapy) group treatment. They found a significant decrease in the strength of delusional beliefs from pre-treatment to 6-week follow-up in the belief modification but not the confrontation condition.

In a more elaborate investigation, Dury, Birchwood, Cochrane, and MacMillan (1996a) used stratified randomization to allocate 40 inpatients to individual and group CBT plus routine care or to recreational activities and informal support plus routine care for 12 weeks. Both groups showed improvement throughout treatment, although patients receiving CBT showed superior change on an index of positive symptoms and delusional conviction post-treatment compared to those receiving recreational therapy. Furthermore, the differences between conditions were observable by 6 weeks of treatment. These results were maintained at 6-month follow-up, with those receiving CBT showing a faster time to recovery compared to those receiving recreational therapy (Dury, Birchwood, Cochrane, & MacMillan, 1996b). More recently, Dury, Birchwood, and Cochrane (2000) reported on a 5-year follow up of the sample. They found that overall the two groups were comparable. However, when results were analyzed on a subsample of patients who relapsed a maximum of one time, interviewer-rated hallucinations and delusions were significantly lower in the CBT compared to the recreational therapy group. Results are limited because assessors were not blind to treatment condition.

Most recently, Hall and Tarrier (2003) reported a small pilot study of CBT for treating inpatients with psychosis and low self-esteem. Patients were randomly assigned to TAU or TAU plus CBT. CBT resulted in increased self-esteem, decreased psychotic symptoms, and improved social functioning at post-treatment, 3-month, and 12-month follow up (Hall & Tarrier, 2004).

Effectiveness Research

The studies discussed above were primarily efficacy trials that examined the benefit of CBT for psychosis under controlled conditions in order to draw causal inferences. They typically included random assignment to conditions, adherence to strict treatment protocols, and stringent inclusion/exclusion criteria. However, a growing consensus in the field of psychotherapy research is that efficacy studies should attempt to address more specifically the problems faced by practicing clinicians (Seligman, 1995). So-called "effectiveness" research generally uses naturalistic or observational designs for assessing treatment outcome in typical clinical settings with a wider range of patients.

Bazzoni, Morosini, Polidori, Rosicarelli, and Fowler (2001) tested the effectiveness of CBT for schizophrenia. These researchers used a group-CBT approach with inpatients hospitalized for acute psychosis in Italy. They compared hospital records on indices such as rehospitalization rates, use of physical restraints, and escape behavior on the unit before and after providing the CBT intervention to 385 patients. They reported that rehospitalization rates decreased by one third, violent episodes declined by almost half, and patient escape attempts nearly disappeared after CBT treatment. Furthermore, patients expressed high satisfaction with the CBT group. Unfortunately, because no experimental controls were employed, it is not possible to conclude with certainty that the improvements observed were specifically attributable to the CBT intervention. However, results do demonstrate that CBT can be successfully integrated into inpatient treatment.

Furthermore, Wiersma, Jenner, van de Willige, Spakman, and Nienhuis (2001) reported that 60% of 40 patients with treatment refractory auditory hallucinations showed significant improvements in symptoms over 4-years of a naturalistic treatment study. Jakes, Rhodes, and Turner (1999) found that one third of 18 patients with chronic delusions responded to cognitive therapy in terms of positive changes in believability of delusions, although all patients maintained some degree

of belief in delusions at post-treatment. Finally, hybrid efficacy/effectiveness trials are starting to be conducted and provide better investigations of this issue, including Durham et al. (2003) and Turkington, Kingdon, and Turner (2002; described below).

Meta-Analytic Reviews

To date, four meta-analytic reviews have been conducted examining the efficacy of CBT for schizophrenia, all including somewhat different samples of studies. An early Cochrane Review (Jones, Cormac, Silveira da Mota Neto, & Campbell, 1998) of CBT for schizophrenia based on 4 small trials questioned its superiority to other treatments. This initial review was updated recently to include new trials, but reached similar tentative conclusions about the benefits of CBT for psychosis (Cormac, Jones, Campbell, & Silveira da Mota Neto, 2003). Furthermore, the reviewers criticized the methodological quality and reporting of data in published studies. One flaw of the Cormac et al. meta-analysis is that it evaluated a seemingly heterogeneous collection of trials, including some interventions that could only loosely be classified as formal CBT.

Rector and Beck (2001) conducted a meta-analysis of 7 RCTs and computed effect-size estimates based on comparisons of CBT to a control condition. They found large effects for CBT on positive and negative symptom measures, and additional benefits for CBT over routine care and supportive psychotherapy. Also, large effect-size changes were identified for those receiving CBT on psychotic symptom measures in a meta-analysis of 7 clinical trials conducted by Gould, Mueser, Bolton, Mays, and Goff (2001). Furthermore, follow-up analyses suggested that patients receiving CBT continued to improve post-treatment. These meta-analyses included studies more representative of CBT for psychosis.

Finally, Pilling and colleagues (2002) recently conducted a meta-analysis examining both family intervention and CBT for schizophrenia. They analyzed a total of 14 CBT trials, although some of these trials were not included in previous meta-analyses because they either did not specifically target psychotic symptoms (e.g., medication compliance therapy; Kemp, Hayward, Applewhaite, Everitt, & David, 1996) or were more cross-theoretical in their approach (e.g., personal therapy; Hogarty, 2002). Nevertheless, Pilling et al. concluded that CBT interventions produced clinically significant reductions in symptoms and improvements on continuous measures through follow up.

PROMISING NEW COGNITIVE-BEHAVIORAL APPROACHES

Although the systematic use of CBT interventions in the treatment of psychotic disorders is relatively new, the practice is amassing a considerable body of empirical support in the literature. Nevertheless, a significant proportion of patients still do not respond to these interventions, and even those who do are by no means symptom free. Therefore, clinical researchers are attempting to augment the effectiveness of CBT for this population by focusing on several exciting new areas, including treatment of comorbid conditions and related problems, prevention of psychosis and early intervention, brief treatment formats, and the inclusion of acceptance and mindfulness-based strategies into cognitive-behavioral protocols.

Treatment of Comorbid Disorders and Problems Related to Psychosis

Schizophrenia and psychotic disorders often are comorbid with other psychiatric conditions, such as mood, anxiety, and substance use disorders (Cassano, Pini, Saettoni, Rucci, & Del'Osso, 1998; Craig & Hwang, 2000). Most research in this area has focused on the use of CBT to treat comorbid anxiety and substance abuse disorders in these patients. Although some case studies have been reported in the literature (e.g., Good, 2002; Hofmann, Bufka, Brady, Du Rand, & Goff, 2000), small RCTs are beginning to emerge. Halperin, Nathan, Drummond, and Castle (2000) randomly assigned individuals with schizophrenia and social phobia to either group CBT or a wait-list control condition. Individuals receiving CBT showed significant improvements on social anxiety symptom, mood, and quality of life measures relative to the control group. Kingspeg, Nathan, and Castle (2003) found similar results using the same design in their trial treating social phobia comorbid to schizophrenia with group CBT.

Furthermore, a RCT evaluated the efficacy of an integrated motivational interviewing, CBT, and family intervention plus routine care relative to routine care alone for patients with schizophrenia and comorbid

substance use (Barrowclough et al., 2001). The integrated treatment group showed significant improvements over routine care in positive symptoms and substance use at post-treatment and 12-month follow-up. Eighteen-month follow-up showed that the experimental treatment was superior to routine care in patient functioning and service use, but was comparable in cost to routine care (Haddock et al., 2003).

Other researchers have focused on the treatment of problems especially relevant to individuals with psychotic disorders. For example, based on the stress-vulnerability model of schizophrenia, Norman et al. (2002) randomly assigned individuals with schizophrenia to stress management CBT or to a social activities group. Patients in the CBT condition had fewer rehospitalizations in the year following treatment compared to the control group. Glynn et al. (2002) reported on the successful addition of community support to skills-based training (i.e., social skills training and problem solving) to target social adjustment in patients with schizophrenia.

Although antipsychotic medications are effective for treating psychotic disorders, medication noncompliance often is a major problem in this population. Rates of non-adherence range widely depending on the study and sample (e.g., from 20% to 89%), but average rates are estimated to be approximately 50% in patients with schizophrenia (Lacro, Dunn, Dolder, Leckband, & Jeste, 2002). Kemp et al. (1996) and Kemp, Kirov, Hayward, and David (1998) randomly assigned patients with schizophrenia to either compliance therapy (i.e., a CBT intervention to improve medication adherence) or non-specific counseling. They found that those receiving compliance therapy improved more than those in the comparison group on measures of insight and medication compliance and had fewer hospitalizations at 18-month follow up. However, a recent attempt at independent replication of these findings showed no advantage for compliance therapy over supportive counseling on any outcome measures, including rehospitalization rates (O'Donnell et al., 2003).

Early Intervention and Treatment of High Risk Groups

Schizophrenia and related conditions typically are characterized by a chronic and debilitating course of illness. Increased impairment and residual symptoms are predicted by subsequent psychotic episodes (Shepherd, Watt, Falloon, & Nigel, 1989). Therefore, interventions that may help to prevent the occurrence of the first psychotic episode in those with prodromal signs of illness or subsequent psychotic episodes in those recently diagnosed would be particularly beneficial. Preliminary research has begun to investigate the benefits of CBT for these purposes.

Morrison and colleagues (2002) attempted to identify those at high risk for developing psychosis. They defined "high risk" as patients exhibiting brief or subclinical psychotic symptoms or having a positive family history with recent functional decline. Twenty-two percent of those followed up to 12 months transitioned into a full psychotic episode. In comparison to non-patient controls, high-risk patients showed evidence of dysfunctional metacognitive beliefs (e.g., maladapative beliefs about worry) and self-schemas. Therefore, Morrison et al. speculated that CBT might represent a beneficial intervention for those at high risk for psychosis.

McGorry and colleagues (2002) tested CBT as part of an intervention strategy for patients at high risk for psychosis. Patients at "ultra high risk" for first-episode psychosis were randomly assigned to a needs-based intervention (i.e., case management, supportive therapy, and appropriate psychiatric medication excluding antipsychotics) or a specific preventative intervention (i.e., low-dose risperidone therapy and CBT) for 6 months. Thirty-six percent met criteria for a first-episode psychosis in the needs-based condition compared with only 1% in the specific preventative intervention group at post-treatment, although the groups did not differ at 6-month follow-up. Unfortunately, the relative contributions of antipsychotic medication and CBT could not be determined from the study design.

Researchers also have begun to investigate the use of CBT after initial psychotic episodes. In an attempt to decrease subsequent psychotic episodes in those recently diagnosed, Lewis et al. (2002) randomly assigned 315 inpatients during their first or second hospital admission to CBT plus routine care, supportive counseling plus routine care, or routine care alone. Those in the CBT condition received 5 weeks of intensive therapy (15–20 h) and booster sessions over the following 3 months, which began during inpatient hospitalization and continued after discharge. Those in the CBT condition

showed a faster rate of improvement. However, CBT produced only early, transient benefits over the other conditions that were lost at later time points.

In another recent study, Gumley and colleagues (2003) targeted individuals with schizophrenia or related conditions who exhibited prodromal signs of relapse into illness. They randomly assigned 144 patients with psychotic disorders to TAU or TAU plus CBT over a 12-month period. Those receiving CBT showed significantly lower rates of rehospitalization and relapse into psychosis compared to those receiving TAU. In addition, CBT produced greater improvement in psychotic symptoms, general psychopathology, and social functioning.

Brief Treatment

Most studies examining CBT for schizophrenia and other psychotic disorders provided relatively intensive amounts of treatment over a period of many months. Although some research suggests that those who receive more intensive CBT interventions benefit more (Pilling et al., 2002), this practice in research protocols may lack external validity and not be feasible because of economic or supply-demand limitations. Furthermore, few therapists currently have adequate training and experience delivering CBT to this population. Turkington et al. (2002) attempted to address these issues. They randomly assigned 422 patients with schizophrenia living in the community to CBT or treatment as usual (TAU). Psychiatric nurses were trained to deliver 6 hour-long sessions of CBT. Results revealed that those in the CBT condition showed greater improvement in overall symptomatology, insight, and depression compared to the TAU group; however, there was no difference in psychotic symptom improvement between groups. Others also have experimented with the use of briefer group treatment for auditory hallucinations with success (Chadwick et al., 2000; Wykes et al., 1999). As noted above, Lewis et al. (2002) used intensive individual treatment (15–20 h) but over a relatively brief period (5 weeks) with additional booster sessions.

Acceptance/Mindfulness-Based Approaches

CBT techniques traditionally focus on the active disputation and modification of dysfunctional beliefs to decrease their frequency, intensity, and believability. Newer approaches have explored the addition of mindfulness and acceptance techniques to behavior therapy that target cognitions without directly seeking to change their content. Such techniques already have been adapted for treating a variety of difficult problems: borderline personality disorder (Linehan, Armstrong, Suarez, & Allmon, 1991), couples discord (Jacobson, Christensen, Prince, Cordova, & Eldridge, 2000), generalized anxiety disorder (Roemer & Orsillo, 2002), pain tolerance (Rosenfarb, Cooper, & Grundy, 1999), relapse prevention in major depression (Teasdale, et al., 2000), substance abuse (Marlatt, 2002), and trauma (Follette, 1994). Although definitions of mindfulness vary widely, put simply the term means "paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally" (Kabat-Zinn, 1994, p. 3).

Although the inclusion of mindfulness/acceptance-based techniques may appear inconsistent with CBT to some, emerging evidence suggests that the development of mindfulness skills may in fact mediate treatment response in traditional CBT. Teasdale and colleagues (2002) examined the metacognitive awareness (i.e., the degree to which individuals experience negative thoughts/feelings as mental events rather than as the self) of treatment responders to traditional cognitive therapy and to mindfulness-based cognitive therapy for depression. They found that increased metacognitive awareness predicated reduced relapse rates in both treatment approaches.

To date, arguably the most comprehensively formulated mindfulness/acceptance-based cognitive-behavioral approach is Acceptance and Commitment Therapy (ACT; see Hayes, Strosahl, & Wilson, 1999 for a detailed description). In brief, ACT is designed to help individuals experience negative thoughts and emotions nonjudgmentally, in contrast to avoiding or struggling with them, while simultaneously working toward the pursuit of valued behavioral goals. This stance is achieved primarily through the use of experiential exercises (e.g., meditation) and didactic metaphors, and is presented in the context of values clarification, goal setting, and overt behavior change strategies. Preliminary evidence suggests that ACT produces improvements that are at least as robust as those observed with disputation-based CBT in preliminary

trials in a wide variety of populations (see Hayes, Masuda, Bissett, Luoma, & Guerrero, 2004, for a review). Much more research will be needed to identify the comparative efficacy of ACT and more traditional CBT interventions.

Bach and Hayes (2002) conducted the first controlled trial using a mindfulness/acceptance-based approach to treat the psychotic symptoms associated with schizophrenia and related disorders. Eighty patients were randomly assigned to TAU or TAU plus 4 individual sessions of ACT delivered in inpatient through outpatient care. The version of ACT used in the study taught patients to accept unavoidable events, to notice psychotic symptoms without treating them as either true or false, and to identify and work toward valued goals despite their symptoms. Patients supplied simple Likert-scale ratings of the frequency, distress, and believability associated with their hallucinations and delusions at pretreatment and 4-month follow-up, which included rehospitalization data. Interestingly, those receiving ACT showed significantly higher reporting of, but lower believability in, psychotic symptoms compared to the TAU-only group. In addition, the rehospitalization rate in the ACT group was only half that of the TAU only group at 4-month follow-up.

Gaudiano and Herbert (2005) recently replicated and extended the Bach and Hayes (2002) study using an adapted protocol in a sample of hospitalized patients with psychotic symptoms and comorbid medical conditions. Forty-two patients were randomly assigned to enhanced TAU (ETAU) or ETAU plus individual ACT sessions in place of other milieu therapy provided to patients in the TAU condition. This design helped to control for the potential confound of additional treatment effects in the Bach and Hayes study. Standardized symptom measures also were included. Patients receiving ACT (for an average of 3 sessions over 1 week) showed greater improvements in clinician-rated mood symptoms, self-reported distress related to hallucinations and impairment in social functioning, and clinically significant symptom change in overall psychopathology at discharge relative to the ETAU group. The groups did not differ in frequency of self-reported hallucinations (both groups showed significant decreases pre- to post-treatment), but decreases in believability of hallucinations over time were observed only in the ACT condition. Change in believability was associated with change in distress after controlling for change in frequency in the ACT group only. The ACT group showed a 38% reduction in rehospitalization rate compared to the ETAU group. Nevertheless, the trial lacked blind assessors, and more patients in the ETAU-only condition received group in contrast to individual psychotherapy. Similar to the Turkington et al. (2002) study using traditional CBT, both ACT pilot studies for psychosis showed observable benefits to patients using very brief treatment formats.

METHODOLOGICAL LIMITATIONS AND FUTURE DIRECTIONS

Lingering Empirical Questions

Although the use of CBT for psychosis is beginning to amass a collection of empirical studies to support its use, research in this area is still in its infancy (or at least in its "toddlerhood"). Several trials have examined the effects of adding CBT to standard care, and almost all have found promising results. However, these results are quickly tempered when CBT is compared to other interventions, including those that do little more than control for basic non-specific effects, such as therapist contact and informal support. The following are some of the specific weaknesses in the literature to date.

Group versus individual. Fewer studies have examined group compared to individual treatment, and no studies have compared both formats within a single study. Although the studies that have utilized group delivery have found similar positive results, more research is needed to determine if there exists an optimal method of delivering this treatment to certain groups. Most studies examining group treatment have used inpatient populations where this format is quite common. Groups have potential advantages over individual treatment in terms of cost, efficiency, and resource allocation. However, potential disadvantages to group format include less individualized case formulation and attention, individual differences in history and presenting problems, and the requirement of a certain level of social engagement and skills in the patient. Social anxiety concerns also may inhibit group participation in some patients.

Inpatients versus outpatients. As noted, there also is a paucity of research examining the treatment of acute psychosis compared to chronic or residual symptoms of psychosis in those living in the community. Although the research completed does not contraindicate treatment of inpatients, studies to date of inpatient samples are hampered by numerous methodological limitations. As the negative effects of acute psychotic episodes and hospitalizations are well documented, research in this area will be particularly important in the coming years.

Transience/specificity versus maintenance/generalization of effects. The issue of maintenance and generalizability also is an important one. Long-term follow-up suggests that CBT produces gains that generally are well maintained (Gould et al., 2001). However, most trials have been limited to the assessment of specific target symptoms of the illness, and not broader outcomes such as quality of life, social adjustment, or employment success. It is important to consider that the early work on social skills training showed promising results, but interest in this approach waned when questions about generalization of skills emerged (Glynn et al., 2002).

Schizophrenia versus other psychotic disorders. Most research has examined the use of CBT in samples diagnosed with schizophrenia only or with a mixture of psychotic-spectrum disorders. It currently is unclear whether psychotic disorder subgroup membership is relevant to treatment outcome. This may be a particularly difficult question to study in this population because *DSM* psychotic disorder classifications often are difficult to differentially diagnosis with accuracy, and high levels of general psychopathological heterogeneity typify this population.

Efficacy versus effectiveness. Most studies conducted have been relatively small efficacy trials, although this trend may be changing. Few studies have examined the effectiveness of CBT in typical clinical settings. To date, studies addressing effectiveness have utilized designs with understandably poor internal validity. There is a growing consensus among many clinical scientists that "efficacy" and "effectiveness" should not be viewed as dichotomous issues, and that studies reflecting the strengths of both approaches can be conducted (Clark, 1995). Furthermore, newer and creative designs are beginning to be developed and tested to address research questions that are not adequately answered by traditional methodologies, while still retaining experimental rigor (see TenHave, Coyne, Salzer, & Katz, 2003).

One "CBT" protocol for psychosis versus another. There is no single agreed upon cognitive-behavioral treatment protocol for psychosis, or even for particular subgroups of this population. In addition, as CBT interventions for psychosis are package treatments, they often include a wide array of techniques and strategies that loosely fall within the CBT classification. This necessarily limits comparisons between studies, and hampers meta-analytic examinations of the literature (as evident in Pilling et al., 2002). Furthermore, psychotherapy studies also traditionally have had to deal with strong allegiance effects (i.e., researchers' *a priori* theoretical biases affecting results from clinical trials; Luborsky et al., 1999), making independent replication essential.

CBT versus comparison treatments. To date, no controlled trial has compared CBT to a theoretically different but empirically supported psychosocial intervention for psychosis. The few trials comparing CBT to other treatments typically have utilized newly designed (e.g., "befriending" intervention) or theoretically inert interventions (e.g., social activities), sometimes delivered by therapists with clear allegiances to CBT. Theoretically alternative and empirically supported psychosocial interventions are available for this population (e.g., family intervention; also see Mueser et al., 2002, for a thorough review). Enough studies have been conducted comparing CBT to weak treatments to warrant this "next step" of investigation. Furthermore and perhaps more importantly, no study has been conducted to test systematically which components of these CBT packages are responsible for the clinical effects.

RECOMMENDATIONS FOR FUTURE RESEARCH

In 1993, an American Psychological Association Task Force, now called the Committee on Science and Practice (CSP), was formed to identify and promote ESTs (Task Force, 1995). This committee developed criteria for defining ESTs and over the years has

published several official and unofficial papers on the topic. More recently, CBT for schizophrenia has begun to show up on some lists of ESTs, although at this stage it usually is designated as a "promising" intervention (Category III) in need of further empirical validation and independent replication (Chambless & Ollendick, 2001). The official designation of an EST as "well established" (Category I) requires two or more independent studies using between-group designs that show superiority to psychological or pill placebo or another treatment, or equivalence to an already established treatment. Further requirements are that studies include various characteristics of quality RCTs, such as reliably diagnosed *DSM* disorders and adherence to treatment manuals. CBT for schizophrenia may be approaching a designation as a "probably efficacious" (Category II) treatment according to the CSP's criteria. Although CBT for psychosis has been shown to be superior to wait-list control conditions in numerous controlled and independent trials, the lack of a standardized CBT protocol across studies hinders the ability to award it this elevated status currently.

Some have raised concerns about the system for defining ESTs. For example, Herbert (2003) points out potential problems in the CSP's criteria that are relevant to the current discussion: (a) wait-list control designs are inadequate, as any treatment (or extra treatment) is usually better than none; (b) adequate methodological standards for studies are not clearly specified; (c) one treatment can be only superficially different from another EST but still receive a new designation without proving that the new element adds to the efficacy of the treatment; and (d) even though a treatment package may be considered efficacious, this does not indicate which specific components of the treatment are responsible for its effects.

Although numerous trials have compared CBT added to routine care versus routine care alone and demonstrated large effects, quality studies comparing CBT to other interventions, even those that do little more than control for therapist contact, have shown more equivocal results. To date, no quality RCT has compared CBT for psychosis to another theoretically different but empirically supported intervention. Furthermore, no quality studies have investigated which component or components of CBT are responsible for the observed effects. Therefore, the following suggestions are made to help guide future research in this area.

The first empirical question that needs further investigation is this: *How does CBT compare to other empirically supported psychosocial interventions for psychosis?* CBT is only one approach that possesses empirical support for treating individuals with schizophrenia and related conditions. Although all do not possess the same degree of empirical validation (NICE, 2002), published reports support the use of the following treatments for patients with psychotic disorders: social skills training, cognitive rehabilitation, family therapy, assertive community treatment, supported employment, dual diagnosis treatment, and illness self-management (Mueser, Bond, & Drake, 2001). Newer approaches such as ACT (Hayes et al., 1999) or personal therapy (Hogarty, 2002) also would be useful to compare with CBT for psychosis in a single trial. Such comparisons would help identify which treatment(s) should be the focus of additional resources and implementation efforts. Some preliminary evidence suggests that CBT may be more effective than supportive counseling in treating certain psychotic symptoms, such as auditory hallucinations (Lewis et al., 2002; Tarrier et al., 2001). However, a lack of meaningful differences between interventions might signify important common elements that are efficacious or might indicate that the observed effects are due to non-specific factors that are common to most types of treatments. Because of these possibilities, such "horse race" trails would be informative, but other methodological approaches would be needed.

A second fundamental empirical question is as follows: *What specific elements of the CBT package are responsible for the observed therapeutic effects?* Several authors have argued for the inclusion of more stringent comparators, as opposed to simple wait-list control conditions, that can separate the incidental from the characteristic elements of an investigational treatment (Borkovec & Castonguay, 1998; Lohr et al., 2003). Furthermore, this type of investigation should be guided by an examination of the underlying theory of psychopathology upon which the treatment is based. A strong test of CBT for psychosis would include comparison conditions that mimic all the theoretically important elements of the treatment (e.g., behavioral

strategies, expectation for improvement, therapist involvement and contact, effort justification, credible treatment rationale) minus the most theoretically relevant component to the given intervention (e.g., cognitive interventions). Such designs are commonly referred to as dismantling or component analysis studies because they attempt to isolate the "active ingredient" of treatments (Borkovec & Castonguay, 1998).

It is the "C" in CBT that makes this treatment most theoretically different from others. The term "CBT" was explicitly used in the current paper because all the studies described tested packaged interventions that included both behavioral and cognitive strategies. However, most of the literature in this area simply refers to "cognitive therapy" for psychosis, which highlights the theoretical importance given to cognitive strategies. In recent years, dismantling studies of CBT have called into question the specific or added efficacy of cognitive interventions beyond other behavioral approaches (Gaudiano, 2003). For example, several studies have failed to show the specific efficacy of cognitive interventions for disorders commonly treated with CBT, including major depression (Jacobson et al., 1996), obsessive-compulsive disorder (McLean et al., 2001), and generalized anxiety disorder (Borkovec, Newman, Picus, & Lytle, 2003). Furthermore, dismantling studies are increasingly becoming necessary as newer approaches combine various treatment elements or add new elements to existing packages. At the present time, it is unclear if newer approaches, such as ACT (Hayes et al., 1999), personal therapy (Hogarty, 2002), or other integrated cross-theoretical approaches (e.g., Barrowclough et al., 2001), differ in mechanisms of action or simply superficial aspects of treatment.

Rosen and Davison (2003) argue that instead of credentialing empirically supported treatment packages, the focus should be on identifying what they call "empirically supported principles of change." Such a concept may be particularly important to consider in the present context. As noted, CBT packages for psychosis vary considerably between studies in both their theoretical emphasis and included components. Effective components of CBT for psychosis could include such common factors as the therapeutic alliance and supportive context, as well as possible specific factors such as skills training and cognitive restructuring.

The final empirical question that arises is one that is well known to psychotherapy researchers: *"What treatment by whom is most effective for this individual with what specific problems, under which set of circumstances, and how does it come about?"* (Paul, 1969, p. 44). Put in more methodological terms, future research should focus on potential moderators (i.e., the conditions under which a treatment is effective) and mediators (i.e., variables that explain the process through which treatment is effective) of outcome (Kendall, Holmbeck, & Verduin, 2004). As highlighted above, more research is needed to address issues regarding potential moderators of treatment effectiveness such as delivery format, treatment setting, and psychotic disorder subgroup. Furthermore, research investigating mediators of treatment effectiveness in CBT for psychosis is almost non-existent. CBT for psychosis emphasizes cognitive interventions, with cognitive change the hypothesized mechanism of action. Are these the processes through which treatment is effective? If so, is the process best described through change in thought content, or is it more a function of metacognitive awareness as emphasized in newer treatments such as ACT? Morrison et al. (2002) identified dysfunctional metacognitive beliefs and self-schemas in patients at high risk for psychosis. Results by Gaudiano and Herbert (2004) suggest that believability in hallucinations may mediate the relationship between symptom frequency and associated distress. Future research should examine metacognition or other variables as possible mediators of treatment efficacy, similar to the work of Teasdale et al. (2002) in depression.

CONCLUSION

The United Kingdom's National Institute for Clinical Excellence (NICE; 2002) guidelines for the treatment of schizophrenia lists CBT as one empirically supported psychotherapy. This is sure to help CBT to become more a routine clinical practice than an "experimental" treatment. With the current problems identified in the CSP's definitions of ESTs, it may be time to explore similar practice guidelines in the U.S. (Herbert & Gaudiano, in press). Nevertheless, most of the research discussed above has taken place outside North America, most notably in the United Kingdom. Hopefully this paper will spark more interest and research in this area in North America. In the U.S., results of a recent study by

the American Psychiatric Association's Practice Research Network showed that individuals in Medicaid or Medicare programs and those over 65 rarely receive any psychosocial interventions in addition to medication for the treatment of schizophrenia. Overall, only 21% of the 151 adults with schizophrenia studied were receiving a CBT-type treatment (Moran, 2003). This is unfortunate, as scientific support for the effectiveness of CBT for psychosis is growing rapidly. Furthermore, preliminary studies are emerging in the literature investigating exciting new applications of CBT, such as prevention of psychotic episodes and early intervention and the integration of newer acceptance and mindfulness strategies.

Research in this area is still in its early stages, and much more will be needed before questions regarding CBT's specific versus non-specific efficacy can be answered. At first, applying CBT to the treatment of psychosis may have seemed revolutionary and unexpected, which may account for the number of studies conducted with significant methodological weaknesses. However, the time has come for more sophisticated investigations, particularly those that employ dismantling designs to examine the components of these package treatments, possible mechanisms of action in effective treatments, and the relative efficacy of psychosocial approaches other than CBT to inform practice guidelines in the U.S. Research with this population is challenging but rewarding. The evidence is clear: Psychosocial interventions can contribute significantly to the well-being of individuals suffering from psychosis beyond the effects of routine care, and increased efforts are needed to make these treatments available to patients. However, whether commonly used therapies such as CBT are specifically efficacious in treating psychotic symptoms is a question that only future research will be able to address.

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