

A Cognitive-Behavioral Treatment Program for Posttraumatic Stress Disorder in Persons with Severe Mental Illness

*Kim T. Mueser and Stanley D. Rosenberg,
M. Kay Jankowski*

New Hampshire-Dartmouth Psychiatric Research Center,
Concord, New Hampshire, USA
Department of Psychiatry, Dartmouth Medical School,
Hanover, New Hampshire, USA

Jessica L. Hamblen

National Center for Posttraumatic Stress Disorder,
White River Junction, Vermont, USA
Department of Psychiatry, Dartmouth Medical School,
Hanover, New Hampshire, USA

Monica Descamps

Norwich, VT, USA

Clients with severe mental illnesses (SMI) such as schizophrenia and bipolar disorder have high rates of exposure to trauma over their lives, and are at sharply increased risk for the development of posttraumatic stress disorder (PTSD). However, at present there are no validated treatments of PTSD in the SMI population. In this article we describe a new cognitive-behavioral

The authors appreciate the comments of Katie Acker and Elisa Bolton on this article. This article was prepared with support from NIMH grant #MH64662-01. Address correspondence Kim T. Mueser, Ph.D., NH-Dartmouth Psychiatric Research Center, Main Building, 105 Pleasant St., Concord, NH 03301, USA. E-mail: kim.t.mueser@dartmouth.edu

treatment program for PTSD in clients with SMI. We begin with a brief review of the research on trauma and PTSD in clients with SMI. Next, we summarize findings on the treatment of PTSD in the general population, followed by considerations in the development of a treatment program for clients with SMI. We then describe our program, which is based primarily on the principles of cognitive restructuring and involves treatment closely integrated with the ongoing provision of comprehensive services for the SMI. We conclude with a description of how common challenges of working with clients with SMI are handled in the treatment program, including substance abuse, cognitive impairment, and psychosis. Two companion articles to this one provide clinical examples of clients treated in this program (Hamblen, et al., in press) and summarize the results of a pilot study of the program that establish its feasibility and clinical promise (Rosenberg, Mueser, Jankowski, Salyers, & Acker, 2004).

The term “severe mental illness” (SMI) is widely used to describe individuals with a psychiatric disorder that is characterized by pervasive impairments across different areas of functioning, including social relationships, work, leisure, and self-care (Goldman, 1984; NIMH, 1991; Ruggeri, Leese, Thornicroft, Bisoffi, & Tansella, 2000; Schinnar, Rothbard, Kanter, & Jung, 1990). Although severe impairments in psychosocial functioning are most often present in schizophrenia-spectrum disorders and bipolar disorder, they may also be present in other disorders, such as chronic major depression and borderline personality disorder (American Psychiatric Association; APA, 1994). These deficits are frequently of sufficient severity that the person qualifies for disability benefits, such as Supplemental Security Income (SSI) or Social Security Disability Insurance (SSDI). Thus, the SMI population is diagnostically heterogeneous, and often includes individuals with psychotic disorders such as schizophrenia, but may also include people with other psychiatric disorders who have no psychotic symptoms.

It has long been recognized that persons with SMI are at increased risk for trauma over the lifetime (Goodman, Rosenberg, Mueser, & Drake, 1997). More recently, awareness has grown that the high exposure to trauma in persons with SMI is associated with high rates of posttraumatic stress disorder (PTSD; Mueser, Rosenberg, Goodman & Trumbetta, 2002). While little is understood about how these relationships are mediated, organizations such as the National Association of State Mental Health Program Directors (NASMHPD) have made treatment of trauma-related problems a priority, and many state mental health authorities are

attempting to address the needs of trauma survivors (NASMHPD, 1998). Public mental health services in several states have begun developing statewide strategic action plans, initiated planning or provision of trauma-related services for consumers with SMI, and have revised seclusion and restraint guidelines to prevent further retraumatization (Carmen et al., 1996; Jennings, 1997; Jennings & Ralph, 1997; Miles et al., 1997). Despite the recognized need for effective interventions, and the fact that trauma and PTSD in the SMI population are related to more severe symptoms and higher use of acute care treatment services, standardized treatment programs have not been empirically validated.

In this article we describe a recently developed treatment model for PTSD in persons with SMI. Illustrative cases of three clients treated with the model are included in a companion paper (Hamblen et al., 2004). A third paper summarizes the outcomes of a pilot study of the program using standardized assessments conducted at pretreatment, posttreatment, and three-month follow-up (Rosenberg et al., 2004).

We begin this article with a brief review of trauma, PTSD, and their assessment in persons with SMI. We next provide a rationale for focusing treatment on PTSD, rather than on the broader range of consequences of trauma, and summarize a model which posits that PTSD plays a central role in mediating the negative effects of trauma on outcome of SMI. We then discuss what is known about the treatment of PTSD in the general population, followed by consideration of adaptations needed to treat PTSD in persons with SMI. We briefly outline the theoretical basis for cognitive-behavioral treatment of PTSD, and describe a treatment approach developed for this population. We then consider how common problems in treating clients with SMI are handled in the approach, including substance abuse, cognitive impairment, and psychosis.

TRAUMA IN THE GENERAL POPULATION AND THE SMI POPULATION

Psychological *trauma* refers to the experience of an uncontrollable event perceived to threaten a person's sense of integrity or survival (Herman, 1992; Horowitz, 1986; van der Kolk, 1987). DSM-IV (APA, 1994) adopts a narrower definition of a traumatic event as one involving direct threat of death, severe bodily harm, or psychological

injury, which the person at the time finds intensely distressing. Examples of trauma include combat exposure, natural disasters, and violent victimization, such as rape and assault. We adopt the DSM-IV definition of trauma here. Although our research considers all types of trauma, the most common traumas reported by consumers with SMI involve physical assaults or sexual abuse, either in childhood or adulthood.

Abundant evidence documents that rates of lifetime trauma in the general population are high. In the National Comorbidity Study, 56% of respondents reported exposure to a traumatic event during their lives (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). In general, men are more likely to experience or witness physical assault, whereas women are more likely to be sexually victimized (Breslau, Davis, Andreski, Peterson, & Schultz, 1997; Kessler et al., 1995). Furthermore, there is a consensus that most studies underestimate the true prevalence of trauma due to factors such as the bias inherent in retrospective study designs (Kessler et al., 1995). Within the general population, trauma exposure has been associated with a wide range of negative effects, including increased use of medical and mental health services (Drossman et al., 1990; Rapkin, Kames, Darke, Stamper, & Naliboff, 1990; Rosenberg, Williamson, & Wolford, 2000; Zayfert, Dums, Ferguson, & Hegel, 2002), substance use disorders (Brown, Strout, & Gannon-Rowley, 1998; Jacobson, Southwick, & Kosten, 2001; Keane & Wolfe, 1990; Stewart, Pihl, Conrod, & Dongier, 1998), and psychological distress, including PTSD (Beitchman et al., 1992; Polusny & Follette, 1995; Widom, 1999).

While trauma is common in the general population, persons with SMI are even more likely to be traumatized. Between 34% and 53% of clients with SMI report childhood sexual or physical abuse (Darves-Bornoz, Lempérière, Degiovanni, & Gaillard, 1995; Greenfield, Strakowski, Tohen, Batson, & Kolbrener, 1994; Jacobson & Herald, 1990; Rose, Peabody, & Stratigeas, 1991; Ross, Anderson, & Clark, 1994), and 43% to 81% report some type of victimization over their lives (Carmen, Rieker, & Mills, 1984; Goodman et al., 2001; Hutchings & Dutton, 1993; Jacobson, 1989; Jacobson & Richardson, 1987; Lipschitz et al., 1996). At least some of the trauma clients experience in adulthood may be related to their SMI, due to factors such as cognitive impairment, substance abuse, and living conditions (Goodman et al., 2001). Studies of the prevalence of interpersonal trauma in women with SMI indicate especially high

victimization with rates ranging as high as 77% to 97% for episodically homeless women (Davies-Netzley, Hurlburt, & Hough, 1996; Goodman, Dutton, & Harris, 1995). Thus, interpersonal violence is so common in the SMI population that it can be considered to be a normative experience (Goodman, Dutton, & Harris, 1997).

Traumatic experiences in clients with SMI are related to both the severity of psychiatric symptoms and increased use of acute care services. In particular, clients with SMI who have a history of trauma report more severe symptoms, such as hallucinations, depression, and anxiety (Briere, Woo, McRae, Foltz, & Sitzman, 1997; Craine, Henson, Colliver, & MacLean, 1988; Figueroa, Silk, Huth, & Lohr, 1997; Goodman et al., 1997). Consistent with the relationship between trauma and symptom severity in clients with SMI, exposure to interpersonal violence is correlated with worse psychosocial functioning (Lysaker, Meyer, Evans, Clements, & Marks, 2001), more time in the hospital, and more emergency room calls (Briere et al., 1997; Carmen et al., 1984; Goodman et al., 2001). Furthermore, as reviewed below, the available research on the SMI population reveals high rates of PTSD.

PTSD IN CLIENTS WITH SMI

PTSD is defined by three types of symptoms, including *reexperiencing the trauma*, *hyperarousal*, and *avoidance of trauma-related stimuli*, which persist or develop at least one month after exposure to a trauma (APA, 1994). Recent estimates of lifetime prevalence of PTSD in the general population range between 8% and 12% (Breslau, Davis, Andreski, & Peterson, 1991; Kessler et al., 1995; Resnick, Dansky, Saunders, & Best, 1993). The little available research on point-prevalence of PTSD indicated rates of 2.7% for women and 1.2% for men (Stein, Walker, Hazen, & Forde, 1997). The most common psychiatric comorbidities associated with PTSD are depression and substance use disorder.

Studies of PTSD in clients with SMI indicate higher rates of PTSD. Eight studies with clients with SMI have examined the prevalence of PTSD in the SMI population. One study of first admissions for psychosis reported a rate of 14%, and the remaining seven studies reported rates ranging between 28% and 43% (Cascardi et al., 1996; Craine et al., 1988; McFarlane et al., 2001; Mueser et al., 1998; Mueser et al., 2001; Mueser et al., 2004;

Switzer et al., 1999). As in the general population (Saunders et al., 1992), PTSD severity in clients with SMI is related to severity of trauma exposure, number of traumatic events, and childhood victimization (Cascardi et al., 1996; Mueser et al., 1998; Neria, Bromet, Sievers, Lavelle, & Fochtmann, 2002).

The high rates of PTSD in clients with SMI are consistent with their increased exposure to trauma, but also suggest an elevated risk for developing PTSD given exposure to a traumatic event compared to the general population. In a sample of clients drawn from a large health maintenance organization, for example, Breslau et al. (1991) reported that the prevalence of PTSD among those exposed to trauma was 24%. This rate of PTSD following trauma exposure is approximately half the average rate of PTSD found in the studies of trauma and PTSD in clients with SMI (reviewed in previous paragraph), and is consistent with other research showing that the presence of a mental illness increases a person's chance of developing PTSD following exposure to a traumatic event (North, Smith, & Spitznagel, 1997). Furthermore, similar to trauma, PTSD is related to worse functioning in clients with SMI, including more severe psychiatric symptoms, worse health, and higher rates of psychiatric and medical hospitalization (Mueser et al., 2004; Switzer et al., 1999). The high rate of PTSD and its correlation with worse functioning suggest the need for treatment of this comorbid condition. However, prior to that, we consider measurement issues in the assessment of trauma and PTSD in clients with SMI.

RELIABILITY AND VALIDITY OF TRAUMA AND PTSD ASSESSMENTS IN CLIENTS WITH SMI

The validity of people's accounts of traumatic events has been a topic of much controversy, especially concerning reports by adults of childhood sexual abuse (Brandon, Boakes, Glaser & Green, 1998; Herman, 1992; Loftus & Ketcham, 1994; Pope & Hudson, 1995). Even greater concern pertains to the reports of persons with SMI, whose disorder may result in psychotic distortions or delusions with themes involving sexual or physical abuse (Coverdale & Grunebaum, 1998). Given the very private nature of most interpersonal traumatic experiences, external verification of trauma reports is not possible for most people, either with or without a psychiatric disorder.

While the accuracy of reports of victimization is difficult to ascertain, the reliability (or consistency) of reports over time can be more easily determined. Temporal reliability of trauma reports is a necessary, but not sufficient condition to establish validity. The few studies of the temporal stability of trauma exposure measures in non-SMI individuals report fair to moderate test-retest reliability (Goodman et al., 1999; Green, 1996; Lauterbach & Vrana, 1996; Norris & Kaniasty, 1996). Less research has addressed the stability of trauma reports in clients with SMI, but two recent studies have demonstrated comparable levels of test-retest reliability (Goodman et al., 1999; Mueser et al., 2001).

Two recent studies have evaluated the reliability and validity of PTSD assessments in clients with SMI. Goodman et al. (1999) showed that the internal reliability and the test-retest reliability of client self-reports of PTSD symptom severity over two weeks was high (r and coefficient alphas $\geq .80$). Another study of structured clinical interviews for the diagnosis of PTSD (the Clinician Administered PTSD Scale; CAPS; Blake et al., 1995) in clients with SMI demonstrated high internal reliability and inter-rater reliability, moderate test-retest reliability over two weeks, and moderate convergent validity with the PTSD Checklist (PCL; Blanchard, Jones-Alexander, Buckley, & Forneris, 1996), a self-report measure of PTSD (Mueser et al., 2001). In addition, when more stringent PTSD severity criteria for the CAPS were employed to define a PTSD case, the test-retest reliability increased substantially. Finally, in a larger, recently completed study of computerized versus interviewer based assessment of patients with SMI (Wolford, 1999), PCL scores showed high test-retest and internal reliability, and correlated highly ($>.75$) with structured interviews based on the CAPS. Depending on cut-off scores used, diagnostic agreement between CAPS and PCL were in the range of .80 (Rosenberg et al., 2002). These studies indicate that reliable and valid assessments of PTSD can be conducted in clients with SMI.

We have reviewed research documenting that trauma exposure and PTSD can be measured reliably in the SMI population, and studies showing that the prevalence of PTSD in clients with SMI exceeds that in the general population. Furthermore, trauma and PTSD are correlated with worse functioning and higher service utilization among clients with SMI. In the next section we address the question of why it is important to focus on the treatment of PTSD, rather than more broadly addressing the effects of trauma, in clients with SMI.

WHY FOCUS ON PTSD IN CLIENTS WITH SMI?

There are several reasons for focusing treatment efforts on PTSD in persons with SMI, rather than attempting to address the broader range of effects associated with trauma exposure in this population. First, PTSD is a type of psychopathology, whereas trauma exposure is not. Exposure to trauma is a life event (or series of life events) that may or may not be associated with negative psychological consequences, depending on factors such as resiliency and the availability of social support (Romans, Martin, Anderson, O'Shea, & Mullen, 1995). Furthermore, when trauma does have a negative impact, a wide range of effects appear possible. It is conceptually and pragmatically daunting to design and systematically assess broad-based interventions that may be spread across a wide range of symptoms and areas of functional impairment. Focusing efforts on treating a more narrowly defined form of psychopathology related to trauma, PTSD, appears to have greater potential of success because the specific targets of the intervention are both well established and theoretically interrelated, suggesting that fewer intervention strategies can be used in a more concentrated fashion. From a methodological perspective, because clients with PTSD share a common core of symptoms, whereas trauma survivors may or may not, demonstrating treatment effects with PTSD maybe easier because there is less variability in the targeted outcomes.

Second, there is substantial research on PTSD and its treatment in the general population, with ample evidence supporting the effectiveness of psychological intervention (Foa, Keane, & Friedman, 2000b). In contrast, while a large literature exists on the consequences of trauma and their treatment, there are no empirically validated interventions for treating those consequences other than PTSD (or depression, which may also be a consequence of trauma). Considering how much is known about the treatment of PTSD in the general population, and how little has been established about how to treat the broader consequences of trauma in the general population, adapting treatment interventions for PTSD in the SMI population would appear to have more promise than attempting to develop new interventions for the treatment of trauma in the SMI population.

Third, there are both empirical and theoretical reasons for hypothesizing that PTSD mediates the impact of trauma on worsening the course of SMI through both direct and indirect means

(Allen, 1995; McFarlane, 1996; Mueser et al., 2002). The stress-vulnerability model of SMI posits that symptom severity and related impairments of psychiatric disorders have a biological basis (*psychobiological vulnerability*) determined by a combination of genetic and early environmental factors (Falconer, 1965; Liberman et al., 1986; Nuechterlein & Dawson, 1984; Zubin & Spring, 1977). This vulnerability can be decreased by medications and worsened by substance abuse. *Stress*, including discrete events such as traumas and exposure to ongoing conditions such as a hostile environment, can impinge on vulnerability, precipitating relapses, and use of acute care services. (Butzlaff & Hooley, 1998; Macdonald, Pica, McDonald, Hayes, & Baglioni, 1998; Teague, Drake, & Bartels, 1989). The *hyperarousal* symptom cluster of PTSD may also contribute to worse functioning in clients with SMI. Numerous studies show that increased physiological arousal, especially chronic over-activation, is associated with a poor prognosis in clients with SMI (Dawson & Nuechterlein, 1984; Straube & Öhman, 1990; Zahn, 1986).

It appears likely that PTSD impacts the relationships between trauma, more severe symptoms, and higher use of acute care services in clients with SMI, both directly (via symptoms) and indirectly (via correlates such as substance abuse and retraumatization) (Goodman et al., 1995; Muenzenmaier, Meyer, Struening, & Ferber, 1993; Stewart, 1996; Stewart et al., 1998). It has been firmly established that comorbid substance use disorders worsen the outcome of SMI (Drake & Brunette, 1998; Linszen, Dingemans, & Lenior, 1994; Miner, Rosenthal, Hellerstein, & Muenz, 1997; Swartz et al., 1998), and evidence suggests that successful treatment of substance abuse in clients with such dual disorders leads to reduced severity in SMI (Barrowclough et al., 2001; Drake et al., 2001). Similarly, focusing on the modification of PTSD in clients with SMI may both reduce distress and symptoms related to PTSD, and also improve the course of the SMI.

In the next section we discuss the treatment of PTSD in the general population, followed by the development of our model for treating PTSD in clients with SMI.

TREATMENT OF PTSD IN THE GENERAL POPULATION

There is a growing evidence from studies of the general population that well delineated, theoretically based treatment models are

effective in the treatment of PTSD. In 1997, the International Society for Traumatic Stress Studies (ISTSS) established a Treatment Guidelines Task Force, and this group has published PTSD treatment guidelines (Foa, Keane, & Friedman, 2000a; Foa et al., 2000b). After comprehensive literature reviews, the Task Force classified available treatments, employing the coding system developed by the Agency for Health Care Policy and Research (AHCPR; U.S. Department of Health and Human Services). The best supported interventions for PTSD symptoms were cognitive-behavioral treatment approaches.

Within this class of interventions, *exposure therapy* had the most studies supporting its efficacy (Boudewyns & Hyer, 1990; Cooper & Clum, 1989; Foa et al., 1999; Foa, Rothbaum, Riggs, & Murdock, 1991; Keane, Fairbank, Caddell, & Zimering, 1989; Marks, Lovell, Noshirvani, Livanou, & Thrasher, 1998; Resick, Nishith, Weaver, Astin, & Fever, 2002; Resick & Schnicke, 1992; Tarrrier et al., 1999). Exposure therapy involves helping clients decrease avoidance of trauma-related stimuli by encouraging them to directly confront feared thoughts, feelings, memories, and situations (Foa & Rothbaum, 1998). Prolonged *imaginal exposure*, in which clients talk at length in sessions about specific traumatic events while conjuring up vivid memories of those experiences, leading to habituation of anxiety to those feared memories, is the mainstay of exposure therapy. Imaginal exposure is typically combined with *in vivo* exposure, in which clients approach and remain in situations that remind them of traumatic events but which are objectively safe.

Following exposure, *cognitive restructuring* (also called *cognitive therapy*), had the second strongest empirical support (Marks et al., 1998; Resick et al., 2002; Resick & Schnicke, 1992; Tarrrier et al., 1999). Cognitive restructuring for PTSD is aimed at helping clients identify distorted or self-defeating thoughts, often related to traumatic experiences (e.g., "no one can be trusted"), evaluating whether evidence supports these beliefs, and, if not, altering them accordingly. Three studies have compared exposure therapy with cognitive restructuring for PTSD, with none of them reporting significant differences in outcomes (Marks et al., 1998; Resick et al., 2002; Tarrrier et al., 1999). Some studies have also evaluated the effects of combined exposure and cognitive restructuring treatment, and found the two to be superior to waitlist controls or non-exposure/cognitive restructuring comparison treatments (Marks et al., 1998; McDonagh-Coyle et al., in press), but not to either

exposure therapy or cognitive restructuring alone (Marks et al., 1998). Thus, research on cognitive-behavioral treatment of PTSD in the general population suggests that exposure and cognitive restructuring are effective, but does not suggest one is more effective than the other.

CONSIDERATIONS IN TREATING PTSD IN CLIENTS WITH SMI

In developing our cognitive-behavioral intervention for PTSD in clients with SMI we opted to employ cognitive restructuring rather than imaginal and in vivo exposure as the primary treatment strategy for several reasons. First, clients with SMI are exquisitely sensitive to the effects of stress (Bebbington & Kuipers, 1992; Butzlaff & Hooley, 1998). Exposure therapy has been reported to be both stressful and difficult to successfully implement in persons with PTSD in the general population (Pitman et al., 1991; Tarrier et al., 1999; Zayfert & Becker, 2000), and we were concerned that exposure therapy would be even more difficult to tolerate in this population.

Second, surveys of trauma exposure in clients with SMI indicate much higher rates of childhood sexual abuse than in the general population (Carmen et al., 1984; Goodman et al., 1997, 2001), and the presence of childhood sexual abuse is uniquely predictive of PTSD in the SMI population (Mueser et al., 1998). Childhood sexual abuse differs from other traumatic events in that it is associated with very high levels of guilt and shame (Gibson & Leitenberg, 2001; Street, Gibson, & Holohan, 2003), which may be related to the fact that the abuse often occurs over a period of years and assumes a predictable pattern, it often does not result in significant physical injury, and the child or adolescent often reluctantly accommodates to the abuse. Guilt and shame present special challenges to exposure therapy since, in contrast to anxiety, there is no evidence that these emotions habituate with prolonged exposure. For example, one randomized controlled study of combined exposure therapy and cognitive restructuring for women with PTSD secondary to childhood sexual abuse (McDonagh-Coyle et al., in press) reported a 41.4% dropout rate (compared to 9% for the comparison condition, "present-centered therapy"). It was the impression of the clinicians, who demonstrated excellent fidelity to the cognitive-behavioral treatment model, and clinical supervisors that the exposure component of the therapy was experienced as toxic to many of these women, and precipitated dropouts from therapy. Grunert (as

reported in Smucker, Grunert, & Weis, 2003) reported based on a retrospective analysis of cases treated with exposure therapy that exposure was less effective in cases where the primary PTSD emotions were guilt, shame, anger, or disgust than anxiety. Thus, cognitive restructuring would appear to be a more suitable strategy than therapeutic exposure for identifying and modifying dysfunctional and inaccurate beliefs regarding responsibility for sexual abuse experiences that underlie those feelings.

Third, there is extensive evidence documenting that cognitive restructuring can be effectively implemented in clients with SMI, with multiple randomized controlled trials showing that it is effective at reducing persistent psychotic symptoms (Drury, Birchwood, Cochrane, & MacMillan, 1996; Kuipers et al., 1997; Lewis et al., 2002; Pinto, La Pia, Domenico, & DeSimone, 1999; Rector, Seeman, & Segal, 2000; Sensky et al., 2000; Tarrier et al., 2000). In contrast, there is no compelling evidence that exposure approaches can be routinely implemented in clients with SMI to treat any symptoms. Thus, cognitive restructuring has an established track record in the SMI population, whereas exposure therapy does not, suggesting the former technique has higher potential for implementation and transportability in clients with SMI than the latter.

In addition to the selection of cognitive restructuring as the primary therapeutic technique, several other considerations were involved in developing our program. Because cognitive deficits are often present in clients with SMI (Dickerson, Boronow, Ringel, & Parente, 1996; Heaton et al., 1994), there was a need to simplify the methods for teaching cognitive restructuring so that it could be employed by clients to manage their negative emotions. To this end, we developed clinical guidelines for teaching cognitive restructuring as a five-step skill that clients with SMI are able to learn in session and apply the skills independently on their own. We also incorporated great flexibility in pacing throughout the treatment in order to adapt the treatment according to the needs of individual clients.

PTSD is but one of a host of possible problems clients with SMI face, and it is critical that its treatment be carefully integrated into the overall treatment a client receives. Specifically, in order for PTSD to be effectively treated, there must be ongoing communication between the therapist and other members of the clients' treatment team, especially the case manager, whose role is to coordinate

the various aspects of the client's treatment. This permits the therapist to be aware of critical issues the client is experiencing, and for the case manager to support and reinforce the teaching that takes place in the CBT. To accommodate this, we created guidelines to establish and maintain ongoing contact between the therapist and case manager throughout the intervention, including the therapist attending treatment team meetings to communicate about clients' PTSD treatment vis-a-vis other areas of their treatment plan.

Thus, our treatment program for PTSD was designed to address the unique needs of clients with SMI by minimizing unnecessary stress through the use of cognitive restructuring rather than therapeutic exposure strategies, simplifying the teaching strategies and ensuring high flexibility of the model to account for cognitive deficits common in this population, and developing guidelines to facilitate the integration of the PTSD treatment into the client's overall psychiatric care. In the next section we describe our treatment program.

A COGNITIVE-BEHAVIORAL TREATMENT PROGRAM FOR PTSD IN SMI

We begin with an overview of the program, followed by a description of the logistics of delivering the treatment, such as client eligibility and assessment, the number and pacing of sessions, and coordination with psychiatric treatment. We then describe the core treatment components of the program, including psychoeducation, breathing retraining, and cognitive restructuring. We conclude by considering how special problems in treating clients with SMI are handled in the treatment program.

Overview of the Program

The PTSD treatment program is an individual, time-limited, cognitive-behavioral intervention for PTSD in clients with SMI who are receiving ongoing services for their SMI, such as case management, pharmacological treatment, and psychosocial rehabilitation. Therapists typically work with clients on their PTSD over a three- to six-month period of time. Therapy is coordinated with other treatment through regular contacts with the client's treatment team and involvement of the case manager (or other team

member with a strong therapeutic alliance with the client) during the process of planning for termination towards the end of program.

The major therapeutic thrust of the program is first on providing information to help clients conceptualize their trauma-related symptoms as a common, learned response to a traumatic, often life-threatening event or situation, and second, on teaching clients the skill of cognitive restructuring to enable them to manage and change their negative emotions through identifying and challenging maladaptive thoughts and beliefs which are often related to the trauma. Because the primary focus of the program is on teaching information and skills believed to be critical for a resolution of the PTSD, homework is regularly assigned and concerted attention is given to ensuring that clients are able to use skills learned in sessions in their day-to-day lives. Intervention is delivered on the basis of a treatment manual, with guidelines that provide both clear structure and goals, while also permitting flexibility in tailoring the material to clients' personal experiences and current circumstances, and compensating for possible liabilities related to their mental illness (e.g., cognitive impairment, affective instability).

Logistics

The treatment program is 12 to 16 sessions long, with one-hour sessions conducted weekly until the last several sessions, which may be conducted biweekly. As with any psychotherapy, cancelled appointments may occur. The program can be provided at a variety of different treatment settings, such as community mental health centers, Department of Veterans Affairs, residential programs, or long-stay inpatient units. Stability of clients' symptoms and living circumstances are the primary considerations for determining when to provide the program.

Clients are referred to the program by a member of their treatment team, most often their case manager or psychiatrist. Minimal eligibility criteria have been developed for participation in the program in order to make it accessible to as many clients as possible: (1) SMI, which includes a DSM-IV Axis I or II diagnosis and significant impairment in daily living, ability to work, or ability to participate in social relationships; (2) diagnosis of PTSD, based on the CAPS (Blake et al., 1995); (3) not actively suicidal or homicidal; (4) no psychiatric hospitalization or serious suicide attempt

in the past two months; (5) currently receiving treatment for SMI; and (6) desire to work on PTSD and other trauma related problems. Clients with borderline personality disorder who are currently receiving dialectical behavior therapy (Linehan, 1993) are not eligible for the program because dialectical behavior therapy prohibits concurrent involvement in other forms of psychotherapy. Referrals to the program are obtained through regular meetings with treatment teams and presentations at mental health centers about trauma and PTSD in SMI.

When a client has been referred to the program by his or her case manager, a clinician meets with the client in order to determine eligibility, to explain the nature of the treatment program, and to determine the client's interest in participating in the treatment. Discussion at these early stages of engagement often involve providing some information to the client about the nature of PTSD (e.g., common symptoms), exploring possible ways in which PTSD may be interfering with their lives (e.g., difficulty being close with loved ones), and briefly describing how the treatment program works. A critical goal of this meeting is to instill hope in the client that change is possible and that one can overcome or recover from difficult, traumatic life experiences. Sometimes several meetings take place before a client expresses interest in participating in the program. This approach has been successful in engaging a wide range of clients, including those with extensive trauma histories, persistent paranoid ideation, and substance use problems.

Therapists delivering the PTSD program have included Master's and Ph.D. level clinicians with prior experience treating clients with SMI. Prior experience with cognitive-behavior therapy has varied across different clinicians. Clinicians are trained through a combination of lectures, directed readings, observing videotapes of clients who have been treated in the program, receiving feedback from individual supervisors on videotaped or audiotaped therapy sessions they have conducted, and participation in weekly group supervision.

Session Content

The content of the treatment sessions can be divided into five different parts, including *introduction*, *breathing retraining*, *psychoeducation*, *cognitive-restructuring (CR)*, and *termination*. The first three

components are used to establish rapport, set a common frame, and provide a concrete technique for managing anxiety. The core of the treatment is focused on the CR, which directly targets reduction of PTSD symptoms through the systematic evaluation and modification of cognitive processes believed to maintain fear and avoidance in the absence of prominent threats. Each content area, and the sessions devoted to it, are summarized in Table 1 and are described below.

TABLE 1 . Overview of cognitive behavior therapy for PTSD in SMI

Module	Topic	Goals	Session #
1	Introduction	<ul style="list-style-type: none"> ● Engage client in treatment ● Provide treatment overview 	1
2	Crisis Plan Review	<ul style="list-style-type: none"> ● Decide on a crisis plan with client ● Clarify with client's treatment team plan for managing any crises 	1
3	Psychoeducation Part I: Core symptoms of PTSD	<ul style="list-style-type: none"> ● Help client to understand nature of PTSD ● Make education relevant to client's own experience of symptoms 	1-2/3
4	Breathing Retraining	<ul style="list-style-type: none"> ● Improve client's ability to manage physical tension & anxiety associated with PTSD 	1
5	Psychoeducation Part II: Associated Symptoms of PTSD	<ul style="list-style-type: none"> ● Help client understand how other problems & symptoms are related to PTSD & trauma 	3-4
6	Cognitive Restructuring Part I: Thoughts & Feelings	<ul style="list-style-type: none"> ● Clarify relationship between thoughts and feelings 	4-5
7	Cognitive Restructuring Part II: Challenging Your Thoughts & Feelings	<ul style="list-style-type: none"> ● Help client understand how trauma influences thinking ● Facilitate changing maladaptive thoughts through weighing evidence & challenging irrational beliefs ● Instruct client in how & when to take appropriate action when needed 	5-15
8	Generalization Training & Termination	<ul style="list-style-type: none"> ● Bring treatment to closure ● Ease transition from specialized PTSD treatment to care as usual with treatment team 	15-16

Introduction

The introduction to the program is designed to set positive expectations for participation, to provide a rationale for the different treatment components (e.g., psychoeducation, CR, etc.), and to discuss logistical issues, such as canceling sessions and response to crises. Clients are given an orientation sheet that summarizes critical information about the program, which is reviewed point-by-point with the therapist.

At the end of the introduction the therapist works with a client to establish a plan for responding to possible increases in symptoms, including a full-blown relapse, over the course of the program. Establishing the crisis plan first involves discussing problematic symptoms that the client has experienced in the past, as well as prior relapses that required treatment and could interfere with the person's ability to continue in the program. Symptoms such as increases in depression, anxiety, hallucinations or delusions, self-injurious behavior, or substance abuse are identified, and strategies for monitoring and responding to increases in these symptoms are considered and selected. This part of the introduction is concluded by developing a specific crisis plan to address and respond to clinical changes in a timely and effective manner. The plan is then shared with members of the treatment team, and sometimes with significant others as well.

Breathing-Retraining

It is common for clients with PTSD to experience significant amounts of anxiety in their day-to-day lives, which can be both disruptive and distressing. In addition, high levels of anxiety can interfere with cognitive-behavior therapy for PTSD when it becomes overwhelming and prevents clients from attending to and learning new information and skills. To address the problem of anxiety, clients are taught a skill for managing and decreasing anxiety: *breathing retraining* (Foa & Rothbaum, 1998). Breathing retraining is a widely used relaxation method in cognitive behavioral treatment of anxiety disorders (Craske & Lewin, 1998). It involves teaching clients how to slow down their breathing in order to reduce hyperventilation (and oxygen intake), by taking in normal breaths and exhaling slowly while saying a soothing self-statement such as "relax."

Breathing-retraining is taught by first explaining to clients that anxiety is a "fight or flight" response that results in increased

physiological arousal, and that this arousal (and hence anxiety) can be effectively reduced by decreasing the amount of oxygen to the brain through breathing more slowly. After this rationale, the therapist models the skill and then engages the client in practicing the skill in the session. This is followed by assigning homework to the client to practice the skill on his or her own in order to gain greater familiarity and confidence at using it. In later sessions, when clients may experience significant anxiety when working on a problem or dealing with trauma related issues, the therapist may prompt the client to use his or her breathing retraining in order to decrease the acute anxiety.

Psychoeducation

Clients are educated about PTSD in order to provide a conceptual understanding of the nature of the disorder and commonly associated impairments. Such an understanding serves to legitimize PTSD as a distinct disorder, to help clients realize they are not alone in their reactions to traumatic events, and to convey hope that much is known about how to treat this disorder effectively.

Psychoeducation is provided in a lively, interactive style using a combination of handouts, worksheets, and discussion aimed at helping clients understand the relevance of the information to their own personal experiences. The educational material is divided into two parts, including information about the symptoms of PTSD and associated problems. The discussion of the symptoms of PTSD includes a review of symptoms comprising the DSM-IV symptom clusters used to diagnose PTSD: re-experiencing the trauma, avoidance of trauma-related stimuli, and hyperarousal. Specific symptoms within each cluster are discussed, and clients' experiences with these symptoms, both past and present, are elicited.

Following discussion of the symptoms used to diagnose PTSD, a number of common problems associated with PTSD are discussed, including general anxiety, depression, substance abuse, and relationship problems. In addition to helping the client understand PTSD and instilling hope for improving PTSD through treatment, the therapist seeks to identify which symptoms and associated problems lead to the most distress and functional impairment. Noting which symptoms are most problematic for the client (and therefore which symptoms clients will be most motivated to work on), and how PTSD contributes to problems in work, social, and independent functioning, is critical for treatment planning as the

therapist targets changes in these areas in prioritizing treatment goals. Homework assignments for psychoeducational sessions typically involve having clients complete worksheets which involve recording their own symptoms and associated difficulties, and sharing the results of these worksheets with a member of their treatment team or significant other person.

Cognitive Restructuring (CR)

The experience of traumatic events and the development of PTSD is often associated with the formation and maintenance of dysfunctional or distorted beliefs or schemas (Cason, Resick, & Weaver, 2002; Ehlers & Clark, 2000). These beliefs or schemas may have been accurate or adaptive during certain periods of the person's life, such as the belief that no one can be trusted in the case of an individual who experienced extensive physical and sexual abuse throughout childhood, but may no longer be accurate after an individual's circumstances have changed. Dysfunctional beliefs and schemas may also develop as a reaction to the event as an effort to construct a safe way of looking at the world in the wake of the trauma, which may be maintained or magnified through avoidance of trauma-related stimuli, including situations, memories, and feelings, or as a way of making sense of the experience (Janoff-Bulman, 1992). Regardless of the origins of these beliefs and schemas, their presence may strongly influence clients' emotional and behavioral reactions to the world around them, leading to high levels of distress, avoidance, and inability to pursue their lives beyond the effects of the trauma. The focus of CR is on helping clients develop the skills necessary for identifying the thoughts, beliefs, and schemas that underlie their negative emotions, evaluating the objective evidence supporting these beliefs, and correcting these beliefs when they are inaccurate, and taking steps to remedy situations in which the thoughts and beliefs related to negative emotions are supported by the evidence.

Our approach to CR draws from related approaches to cognitive therapy for similar problems in the general population, including PTSD (Foa & Rothbaum, 1998; Resick & Schnicke, 1993), other anxiety disorders (Beck, Emery, & Greenberg, 1985; Clark, 1986; Salkovskis, 1991), depression (Beck, Rush, Shaw, & Emery, 1979), and recent developments in cognitive-behavior therapy for psychosis (Chadwick, Birchwood, & Trower, 1996; Fowler, Garety, &

Kuipers, 1995; Kingdon & Turkington, 1994; Morrison & Renton, 2001), but has been adapted for this unique population. CR is taught first as a skill for helping clients manage negative emotions, such as anxiety, depression, anger, guilt, and shame, and second for examining and challenging dysfunctional beliefs that may have stemmed from the traumatic experiences and their consequences. An emphasis is placed on teaching CR as a self-management skill early in treatment in order to provide clients with an immediate and effective tool for dealing with their negative emotions, including both those related as well as not related to the traumatic experiences. As clients gain familiarity with the CR skill, increasing attention is paid to negative emotions, beliefs, and schemas that appear to be more directly trauma related, and which clients now possess a certain amount of skill for identifying, examining, and challenging.

The strategy of teaching CR primarily as a skill, and secondarily as a strategy for altering trauma-related thoughts, beliefs, and schemas, has at least three advantages over initially attempting to modify cognitive factors presumed to underlie PTSD. First, focusing on skill development initially minimizes the chances that affectively laden, "hot" trauma-related emotions will overwhelm clients early in treatment, thereby interfering with their ability to learn the CR skill and potentially increasing vulnerability to relapses. Second, the emphasis in early sessions on skill development can instill a sense of mastery in clients, building their self-efficacy over their ability to manage negative emotions and take control over their lives. Third, teaching clients how to use CR to deal with their negative emotions, rather than focusing directly on altering thoughts and beliefs, can decrease dependence on the therapist for successfully using the skill over the long-term course of treatment, increasing the chances of a positive termination and maintenance of the CR skill over time.

CR is taught first by introducing the concept that people's emotional reactions to events are determined by their interpretations of those events. These interpretations may be influenced by other events the person has experienced (including traumatic events), as well as a host of other factors, such as relationships with family and others, living circumstances, culture, and personality predispositions. Clients are informed that different types of negative feelings are associated with specific types of thoughts, which may be implicit and occur outside of the person's awareness.

Specifically, clients are taught that feelings of *depression* are related to thoughts about the loss of something, *anxiety* is related to thoughts about potential threat to oneself or others, *anger* is related to thoughts about having been wronged, and *guilt* or *shame* are related to thoughts about having done something wrong. Understanding what types of thoughts underlie different negative feelings can help clients pinpoint the thoughts, beliefs, or schemas that are leading to the negative emotion.

Following discussion of common thoughts that underlie different negative emotions, clients are introduced to the notion that peoples' interpretations of different events may be subject to common distortions or biases, such as *overgeneralization*, *jumping to conclusions*, and *selective attention* to the negative aspects of the situation (Burns, 1980). Identifying the distortions that underlie negative emotions, and correcting these distortions, can reduce or eliminate the negative emotions related to them. Clients are taught a core set of common cognitive distortions and are helped to begin identifying and correcting those distortions they are experiencing that lead to negative emotions.

After clients gain familiarity and experience recognizing cognitive distortions in their thinking styles, they are introduced to a five-step CR method for dealing with negative emotions. These steps are summarized on a worksheet, which is used both in the session with the therapist and practiced by the client outside of the session on his or her own or with the help of another person. The five steps of CR are briefly described below and are summarized in Table 2.

1. Describe the Situation. The client describes the situation in which he or she experienced (or is experiencing) the negative feeling or feelings. The situation can be either internal or external to the client. Developing an understanding of the context in which the emotions occurred can help identify critical thoughts and beliefs that contributed to those feelings.

2. Identify Negative Feeling(s). The client identifies the negative feeling or feelings experienced in the situation. It is common for clients to report experiencing many different negative feelings, such as fear, anger, guilt, and revulsion all at the same time. In this step, the client is first encouraged to identify all the negative feelings he or she experienced, and to then identify which feeling is strongest. Although a particular situation may evoke a wide range

TABLE 2. Steps of cognitive restructuring

1	<p><i>Identify your unpleasant feeling</i></p> <ul style="list-style-type: none"> ● Focus on the feeling you are experiencing most strongly ● Stick to the “big four” feelings: anxiety, depression, guilt or shame, or anger
2	<p><i>Identify you automatic thoughts and beliefs</i></p> <ul style="list-style-type: none"> ● Consider the automatic thoughts and beliefs you are having related to that feeling ● When you have a thought, ask: <ul style="list-style-type: none"> ● If that thought were true, what would it mean to me? ● What does that say about me? ● What would happen then? ● What would be so bad about that? ● Choose the one thought or belief that is most strongly related to your unpleasant feeling
3	<p><i>Weight the evidence for your thought or belief</i></p> <ul style="list-style-type: none"> ● Consider evidence for and against your belief ● Only write down evidence for or against your belief that would hold up in a court of law ● Ask yourself questions such as: <ul style="list-style-type: none"> ● What evidence do I have for this situation? ● Is there an alternative way to look at this situation? ● How would someone else think about this situation? ● Are my judgments based on how I felt rather than what I did?
4	<p><i>Determine whether the evidence supports your belief</i></p> <ul style="list-style-type: none"> ● Considering all the available evidence, is your belief accurate or not? ● Could you convince another person that your belief was true?
5	<p><i>Take action!</i></p> <ul style="list-style-type: none"> ● If the evidence <i>does not</i> support your belief, identify another belief that is supported by the evidence ● If the evidence does support your belief, develop a plan to deal with the situation, considering the following questions: <ul style="list-style-type: none"> ● Do I need more information about the situation? ● What steps do I need to take to improve the situation? ● Does the problem pose serious safety issues for me? ● Can I enlist someone’s help in evaluating this problem or solving it?

of different feelings, CR is most effective when it focuses on one feeling at a time, and the most productive feeling to work on is usually that feeling which produces the most distress.

3. Identify Thoughts Related to Feelings. In this step, the client identifies different thoughts or beliefs that seem to be related to the negative feeling. Clients often have difficulty identifying thoughts or beliefs related to negative feelings, and in these circumstances the therapist helps the client by prompting him or her to consider the common thoughts related to different negative feelings, such as the thought that one is being threatened when one experiences anxiety. Clients are encouraged to identify a variety of different thoughts or beliefs that may be related to the negative feeling by asking questions such as “What am I afraid of in this situation?” and “If ___ would happen, what would that mean about me?”

After identifying different thoughts related to the negative feeling, the client selects the thought that is most strongly related to the feeling. Thoughts that can be objectively evaluated in terms of their accuracy are most effectively disputed. Sometime a rather general thought associated with strong negative feelings, such as “I’m a worthless person,” can be more effectively challenged when more specific information is first obtained about what this means to the client.

4. Challenge the Thought. After a specific thought or belief has been identified, evidence supporting the thought and not supporting it is generated. This step is aimed at helping the client make an objective evaluation as to whether the evidence supports the thought or belief that led to a negative feeling. When weighing the evidence, clients are encouraged to consider only evidence that is clear and unambiguous, and that would be accepted by another person as valid and convincing. Because clients may have difficulty objectively evaluating evidence about themselves and their own behavior, it can be useful to ask the person whether he or she would consider the evidence convincing if another person was in the same circumstance. After all of the possible evidence has been reviewed, the client then makes a decision as to whether the evidence supports the thought or belief.

5. Take Action. After the client has reached a decision as to whether the evidence supports the thought or belief that led to the negative emotion, one or two different action steps are taken. If the client concludes that the evidence does not support the thought (or belief), he or she is helped to identify a more accurate

thought related to the situation. Once a more accurate thought has been identified, the therapist can help the client remember this new thought by practicing it and developing ways that the client can cue himself or herself to recall it when a similar situation evokes the same old feelings (and old thoughts). For example, a woman who held the belief, "I was responsible for being sexually abused by my step-father," which led to feelings of anxiety and shame when interacting with male clerks at local stores, could replace this belief after rational disputation with a more accurate belief, "I was a child and was not responsible for my step-father's sexually abusing me." Changing beliefs of responsibility, trust, danger, self-worth, and self-efficacy that develop over the course of surviving trauma and in its aftermath is a critical function of CR for PTSD.

While clients often conclude that the thoughts (or beliefs) that lead to their negative emotions are not supported by the evidence (and thus need to be changed), on some occasions the evidence does support the core thought, and when this occurs, the taking action step requires that the client develop a specific plan for dealing with the situation. Action steps designed to address rationally based negative feelings are developed using a problem solving approach, in which the primary goal is to identify a series of actions that will address the problem. Sometimes these actions involve gathering more information, while at other times concrete steps may need to be taken to resolve the situation. The importance of helping clients deal with negative feelings that are based on realistic concerns is underscored by the fact that research has documented that people with a history of trauma and PTSD are prone to repeated victimization over their lives (Arata, 2002; Wilson, Calhoun, & Bernat, 1999). Helping clients identify the warning signals of dangerous situations, and taking steps to address those situations before they lead to further victimization, can be accomplished as part of the process of teaching CR.

For example, a woman who had been involved in several abusive relationships in the past began to feel anxious that a new relationship in which she was involved was becoming abusive, based on her boyfriend beginning to verbally insult her. An evaluation of the evidence found support for her concern. To address this concern, she formulated an action plan that addressed those warning signals in order to prevent the situation from escalating into violence: she informed her boyfriend that if he insulted her again she would terminate their relationship.

While the taking action step often involves either identifying a more accurate thought or deciding on a plan to address the problem situation, in some circumstances both action steps may be taken. When this occurs, a more accurate thought may be identified that reduces some of the negative emotion experienced in the situation, but this thought is nevertheless associated with some negative feelings that need to be addressed. The more accurate thought is then the focus of problem solving designed to correct the situation.

CR is taught using the Socratic method of frequently asking questions, reviewing each step of CR, and prompting clients to recall those steps as they become more familiar with them. In order to demonstrate applying the steps of CR early on during therapy, the therapist may actively help clients dispute beliefs that lead to negative emotions. However, over time the therapist shifts to helping clients dispute their own beliefs through systematic application of the CR skill, and avoids directly disputing beliefs. Homework assignments involve the client practicing the CR steps on his or her own, with the use of written CR sheets faded towards the end of the treatment program.

Termination

Clients are prepared for termination from the initiation of treatment. From the beginning, the client knows that the treatment program lasts 12–16 weeks. After the tenth or eleventh session (and in some cases even earlier), the therapist discusses termination with the client to prepare him or her for being able to use the skills (mainly breathing retraining and CR) taught in the program on his or her own. Strategies are considered to maximize the generalization and maintenance of skills acquired during the program, especially CR, such as the involvement of the case manager and significant others in prompting or helping the client use the skills when appropriate. In addition to out-of-therapy contacts the therapist has with the case manager to inform him or her about CR and the client's progress during treatment (with the client's approval), the case manager may also be invited to participate in the last several sessions. The last session is devoted to reviewing the accomplishments the client has made over the course of the program, anticipating future needs, and planning on how to get those needs met. Clients are sometimes anxious about termination (although many nevertheless look forward to it). To respond to this natural concern, the therapist praises the client for the progress made in the program, encourages him or her to use newly developed skills,

and to tap the different sources of social support. Clients are informed that symptoms often continue to improve after the end of the treatment program.

Treatment Coordination

The coordination of PTSD treatment with the other interventions the client is receiving for SMI is a crucial aspect of this program. The client's treatment team, or those persons most involved in the client care, need to understand the purpose and nature of the PTSD treatment program, and need to be kept abreast as to the client's progress throughout the program. The PTSD therapist conversely needs information about the client's overall life circumstances, including external stressors, changes in other psychiatric services, and day-to-day functioning during PTSD treatment. This two-way communication is most effectively accomplished by the therapist having regular contacts with the treatment team or case manager (e.g., biweekly), and more frequent contacts if the client is having difficulty. In addition to coordination of treatment, the therapist works with at least one person on the treatment team who has a strong, supportive relationship with the client (usually the case manager) to teach that person the rudiments of CR. This enables that person to reinforce the client's use of CR to deal with negative emotions, thereby facilitating the generalization of this skill outside of the therapy session. Furthermore, the continued availability of that person to the client after formal therapy has ended provides additional supports for clients to continue using their CR skills after the end of the program.

It is sometimes important to coordinate treatment with family members and non-family significant others (with the client's permission). Family members and significant others may not understand about the nature of PTSD or the treatment program, and may actively discourage clients from participating in treatment (e.g., for fear of "dredging up old memories that are best forgotten"). Informing them about PTSD and its treatment can enlist their support and minimize the chances of their undermining the program. This is especially critical when the client does not have a very supportive relationship with those individuals. In addition, in some cases family members or significant others can play an active, positive role in helping clients use the skills they have been taught in the program, such as breathing retraining and CR. Therefore, the

therapist and client may have some early meetings with the family or significant others to inform them about the program and to set positive expectations for the client's participation. Additional contacts may be warranted to involve those natural supports in helping clients use the skills outside of the sessions or to address concerns that arise during treatment.

Special Problems

A number of special challenges arise when treating PTSD in clients with SMI, including substance abuse, cognitive impairment, and psychosis. We briefly describe how these problems are handled in the treatment program.

Substance Abuse

Substance abuse is common in people with SMI (Cuffel, 1996; Regier et al., 1990), PTSD (Jacobson et al., 2001; Stewart, 1996), and SMI with comorbid PTSD (Mueser et al., 2004). Because cognitive-behavioral treatment is based on learning theory, and active substance abuse presumably interferes with learning capacity, optimal treatment outcomes would be expected in clients who are no longer abusing substances. However, as substance abuse is often a mechanism for coping with PTSD symptoms (Nishith, Resick, & Mueser, 2001; Stewart et al., 1998), excluding clients with substance use disorders would prohibit significant numbers of clients from accessing treatment. Therefore, in order to make our program accessible to the broadest range of clients possible, clients with substance use disorders are not excluded from treatment.

When current substance abuse is present, the therapist makes this a point of discussion from the outset of treatment, and develops with the client a method for monitoring his or her ongoing use of substances. Clients' motives for using substances are explored, including attempts to "self-medicate" distressing PTSD symptoms, and clients are educated that using substances for such purposes is a common consequence of PTSD. Clients are informed that while substances may provide them with temporary symptom relief, continued or increased substance abuse can worsen PTSD and interfere with response to treatment. Specifically, substance abuse can worsen PTSD by increasing clients' avoidance of objectively safe trauma-related stimuli (including situations, thoughts, and feelings), thereby preventing them from

being exposed to information that would otherwise disconfirm their fear of those stimuli (Foa & Kozak, 1986). Substance abuse can interfere with response to the cognitive-behavioral treatment program for PTSD if it compromises clients' ability to attend to and acquire the core information and skills taught during sessions, or if clients use substances in an attempt to cope with distressing symptoms rather than practicing the breathing retraining and CR skills.

To address these issues, at the beginning of treatment (or when substance abuse becomes apparent) the therapist must establish three ground rules with the client for participation in the program. First, the therapist needs to monitor the client's ongoing use of substances on a weekly basis, including obtaining information on amount of daily substance usage. The therapist stresses that this is not a "punishment" for using substances, but a necessity in order to maximize the client's benefit from treatment. Treatment sessions for such clients may begin with a brief review of substance use, as well as other symptoms the client may be experiencing. Second, the therapist needs to obtain the client's commitment to attending all therapy sessions sober. Third, the client needs to understand that in order to learn the skills necessary to treat his or her PTSD, practice of those skills outside of therapy sessions will be necessary, and that such practice must occur when the person is not under the influence of substances. Thus, planning for homework must involve identifying times when the client can practice the newly acquired skills before using substances. These steps are crucial to successful treatment of clients with PTSD and concurrent substance abuse problems, and most clients are willing to commit to them in order to receive treatment for their PTSD.

Cognitive Impairment

Cognitive impairment is a common problem in clients with SMI, especially those with schizophrenia-spectrum disorders (Gold & Harvey, 1993; Heaton et al., 1994). In addition, there is some evidence that cognitive impairment interferes with the emotional processing of traumatic events, increasing vulnerability to PTSD (McNally & Shin, 1995). Therefore, problems with attention, concentration, memory, and abstract reasoning need to be accommodated in cognitive-behavioral treatment of PTSD in clients with SMI.

The primary problems posed by cognitive impairment include difficulties attending to, understanding, and acquiring the basic material taught in the treatment sessions, and generalizing and using the skills developed in sessions to clients' every day lives. The acquisition of information and skills taught in sessions by clients with cognitive impairment is facilitated by using teaching techniques that have a long track record in clients with SMI. Some of these methods include presenting material more slowly and in smaller "chunks," frequently reviewing previously taught material, frequently pausing to check on clients' understanding of information and skills through direct questioning and demonstration, selectively reinforcing clients for task-oriented behavior, adopting a "shaping" approach to developing complex behavioral repertoires through reinforcement of successive approximations to a targeted skill (e.g., CR), and abundant praise and encouragement for clients' efforts to participate in the program and attend to material.

The generalization of skills from treatment sessions to the daily lives of clients with cognitive impairment is facilitated by a variety of strategies. Commonly employed methods include: developing graduated homework assignments that are clear, specific, and involve using skills that they are capable of performing in the session; involving family, significant others, and/or members of the treatment team in prompting clients to use and practice skills outside of treatment sessions; developing cues in clients' living environment to signal them to use skills taught in the program; devising alternatives to written homework materials that clients have difficulty completing; and teaching the most critical components of the program, namely CR, in as simple a manner as possible (e.g., helping clients recognize negative emotions, identifying thoughts associated with those emotions, and considering alternative thoughts that are less distressing). In order to ensure that enough time is spent helping clients gain experience with CR, therapists begin teaching this skill by either the fourth or fifth session. This may require the therapist to focus on only the most critical information in the psychoeducational sessions, such as the core symptoms of PTSD.

Psychosis

Psychotic symptoms, such as hallucinations and delusions, can occur in persons with PTSD, both in the presence or absence of

another SMI such as schizophrenia or bipolar disorder (Butler, Mueser, Sprock, & Braff, 1996; Hamner, Frueh, Ulmer, & Arana, 1999; Mueser & Butler, 1987). Among clients with SMI, such symptoms are even more common, and how they are handled in treatment is of critical importance. In general, two types of psychotic symptoms require consideration in the PTSD treatment program: psychotic symptoms, which appear to be trauma-related and those that do not appear to be related to traumatic events. The distinction between trauma-related and unrelated psychotic symptoms is often not easy to make, and a symptom that appears to be unrelated to trauma may over time be discovered to be trauma-related. However, either way, when psychotic symptoms are associated with high levels of subjective distress, CR is used to help clients deal with that distress, regardless of whether it appears to be related to the trauma. Using CR to reduce distress related to these symptoms helps clients hone their skills, which are useful when addressing more affectively charged emotions that stem from traumatic events. On the other hand, psychotic symptoms that are not associated with high levels of distress, such as benign auditory hallucinations, are ignored because of a presumed lack of motivation to change them. When preoccupation with non-distressful psychotic symptoms distracts clients from learning the core skills taught in the program, the therapist gently redirects the client to the focus of the session.

Psychotic symptoms that are trauma-related can take a variety of forms, ranging from voices degrading the client about episodes of childhood sexual abuse, to pervasive paranoia in a client who has been the victim of gang violence, to delusions of thought broadcasting in a client who believes that others can read her mind and her memories of past sexual abuse. The steps of CR are used to acknowledge the negative feelings (e.g., fear, shame) and consequences (e.g., inability to do ordinary activities like shopping or babysitting) associated with these psychotic experiences, and then to articulate the thoughts underlying them (e.g., "people blame me for having been molested when I was 5," or "everyone can tell that I am an incest survivor"). Once the beliefs and their negative consequences are articulated, the client is encouraged to assess the veracity of the underlying thoughts in the same manner as with any other trauma-related thoughts or beliefs. The experience of psychotic symptoms in response to traumatic events can be explained as a not uncommon response on the continuum of

human experience, following the principle of normalization of such symptoms in cognitive-behavioral treatment of schizophrenia (Kingdon & Turkington, 1991). By exploring the evidence supporting trauma-related psychotic symptoms, these symptoms may be reduced in much the same manner as in other cognitive-behavioral approaches to psychosis (Chadwick et al., 1996; Fowler et al., 1995).

Therapists need to be careful to avoid directly confronting clients or disputing the evidence supporting psychotic interpretations because such confrontation can inadvertently increase conviction in such beliefs (Milton, Patwa, & Hafner, 1978). By sticking to the steps of CR, and helping clients evaluate the available evidence without becoming invested in the final result, therapists often find that clients very gradually shift in their conviction of delusional beliefs that underlie anxious feelings. For example, a client who had experienced gang violence had strong paranoid beliefs about gangs following him despite the fact that he had moved thousands of miles away and lived in a small rural town with no gangs. This paranoia led him to distrust other people (who might be connected to gangs) and to avoid the use of public transportation (for fear of being attacked). CR was employed on numerous instances with this client to help him deal with anxiety experienced in typical daily situations (e.g., losing his keys and being afraid they had been stolen). In almost every application of CR, the client concluded that the evidence supporting his paranoid concerns was not quite as strong as he had first believed, and the core thought was slightly modified (e.g., "someone stole my keys!" → "someone might have stolen my keys, but I may have just lost them"). Very gradual progress was made in the client's ability to use CR over the course of treatment, and four months after the program had ended he began using public transportation again, the first time in over six years.

SUMMARY AND CONCLUSIONS

The cognitive-behavioral treatment program described here is a manualized intervention for PTSD in clients with SMI which has been adapted from interventions developed and tested in the general population. As described in the two articles accompanying this one (Hamblen et al., 2004; Rosenberg et al., 2004), pilot work with this program indicates that the intervention can be implemented in typical mental health center settings, treatment retention is high, and clinical outcomes are positive with a range of different clients

with SMI. With the feasibility and clinical promise of this program established, we are currently taking the next step towards validating the program by conducting a randomized clinical trial. If this program is found to be effective, clinicians will have a new and valuable tool for ameliorating the distress, disability, and elevated service utilization associated with PTSD, and potentially for improving the overall course of SMI through the interactions between PTSD and other critical determinants of outcome, such as substance abuse, retraumatization, and the working alliance with the case manager.

REFERENCES

- Allen, J. G. (1995). *Coping With Trauma*. Washington, DC: American Psychiatric Association.
- American Psychiatric Association (1994). *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.) (DSM-IV). Washington, DC: American Psychiatric Association.
- Arata, C. M. (2002). Child sexual abuse and sexual revictimization. *Clinical Psychology: Science and Practice*, 9, 135–164.
- Barrowclough, C., Haddock, G., Tarrrier, N., Lewis, S., Moring, J., O'Brien, R., et al. (2001). Randomized controlled trial of motivational interviewing, cognitive behavior therapy, and family intervention for patients with comorbid schizophrenia and substance use disorders. *American Journal of Psychiatry*, 158, 1706–1713.
- Bebbington, P. & Kuipers, L. (1992). Life events and social factors. In D. J. Kavanagh (Ed.), *Schizophrenia: An Overview and Practical Handbook* (pp. 126–144). London: Chapman & Hall.
- Beck, A. T., Emery, G., & Greenberg, R. L. (1985). *Anxiety Disorders and Phobias: A Cognitive Perspective*. New York: Basic Books.
- Beck, A. T., Rush, A. J., Shaw, B. F., & Emery, G. (1979). *Cognitive Therapy of Depression*. New York: Guilford Publications.
- Beitchman, J. H., Zucker, K. J., Hood, J. E., de Costa, G. A., Akman, D., & Cassavia, E. (1992). A review of the long term effects of child sexual abuse. *Child Abuse and Neglect*, 16, 101–118.
- Blake, D. D., Weathers, F. W., Nagy, L. M., Kaloupek, D. G., Charney, D. S., & Keane, T. M. (1995). *Clinician Administered PTSD Scale for DSM-IV*. Boston: National Center for Posttraumatic Stress Disorder.
- Blanchard, E. P., Jones-Alexander, J., Buckley, T. C., & Forneris, C. A. (1996). Psychometric properties of the PTSD Checklist. *Behavior Therapy*, 34, 669–673.
- Boudewyns, P. A. & Hyer, L. (1990). Physiological response to combat memories and preliminary treatment outcome in Vietnam veteran PTSD patients treated with direct therapeutic exposure. *Behavior Therapy*, 21, 63–87.
- Brandon, S., Boakes, J., Glaser, D., & Green, R. (1998). Recovered memories of childhood sexual abuse: Implications for clinical practice. *British Journal of Psychiatry*, 172, 296–307.

- Breslau, N., Davis, G. C., Andreski, P., & Peterson, E. (1991). Traumatic events and posttraumatic stress disorder in an urban population of young adults. *Archives of General Psychiatry*, *48*, 216–222.
- Breslau, N., Davis, G. C., Andreski, P., Peterson, E. L., & Schultz, L. R. (1997). Sex differences in posttraumatic stress disorder. *Archives of General Psychiatry*, *54*, 1044–1048.
- Briere, J., Woo, R., McRae, B., Foltz, J., & Sitzman, R. (1997). Lifetime victimization history, demographics, and clinical status in female psychiatric emergency room patients. *Journal of Nervous and Mental Disease*, *185*, 95–101.
- Brown, P. J., Strout, R. L., & Gannon-Rowley, J. (1998). Substance use disorder PTSD comorbidity: Patient's perceptions of symptom interplay and treatment issues. *Journal of Substance Abuse Treatment*, *15*, 445–448.
- Burns, D. D. (1980). *Feeling Good: The New Mood Therapy*. New York: Avon.
- Butler, R. W., Mueser, K. T., Sprock, J., & Braff, D. L. (1996). Positive symptoms of psychosis in posttraumatic stress disorder. *Biological Psychiatry*, *39*, 839–844.
- Butzlaff, R. L. & Hooley, J. M. (1998). Expressed emotion and psychiatric relapse. *Archives of General Psychiatry*, *55*, 547–552.
- Carmen, E., Crane, B., Dunningcliff, M., Holochuck, S., Prescott, L., Rieker, P. P., et al. (1996). *Task Force on the Restraint and Seclusion of Persons Who have been Physically or Sexually Abused*. Boston: Massachusetts Department of Mental Health.
- Carmen, E., Rieker, P. P., & Mills, T. (1984). Victims of violence and psychiatric illness. *American Journal of Psychiatry*, *141*, 378–383.
- Cascardi, M., Mueser, K. T., DeGiralomo, J., & Murrin, M. (1996). Physical aggression against psychiatric inpatients by family members and partners: A descriptive study. *Psychiatric Services*, *47*, 531–533.
- Cason, D. R., Resick, P. A., & Weaver, T. L. (2002). Schematic integration of traumatic events. *Clinical Psychology Review*, *22*, 131–153.
- Chadwick, P., Birchwood, M., & Trower, P. (1996). *Cognitive Therapy for Delusions, Voices and Paranoia*. Chichester, England: John Wiley & Sons.
- Clark, D. M. (1986). A cognitive approach to panic. *Behaviour Research and Therapy*, *24*, 461–470.
- Cooper, N. A. & Clum, G. A. (1989). Imaginal flooding as a supplementary treatment for PTSD in combat veterans: A controlled study. *Behavior Therapy*, *20*, 381–391.
- Coverdale, J. H. & Grunebaum, H. (1998). Sexuality and family planning. In K. T. Mueser & N. Tarrier (Eds.), *Handbook of Social Functioning in Schizophrenia*. Needham Heights, MA: Allyn & Bacon.
- Craine, L. S., Henson, C. E., Colliver, J. A., & MacLean, D. G. (1988). Prevalence of a history of sexual abuse among female psychiatric patients in a state hospital system. *Hospital and Community Psychiatry*, *39*, 300–304.
- Craske, M. G. & Lewin, M. R. (1998). Cognitive-behavioral treatment of panic disorders. In V. E. Caballo (Ed.), *International Handbook of Cognitive and Behavioural Treatments for Psychological Disorders* (pp. 105–128). NY: Pergamon.
- Cuffel, B. J. (1996). Comorbid substance use disorder: Prevalence, patterns of use, and course. In R. E. Drake & K. T. Mueser (Eds.), *Dual Diagnosis of Major Mental Illness and Substance Abuse Volume 2: Recent Research and Clinical Implications. New Directions in Mental Health Services* (Vol. 70, pp. 93–105). San Francisco: Jossey-Bass.
- Darves-Bornoz, J.-M., Lempérière, T., Degiovanni, A., & Gaillard, P. (1995). Sexual victimization in women with schizophrenia and bipolar disorder. *Social Psychiatry and Psychiatric Epidemiology*, *30*, 78–84.

- Davies-Netzley, S., Hurlburt, M. S., & Hough, R. (1996). Childhood abuse as a precursor to homelessness for homeless women in severe mental illness. *Violence and Victims, 11*, 129–142.
- Dawson, M. E. & Nuechterlein, K. H. (1984). Psychophysiological dysfunctions in the developmental course of schizophrenic disorders. *Schizophrenia Bulletin, 10*, 204–232.
- Dickerson, F., Boronow, J. J., Ringel, N., & Parente, F. (1996). Neurocognitive deficits and social functioning in outpatients with schizophrenia. *Schizophrenia Research, 21*, 75–83.
- Drake, R. E. & Brunette, M. F. (1998). Complications of severe mental illness related to alcohol and other drug use disorders. In M. Galanter (Ed.), *Recent Developments in Alcoholism: Consequences of Alcoholism* (Vol. 14, pp. 285–299). New York: Plenum.
- Drake, R. E., Essock, S. M., Shaner, A., Carey, K. B., Minkoff, K., Kola, L., et al. (2001). Implementing dual diagnosis services for clients with severe mental illness. *Psychiatric Services, 52*, 469–476.
- Drossman, D. A., Leserman, J., Nachman, G., Li, Z., Gluck, H., Toomey, T. C., et al. (1990). Sexual and physical abuse in women with functional or organic gastrointestinal disorders. *Annals of Internal Medicine, 113*, 828–833.
- Drury, V., Birchwood, M., Cochrane, R., & MacMillan, F. (1996). Cognitive therapy and recovery from acute psychosis: A controlled trial: I. Impact on psychotic symptoms. *British Journal of Psychiatry, 169*, 593–601.
- Ehlers, A. & Clark, D. M. (2000). A cognitive model of posttraumatic stress disorder. *Behaviour Research and Therapy, 38*, 319–345.
- Falconer, D. S. (1965). The inheritance of liability to certain diseases estimated from the incidence among relatives. *Annals of Human Genetics, 29*, 51–76.
- Figuroa, E. F., Silk, K. R., Huth, A., & Lohr, N. E. (1997). History of childhood sexual abuse and general psychopathology. *Comprehensive Psychiatry, 38*, 23–30.
- Foa, E. B., Dancu, C. V., Hembree, E. A., Jaycox, L. H., Meadows, E. A., & Street, G. P. (1999). A comparison of exposure therapy, stress inoculation training, and their combination for reducing posttraumatic stress disorder in female assault victims. *Journal of Consulting and Clinical Psychology, 67*, 194–200.
- Foa, E. B., Keane, T. M., & Friedman, M. J. (2000a). Guidelines for the treatment of PTSD. *Journal of Traumatic Stress, 13*, 539–555.
- Foa, E. B., Keane, T. M., & Friedman, M. J. (Eds.). (2000b). *Effective Treatments for PTSD*. New York: Guilford.
- Foa, E. B. & Kozak, M. J. (1986). Emotional processing of fear: Exposure to corrective information. *Psychological Bulletin, 99*, 20–35.
- Foa, E. B. & Rothbaum, B. O. (1998). *Treating the Trauma of Rape: Cognitive-Behavioral Therapy for PTSD*. New York: Guilford.
- Foa, E. B., Rothbaum, B. O., Riggs, D., & Murdock, T. (1991). Treatment of post-traumatic stress disorder in rape victims: A comparison between cognitive-behavioral procedures and counseling. *Journal of Consulting and Clinical Psychology, 59*, 715–723.
- Fowler, D., Garety, P., & Kuipers, E. (1995). *Cognitive Behaviour Therapy for Psychosis: Theory and Practice*. Chichester, England: John Wiley & Sons.
- Gibson, L. E. & Leitenberg, H. (2001). The impact of child sexual abuse and stigma on methods of coping with sexual assault among undergraduate women. *Child Abuse and Neglect, 25*, 1343–1361.

- Gold, J. & Harvey, P. (1993). Cognitive deficits in schizophrenia. *Psychiatric Clinics of North America*, 16(2), 295–313.
- Goldman, H. H. (1984). The chronically mentally ill: Who are they? Where are they? In M. Mirabi (Ed.), *The Chronically Mentally Ill: Research and Services* (pp. 33–44). New York: Spectrum Publications.
- Goodman, L. A., Dutton, M. A., & Harris, M. (1995). Physical and sexual assault prevalence among episodically homeless women with serious mental illness. *American Journal of Orthopsychiatry*, 65, 468–478.
- Goodman, L. A., Dutton, M. A., & Harris, M. (1997). The relationship between violence dimensions and symptom severity among homeless, mentally ill women. *Journal of Traumatic Stress*, 10, 51–70.
- Goodman, L. A., Rosenberg, S. D., Mueser, K. T., & Drake, R. E. (1997). Physical and sexual assault history in women with serious mental illness: Prevalence, correlates, treatment, and future research directions. *Schizophrenia Bulletin*, 23, 685–696.
- Goodman, L. A., Salyers, M. P., Mueser, K. T., Rosenberg, S. D., Swartz, M., Essock, S. M., et al. (2001). Recent victimization in women and men with severe mental illness: Prevalence and correlates. *Journal of Traumatic Stress*, 14, 615–632.
- Goodman, L. A., Thompson, K. M., Weinfurt, K., Corl, S., Acker, P., Mueser, K. T., et al. (1999). Reliability of reports of violent victimization and PTSD among men and women with SMI. *Journal of Traumatic Stress*, 12, 587–599.
- Green, B. L. (1996). Trauma History Questionnaire. In B. H. Stamm (Ed.), *Measurement of Stress, Self-Report Trauma, and Adaptation* (pp. 366–368). Lutherville, MD: Sidran Press.
- Greenfield, S. F., Strakowski, S. M., Tohen, M., Batson, S. C., & Kolbrener, M. L. (1994). Childhood abuse in first-episode psychosis. *British Journal of Psychiatry*, 164, 831–834.
- Hamblen, J., Jankowski, M. K., Rosenberg, S. D., & Mueser, K. T. (2004). Cognitive-behavioral treatment for PTSD in people with severe mental illness: Three case studies. *American Journal of Psychiatric Rehabilitation*, 7, 147–170.
- Hammer, M. B., Frueh, B. C., Ulmer, H. G., & Arana, G. W. (1999). Psychotic features and illness severity in combat veterans with chronic posttraumatic stress disorder. *Biological Psychiatry*, 45(7), 846–852.
- Heaton, R., Paulsen, J. S., McAdams, L. A., Kuck, J., Zisook, S., Braff, D., et al. (1994). Neuropsychological deficits in schizophrenics: Relationship to age, chronicity, and dementia. *Archives of General Psychiatry*, 51, 469–476.
- Herman, J. L. (1992). *Trauma and Recovery*. New York: Basic Books.
- Horowitz, M. J. (1986). *Stress Response Syndromes* (2nd ed.). New York: Jason Aronson.
- Hutchings, P. S. & Dutton, M. A. (1993). Sexual assault history in a community mental health center clinical population. *Community Mental Health Journal*, 29, 59–63.
- Jacobson, A. (1989). Physical and sexual assault histories among psychiatric outpatients. *American Journal of Psychiatry*, 146, 755–758.
- Jacobson, A. & Herald, C. (1990). The relevance of childhood sexual abuse to adult psychiatric inpatient care. *Hospital and Community Psychiatry*, 41, 154–158.
- Jacobson, A. & Richardson, B. (1987). Assault experiences of 100 psychiatric inpatients: Evidence of the need for routine inquiry. *American Journal of Psychiatry*, 144, 508–513.

- Jacobson, L. K., Southwick, S. M., & Kosten, T. R. (2001). Substance use disorders in patients with posttraumatic stress disorder: A review of the literature. *American Journal of Psychiatry*, *158*, 1184–1190.
- Janoff-Bulman, R. (1992). *Shattered Assumptions: Towards a New Psychology of Trauma*. New York: The Free Press.
- Jennings, A. (1997). *Strategic Action Plan for Creating a System of Care Responsive to the Needs of Trauma Survivors*. Augusta, ME: Maine Department of Mental Health, Mental Retardation and Substance Abuse Services.
- Jennings, A. & Ralph, R. O. (1997). *In Their Own Words: Trauma Advisory Groups Report*. Augusta, ME: Maine Department of Mental Health, Mental Retardation and Substance Abuse Services.
- Keane, T. M., Fairbank, J. A., Caddell, J. M., & Zimering, R. T. (1989). Implosive (flooding) therapy reduces symptoms of PTSD in Vietnam combat veterans. *Behavior Therapy*, *29*, 245–260.
- Keane, T. M. & Wolfe, J. (1990). Comorbidity in post-traumatic stress disorder: An analysis of community and clinical studies. *Journal of Applied Social Psychology*, *20*, 1776–1788.
- Kessler, R. C., Sonnega, A., Bromet, E., Hughes, M., & Nelson, C. B. (1995). Posttraumatic stress disorder in the National Comorbidity Survey. *Archives of General Psychiatry*, *52*, 1048–1060.
- Kingdon, D. & Turkington, D. (1991). The use of cognitive behavior therapy with a normalizing rationale in schizophrenia. *The Journal of Nervous and Mental Disease*, *719*(4), 207–211.
- Kingdon, D. G. & Turkington, D. (1994). *Cognitive-Behavioral Therapy of Schizophrenia*. New York: Guilford Publications.
- Kuipers, E., Garety, P., Fowler, D., Dunn, G., Bebbington, P., Freeman, D., et al. (1997). London-East Anglia randomised controlled trial of cognitive-behavioural therapy for psychosis I: Effects of the treatment phase. *British Journal of Psychiatry*, *171*, 319–327.
- Lauterbach, D. & Vrana, S. (1996). Three studies on the reliability and validity of a self-report measure of posttraumatic stress disorder. *Assessment*, *3*, 17–26.
- Lewis, S. W., Tarrier, N., Haddock, G., Bentall, R., Kinderman, P., Kingdon, D., et al. (2002). Randomised controlled trial of cognitive-behavioural therapy in early schizophrenia: Acute-phase outcomes. *British Journal of Psychiatry*, *181*, s91–s97.
- Liberman, R. P., Mueser, K. T., Wallace, C. J., Jacobs, H. E., Eckman, T., & Massel, H. K. (1986). Training skills in the psychiatrically disabled: Learning coping and competence. *Schizophrenia Bulletin*, *12*, 631–647.
- Linehan, M. M. (1993). *Cognitive-Behavioral Treatment of Borderline Personality Disorder*. New York: Guilford Publications.
- Linszen, D., Dingemans, P., & Lenior, M. (1994). Cannabis abuse and the course of recent onset schizophrenic disorders. *Archives of General Psychiatry*, *51*, 273–279.
- Lipschitz, D. S., Kaplan, M. L., Sorkenn, J. B., Faedda, G. L., Chorney, P., & Asnis, G. M. (1996). Prevalence and characteristics of physical and sexual abuse among psychiatric outpatients. *Psychiatric Services*, *47*, 189–191.
- Loftus, E. & Ketcham, K. (1994). *The Myth of Repressed Memory*. New York: St. Martin's Press.

- Lysaker, P. H., Meyer, P. S., Evans, J. D., Clements, C. A., & Marks, K. A. (2001). Childhood sexual trauma and psychosocial functioning in adults with schizophrenia. *Psychiatric Services, 52*, 1485–1488.
- Macdonald, E. M., Pica, S., McDonald, S., Hayes, R. L., & Baglioni, A. J. J. (1998). Stress and coping in early psychosis: Role of symptoms, self-efficacy, and social support in coping with stress. *British Journal of Psychiatry, 172* (Suppl. 33), 122–127.
- Marks, I., Lovell, K., Noshirvani, H., Livanou, M., & Thrasher, S. (1998). Treatment of posttraumatic stress disorder by exposure and/or cognitive restructuring. *Archives of General Psychiatry, 55*, 317–325.
- McDonagh-Coyle, A., Friedman, M. J., McHugo, G. J., Ford, J. D., Segupta, A., et al. Mueser, K. T., Demment, C., & Descamps, M. (in press). Randomized trial of cognitive behavioral therapy for chronic PTSD in adult female childhood sexual abuse survivors. *Journal of Consulting and Clinical Psychology*.
- McFarlane, A. C. (1996). Resilience, vulnerability, and the course of posttraumatic reactions. In B. A. van der Kolk, A. C. McFarlane & L. Weisaeth (Eds.), *Traumatic Stress: The Effects of Overwhelming Experience on Mind, Body, and Society* (pp. 155–181). New York: Guilford Press.
- McFarlane, A. C., Bookless, C., & Air, T. (2001). Posttraumatic stress disorder in a general psychiatric inpatient population. *Journal of Traumatic Stress, 14*, 633–645.
- McNally, R. J. & Shin, L. M. (1995). Association of intelligence with severity of posttraumatic stress disorder symptoms in Vietnam combat veterans. *American Journal of Psychiatry, 152*, 936–938.
- Miles, K., Houghland, S., Federico, J., Griffin, G., Skaggs, T., & Thompson, R. (1997). *Report of the Sexual Abuse Task Force*. Springfield, IL: Illinois Department of Mental Health and Developmental Disabilities.
- Milton, F., Patwa, V. K., & Hafner, R. J. (1978). Confrontation vs. belief modification in persistently deluded patients. *British Journal of Medical Psychology, 51*, 127–130.
- Miner, C. R., Rosenthal, R. N., Hellerstein, D. J., & Muenz, L. R. (1997). Prediction of compliance with outpatient referral in patients with schizophrenia and psychoactive substance use disorders. *Archives of General Psychiatry, 54*, 706–712.
- Morrison, A. P. & Renton, J. C. (2001). Cognitive therapy for auditory hallucinations: A theory-based approach. *Cognitive and Behavioral Practice, 8*, 147–160.
- Muenzenmaier, K., Meyer, I., Struening, E., & Ferber, J. (1993). Childhood abuse and neglect among women outpatients with chronic mental illness. *Hospital and Community Psychiatry, 44*, 666–670.
- Mueser, K. T. & Butler, R. W. (1987). Auditory hallucinations in combat-related chronic posttraumatic stress disorder. *American Journal of Psychiatry, 144*, 299–302.
- Mueser, K. T., Goodman, L. A., Trumbetta, S. L., Rosenberg, S. D., Osher, F. C., Vidaver, R., et al. (1998). Trauma and posttraumatic stress disorder in severe mental illness. *Journal of Consulting and Clinical Psychology, 66*, 493–499.
- Mueser, K. T., Rosenberg, S. D., Goodman, L. A., & Trumbetta, S. L. (2002). Trauma, PTSD, and the course of schizophrenia: An interactive model. *Schizophrenia Research, 53*, 123–143.
- Mueser, K. T., Salyers, M. P., Rosenberg, S. D., Ford, J. D., Fox, L., & Cardy, P. (2001). A psychometric evaluation of trauma and PTSD assessments in persons with severe mental illness. *Psychological Assessment, 13*, 110–117.
- Mueser, K. T., Salyers, M. P., Rosenberg, S. D., Goodman, L. A., Essock, S. M., Osher, F. C., (2004). Interpersonal trauma and posttraumatic stress disorder in

- patients with severe mental illness: Demographic, clinical, and health correlates. *Schizophrenia Bulletin*, 30, 45–57.
- NASMHPD. (1998). *Executive Summary: Responding to the Behavioral Healthcare Issues of Persons with Histories of Physical and Sexual Abuse*. Alexandria, VA: National Association of State Mental Health Program Directors.
- NIMH. (1991). Caring for people with severe mental illness: A national plan of research to improve services (Vol. (ADM), pp. 91–1762). Washington, D.C.: DHHS Supt of Docs., U.S. GPO.
- Neria, Y., Bromet, E. J., Sievers, S., Lavelle, J., & Fochtmann, L. J. (2002). Trauma exposure and posttraumatic stress disorder in psychosis: Findings from a first-admission cohort. *Journal of Consulting and Clinical Psychology*, 70, 246–251.
- Nishith, P., Resick, P. A., & Mueser, K. T. (2001). Sleep disturbances and alcohol use motives in female rape victims with posttraumatic stress disorder. *Journal of Traumatic Stress*, 14, 469–479.
- Norris, F. H. & Kaniasty, K. Z. (1996). Received and perceived social support in times of stress: A test of the social support deterioration deterrance model. *Journal of Personality and Social Psychology*, 71, 498–511.
- North, C. S., Smith, E. M., & Spitznagel, E. L. (1997). One-year follow-up of survivors of a mass shooting. *American Journal of Psychiatry*, 154, 1696–1702.
- Nuechterlein, K. H., & Dawson, M. E. (1984). A heuristic vulnerability/stress model of schizophrenic episodes. *Schizophrenia Bulletin*, 10, 300–312.
- Pinto, A., La Pia, S. R. M., Domenico, G., & DeSimone, L. (1999). Cognitive-behavioral therapy and clozapine for clients with treatment-refractory schizophrenia. *Psychiatric Services*, 50, 901–904.
- Pitman, R. K., Altman, B., Greenwald, E., Longpre, R. E., Macklin, M. L., Poire, R., et al. (1991). Psychiatric complications during flooding therapy for posttraumatic stress disorder. *Journal of Clinical Psychiatry*, 52, 17–20.
- Polusny, M. A. & Follette, V. M. (1995). Long-term correlates of child sexual abuse: Theory and review of the empirical literature. *Applied and Preventive Psychology*, 4, 143–166.
- Pope, H. G., Jr., & Hudson, J. I. (1995). Can memories of childhood sexual abuse be repressed? *Psychological Medicine*, 25, 121–126.
- Rapkin, A. J., Kames, L. D., Darke, L. L., Stampler, F. M., & Naliboff, B. D. (1990). History of physical and sexual abuse in women with chronic pelvic pain. *Obstetrics & Gynecology*, 76, 92.
- Rector, N. A., Seeman, M. V., & Segal, Z. V. (May, 2000). *Cognitive therapy for schizophrenia: Treatment outcomes and follow-up effects from the Toronto Trial Study*. Paper presented at the 160th Annual Meeting of the American Psychiatric Association, Chicago.
- Regier, D. A., Farmer, M. E., Rae, D. S., Locke, B. Z., Keith, S. J., Judd, L. L., et al. (1990). Comorbidity of mental disorders with alcohol and other drug abuse: Results from the Epidemiologic Catchment Area (ECA) study. *Journal of the American Medical Association*, 264, 2511–2518.
- Resick, P. A., Nishith, P., Weaver, T. L., Astin, M. C., & Feuer, C. A. (2002). A comparison of cognitive processing therapy with prolonged exposure and a waiting condition for the treatment of posttraumatic stress disorder in female rape victims. *Journal of Consulting and Clinical Psychology*, 70, 867–879.
- Resick, P. A. & Schnicke, M. K. (1992). Cognitive processing therapy for sexual assault victims. *Journal of Consulting and Clinical Psychology*, 60, 748–756.

- Resick, P. A. & Schnicke, M. K. (1993). *Cognitive Processing Therapy for Rape Victims: A Treatment Manual*. Newbury Park, CA: Sage.
- Resnick, H. S., Kilpatrick, D. G., Dansky, B. S., Saunders, B. E., & Best, C. E. (1993). Prevalence of civilian trauma and post-traumatic stress disorder in a representative national sample of women. *Journal of Consulting and Clinical Psychology, 61*, 984–991.
- Romans, S. E., Martin, J. L., Anderson, J. C., O’Shea, M. L., & Mullen, P. E. (1995). Factors that mediate between child sexual abuse and adult psychological outcome. *Psychological Medicine, 25*, 127–142.
- Rose, S. M., Peabody, C. G., & Stratigeas, B. (1991). Undetected abuse among intensive case management clients. *Hospital and Community Psychiatry, 42*, 499–503.
- Rosenberg, H. J., Rosenberg, S. D., Williamson, P. J., & Wolford, G. L. (2000). A comparative study of trauma and PTSD prevalence in epileptic and psychogenic non-epileptic seizure patients. *Epilepsia, 41*, 447–452.
- Rosenberg, S. D., Mueser, K. T., Jankowski, M. K., Salyers, M. P., & Acker, K. (2004). Cognitive-behavioral treatment of posttraumatic stress disorder in severe mental illness: Results of a pilot study. *American Journal of Psychiatric Rehabilitation, 7*, 171–186.
- Rosenberg, S. D., Wolford, G. I., Jankowski, M. K., Rosenberg, H. J., Mueser, K. T., & Vidaver, R. (2002). Reliability, validity and diagnostic accuracy of the PCL for clients with severe mental illness. *Manuscript*.
- Ross, C. A., Anderson, G., & Clark, P. (1994). Childhood abuse and the positive symptoms of schizophrenia. *Hospital and Community Psychiatry, 45*, 489–491.
- Ruggeri, M., Leese, M., Thornicroft, G., Bisoffi, G., & Tansella, M. (2000). Definition and prevalence of severe and persistent mental illness. *British Journal of Psychiatry, 176*, 149–155.
- Salkovskis, P. M. (1991). The importance of behaviour in the maintenance of anxiety and panic. *Behavioural Psychotherapy, 19*, 6–19.
- Saunders, B. E., Villeponteaux, L. A., Lipovsky, J. A., Kilpatrick, D. G., & Veronen, L. J. (1992). Child sexual assault as a risk factor for mental disorders among women: A community survey. *Journal of Interpersonal Violence, 7*, 189–204.
- Schinnar, A. P., Rothbard, A. B., Kanter, R., & Jung, Y. S. (1990). An empirical literature review of definitions of severe and persistent mental illness. *American Journal of Psychiatry, 147*, 1602–1608.
- Sensky, T., Turkington, D., Kingdon, D., Scott, J. L., Scott, J., Siddle, R., et al. (2000). A randomized controlled trial of cognitive-behavioral therapy for persistent symptoms in schizophrenia resistant to medication. *Archives of General Psychiatry, 57*, 165–172.
- Smucker, M. R., Grunert, B. K., & Weis, J. M. (2003). Overcoming roadblocks in cognitive-behavior therapy with PTSD: A new algorithm treatment model. In R. L. Leahy (Ed.), *Roadblocks in Cognitive-Behavioral Therapy: 175–194. Transforming Challenges into Opportunities for Change*. New York: Guilford Press.
- Stein, M. B., Walker, J. R., Hazen, A. L., & Forde, D. R. (1997). Full and partial post-traumatic stress disorder: Findings from a community survey. *American Journal of Psychiatry, 154*, 1114–1119.
- Stewart, S. H. (1996). Alcohol abuse in individuals exposed to trauma: A critical review. *Psychological Bulletin, 120*, 83–112.
- Stewart, S. H., Pihl, R. O., Conrod, P. J., & Dongier, M. (1998). Functional associations among trauma, PTSD, and substance-related disorders. *Addictive Behaviors, 6*, 797–812.

- Straube, E. R. & Öhman, A. (1990). Functional role of the different autonomic nervous system activity patterns found in schizophrenia – a new model. In E. R. Straube & K. Hahlweg (Eds.), *Schizophrenia: Concepts, Vulnerability, and Intervention* (pp. 135–157). Berlin: Springer-Verlag.
- Street, A. E., Gibson, L. E., & Holohan, D. R. (2003). The impact of childhood traumatic experiences, trauma-related guilt, and avoidant coping strategies on PTSD symptoms in female survivors of domestic violence. *Manuscript under review*.
- Swartz, M. S., Swanson, J. W., Hiday, V. A., Borum, R., Wagner, H. R., & Burns, B. J. (1998). Violence and mental illness: The effects of substance abuse and nonadherence to medication. *American Journal of Psychiatry*, *155*, 226–231.
- Switzer, G. E., Dew, M. A., Thompson, K., Goycoolea, J. M., Derricott, T., & Mullins, S. D. (1999). Posttraumatic stress disorder and service utilization among urban mental health center clients. *Journal of Traumatic Stress*, *12*, 25–39.
- Tarrier, N., Kinney, C., McCarthy, E., Humphreys, L., Wittkowski, A., & Morris, J. (2000). Two-year follow-up of cognitive-behavioral therapy and supportive counseling in the treatment of persistent symptoms in chronic schizophrenia. *Journal of Consulting and Clinical Psychology*, *68*, 917–922.
- Tarrier, N., Pilgrim, H., Sommerfield, C., Faragher, B., Reynolds, M., Graham, E., et al. (1999). Cognitive and exposure therapy in the treatment of PTSD. *Journal of Consulting and Clinical Psychology*, *67*, 13–18.
- Teague, G., Drake, R. E., & Bartels, S. J. (1989). Stress and schizophrenia: A review of research models and findings. *Stress Medicine*, *5*, 153–165.
- van der Kolk, B. A. (1987). The psychological consequences of overwhelming life experiences. In v. d. Kolk (Ed.), *Psychological Trauma* (pp. 1–30). Washington, DC: American Psychiatric Press.
- Widom, C. S. (1999). Posttraumatic stress disorder in abused and neglected children grown up. *American Journal of Psychiatry*, *156*, 1223–1229.
- Wilson, A. E., Calhoun, K. S., & Bernat, J. A. (1999). Risk recognition and trauma-related symptoms among sexually revictimized women. *Journal of Consulting and Clinical Psychology*, *67*, 705–710.
- Wolford, G. I. (1999). *Formats for Assessing HIV Risk in Severely Mentally Ill People*: National Institute of Mental Health grant RO-1 MH60073.
- Zahn, T. P. (1986). Psychophysiological approaches to psychopathology. In M. G. H. Coles, E. Donchin & S. W. Porges (Eds.), *Psychophysiology: Systems, Processes and Applications* (pp. 508–610). New York: Guilford Press.
- Zayfert, C. & Becker, C. B. (2000). Implementing of empirically supported treatment for PTSD: Obstacles and innovations. *the Behavior Therapist*, *23*, 161–168.
- Zayfert, C., Dums, A. R., Ferguson, R. J., & Hegel, M. T. (2002). Health functioning impairments associated with posttraumatic stress disorder, anxiety disorders, and depression. *The Journal of Nervous and Mental Disease*, *190*, 233–240.
- Zubin, J. & Spring, B. (1977). Vulnerability: A new view of schizophrenia. *Journal of Abnormal Psychology*, *86*, 103–126.