

Cognitive-Behavioral Approaches to ADHD Treatment in Adulthood

Steven A. Safren, Ph.D.

Attention-deficit/hyperactivity disorder (ADHD) in adolescence and adulthood is a chronic, distressing, and interfering neurobiologically based disorder that is primarily treated with medications. However, most individuals treated with medications continue to evidence at least some residual symptoms and functional impairments. These residual symptoms may be amenable to a structured, cognitive-behavioral treatment approach. Recommendations for treatment of ADHD in adolescents and adults therefore call for psychosocial intervention concomitant with medications. This article is a review of the extant research on outcome studies of psychosocial interventions for adults with ADHD, including the successful randomized controlled trial of cognitive-behavioral therapy (CBT) my colleagues and I conducted. The article also includes a presentation of our model of treatment of residual ADHD in adulthood, which includes initiating CBT after medication stabilization, and an overview of the components of our specific CBT approach for residual ADHD that is geared toward adults and, potentially, adolescents.

(J Clin Psychiatry 2006;67[suppl 8]:46–50)

Psychosocial interventions play an important role in fully treating attention-deficit/hyperactivity disorder (ADHD) in adulthood, even though it is a neurobiologically based illness. Psychopharmacology can ameliorate many of the core symptoms of ADHD such as attentional problems, high activity, and impulsivity. However, medication does not intrinsically provide patients with concrete strategies and skills for coping with associated functional impairment, and some findings suggest that adults who are treated with medications typically show a reduction in 50% or fewer of the core symptoms of ADHD,^{1,2} leaving considerable room for further improvement.

Psychosocial treatments as a supplement to psychopharmacologic interventions can also help prevent an exacerbation of symptoms due to poor coping. A diagnosis of ADHD in adulthood or adolescence requires an emergence of symptoms during childhood. From a cognitive-behavioral perspective, this chronicity of symptoms can, in the absence of adequate coping skills training, lead to continued practice of ineffectual coping strategies, which can exacerbate problems over time.

Recommendations for the optimal treatment of adult ADHD call for combining psychosocial interventions with

medications.^{1,3–5} Although there are several published guidelines for conducting psychotherapy with this population based on clinical experience or open treatment,^{6–9} few studies have evaluated the efficacy or utility of psychosocial interventions for adults with ADHD. Adults, however, may be even better candidates for psychosocial interventions for ADHD than children because, unlike children, they tend to refer themselves and therefore may be motivated to adhere to the treatment recommendations.

Conceptual Model of ADHD in Adulthood

Figure 1 depicts the conceptual basis my colleagues and I employed for cognitive-behavioral therapy (CBT) for residual ADHD in adulthood.¹⁰ Consistent with other current theories of ADHD,^{11,12} our model posits that the neurobiological components of the disorder are at the core, with prominent symptoms of impulsivity and attentional deficits. These biological underpinnings can result in continued behavioral deficits, which prevent patients from utilizing compensatory strategies and result in symptom maintenance and exacerbation. The patient's history of failures and underachievement can reinforce this cycle via negative cognitions and beliefs. Adults with ADHD, by definition of the diagnosis, have been suffering from this disorder chronically since childhood. Specific symptoms such as distractibility, disorganization, difficulty following through on tasks, and impulsivity prevent acquisition of effective coping skills. Hence, patients with this disorder typically have sustained multiple failures in life and/or underachievement.

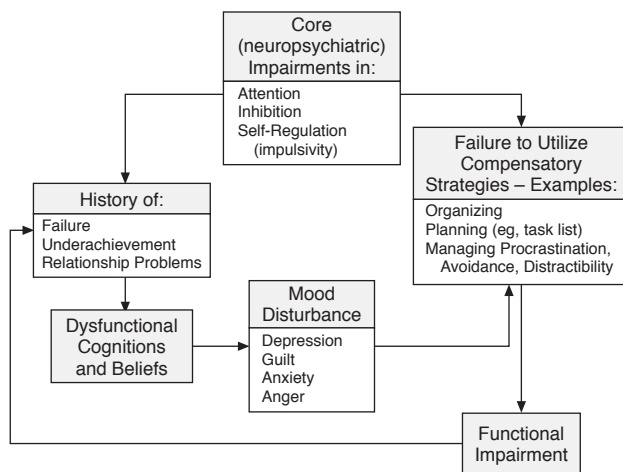
Cognitive-behavioral treatments can interrupt the continued cycle of symptoms. After medication treatment, behavioral skills training can assist with developing and prac-

From the Behavioral Medicine Service, Department of Psychiatry, Massachusetts General Hospital and Harvard Medical School, Boston, Mass.

This article is derived from the planning teleconference "New Developments in the Treatment of Attention-Deficit/Hyperactivity Disorder," which was held May 16, 2005, and supported by an educational grant from Cephalon, Inc.

Corresponding author and reprints: Steven A. Safren, Ph.D., MGH Psychiatry, WACC 815, 15 Parkman St., Boston, MA 02114 (e-mail: ssafren@partners.org).

Figure 1. A Cognitive-Behavioral Model of Impairment in Adult Attention-Deficit/Hyperactivity Disorder^a



^aReprinted with permission from Safren et al.¹⁰

ting effective compensatory strategies, including training in organizing and planning and in managing avoidance. If implemented, this training can break the link between core symptoms and a continued history of failure and underachievement. The compensatory behavioral strategies seek to decrease associated functional impairments. The cognitive interventions can attend to the dysfunctional thoughts and cognitions (and therefore negative emotions) that may emerge from failures and underachievement and that can further avoidance, procrastination, and attentional shifts.

Uncontrolled Studies of Psychosocial Treatments

Two of the only evaluations of psychosocial treatments for ADHD are uncontrolled trials.^{13,14} The data from these trials provide encouraging findings supporting the acceptability of this type of treatment approach and suggesting that it can offer beneficial treatment outcomes for patients.

The first study¹³ that evaluated a structured psychosocial approach to treatment of adult ADHD focused interventions on the dysfunctional cognitions that may enhance negative emotional reactions to external demands and encourage procrastination and other forms of avoidance. The psychosocial treatment⁶ was a modified approach to cognitive therapy and involved teaching patients to treat their thoughts as hypotheses rather than facts. Patients were educated in negative biases in thinking and were asked to monitor and systematically reevaluate their thoughts. The therapy also included psychoeducation, strategies to change underlying core beliefs, and ways to restructure one's environment (i.e., strategies for organization, regular scheduling of activities, and a format for step-by-step problem solving).

The evaluation was a retrospective, though independent, chart review of the symptoms of 22 men and 4 women who underwent the treatment on an outpatient

basis. As this study involved reviewing charts of clinic patients, the number of sessions was variable. Patients received a mean of 36 sessions ($SD = 24$; range, 10–103 sessions) of CBT, delivered over 11.7 months ($SD = 8$; range, 13–30 months). The chart-review data were complemented by prospective baseline and endpoint self-report measures on a subset of 12 individuals. On the self-report measures, participants showed significant improvement in core ADHD symptoms, associated anxiety and depressive symptoms, and global functioning from the time of medication stabilization to endpoint, as well as from baseline to the time of medication stabilization. Chart-review classification of responders revealed that 69% of patients were classified as “much improved” or “very much improved.” Although these results are encouraging, limitations include challenges to internal validity and a variable and generally long course of treatment.

A group of investigators in Germany¹⁴ employed a novel approach, evaluating an adaptation of dialectical behavior therapy (DBT)¹⁵ for adults with ADHD. Dialectical behavioral therapy is a cognitive-behavioral treatment developed for borderline personality disorder. The authors reasoned that ADHD and borderline personality disorder share overlapping symptoms such as deficits in affect regulation and impulse control, substance abuse, low self-esteem, and disturbed interpersonal relationships. The modified DBT treatment for ADHD was a structured therapy, delivered in 13 sessions in a group format and focusing on the following educational and discussion topics: (1) education about ADHD; (2) neurobiology and mindfulness training (2 sessions); (3) “Chaos and Control,” a discussion of disorganized behavior followed by concrete advice about how patients can plan and organize aspects of their lives; (4) dysfunctional behavior/behavior analysis (2 sessions); (5) “Emotion,” information about theories of emotions and exercises to regulate emotions (using an emotional record and diary); (6) psychoeducational information about depression and its medical treatment; (7) impulse control; (8) stress; (9) education about the symptoms of substance dependency; (10) relationships and self-respect; and (11) “Retrospect and Outlook,” a summary discussion including next steps.

Eight patients were assigned to the group treatment, and 7 patients acted as a control group (though not randomly assigned) and were placed on a wait list. Four of the 7 patients in the control group, however, were lost to follow-up, and the authors used the last observation carried forward for this group. Separate within-subject (pre-post) tests were performed for the treatment group and the comparison group. The treatment group had significant improvements on measures of depression, a checklist of ADHD symptoms following the DSM-IV,¹⁶ and other measures of psychopathology and impairment. The control group did not achieve any significant differences. The authors report that those who participated regarded

the group treatment as helpful, and none dropped out or had significant difficulty with attending sessions regularly and on time. Despite the threats to internal validity, this study provides evidence for patient acceptability as well as some encouraging outcome evidence for a structured skills-training intervention targeting adults with ADHD.

Randomized Trials of Psychosocial Treatments

One Australian research group recently examined both therapist-delivered¹⁷ and self-directed¹⁸ psychosocial treatments for adults with ADHD. Their therapist-delivered study was a cognitive remediation program delivered in eight 2-hour group sessions by a clinical psychologist. The sessions involved strategies to cope with ADHD, homework exercises, and a manual and participant workbook. Additionally, the treatment required involving a supportive person for between-session contact. The supportive person could be someone the patients already knew or, if they could not identify someone, a trained undergraduate student. The supportive person's role was to assist with reminders to attend sessions, take notes, and help with homework.

Twenty-two individuals were randomly assigned to the treatment group, and 21 were assigned to the waiting list control. Some of the patients were on treatment with medications (stabilized), and others were not. Self-report assessments occurred at pretreatment, posttreatment (and a time-matched interval for those in the control group), and follow-ups. At the posttreatment assessment, individuals assigned to the treatment condition reported reduced ADHD symptoms, better organizational skills, and reduced anger problems. Many of the gains were maintained at 1-year follow-up. Although the study was limited by the use of self-report for the major study assessments, this study revealed that providing a psychosocial treatment for adults with ADHD is a viable treatment option that can yield both clinically and statistically significant reductions in symptoms.

The same clinical research group also developed and tested a similar intervention, adapted for minimal therapist contact.¹⁸ In this vein, they utilized a self-help book that included the following topics: (1) education about ADHD, (2) how to overcome attention and motivational difficulties, (3) listening skills, (4) organizational skills, (5) impulse control techniques, (6) cognitive strategies for anger management, and (7) cognitive strategies for self-esteem. Only 3 therapist-led sessions were included, which were geared toward review and monitoring of progress. Similar to the method in the original study, participants were assigned to a support person; however, in this study all of the support people were trained undergraduate and graduate students.

Seventeen individuals (on stable medication treatment or not medicated) were assigned to the treatment group, and 18 were assigned to the control group. Statistically significant differences emerged between the 2 groups in the outcome measures: reduced ADHD symptom severity,

improvement in organizational skills and self-esteem, and reduction in anger. These gains were maintained at the 2-month follow-up. Similar to the previous study, outcome measures were self-reported; however, again, these findings add to the existing literature in that they (1) further demonstrate the ability of a psychosocial intervention to help adults with ADHD and (2) provide an interesting way of combining self-help with the use of a nonprofessional supportive person to enhance motivation and strategies for change.

Randomized Study of CBT for ADHD at Massachusetts General Hospital

Our clinical research group recently completed a randomized controlled trial of CBT for adult ADHD at Massachusetts General Hospital in Boston.¹⁹ Before starting the study, we sought to follow a logical and empirical approach to behavioral therapy development.²⁰ Hence, to help solidify the content of the treatment, we conducted a series of interviews with 11 individuals (9 men, 2 women) with ADHD who had been treated with medications but did not achieve a full response. ADHD was assessed using the Schedule for Affective Disorders and Schizophrenia for School Age Children²¹ questions worded in the past and present tenses. These clinical interviews focused on obtaining information about difficulties patients were experiencing that might be amenable to a cognitive-behavioral treatment. In these interviews, 10 of the 11 individuals reported problems that could be categorized as relating to difficulties with organizing and planning tasks, all 11 reported problems that could be categorized as relating to distractibility, and all 11 reported secondary mood (anxiety and depressive) symptoms. Additionally, between half and three fourths of the individuals reported problems that were associated with procrastination, anger or frustration management, and communication skills. On the basis of these interviews and clinical experience, we formulated our treatment to include a module on each of these 6 domains of impairment.

The next step in this program of psychotherapy development was to conduct a small-scale randomized controlled trial to estimate the effect of these treatment modules.¹⁹ After that, the group made minor revisions to the treatment approach (see Safren et al.^{22,23} for therapist guide and participant workbook for the revised treatment), and we are now conducting a full-scale efficacy study comparing the treatment with an alternate treatment. Below is a description of the treatment that was utilized in this first study,¹⁹ followed by a discussion of the results.

The cognitive-behavioral treatment was organized into 6 modules—3 being “core modules” in that all participants received them, and the other 3 being optional. The 3 core modules were (1) organizing and planning, (2) distractibility, and (3) cognitive restructuring (adaptive thinking). The 3 optional modules were (1) procrastination,

(2) anger and frustration management, and (3) communication skills. Those who did not choose an optional module could review skills from previous modules so that 12 to 15 sessions would occur. The treatment was structured: after the first session, each session involved homework, and the beginning of each session involved review and practice of this homework and of previously learned skills.

Module 1: organizing and planning. This series of sessions starts with a rationale for the CBT interventions to follow and involves a discussion of our conceptual model of ADHD. At the end of the first session in this set, homework involves initiating or refining a calendar and task-list (notebook) system. Therapists instruct the patients about using the notebook instead of any additional paper reminders (e.g., scrap paper, sticky notes) to reduce the chances of important information being misplaced. The notebook also becomes the location for the patient's task list. In all sessions to follow, the therapist and the patient review the task list, and patients refine and update the system. The notebook and calendar are key components of future skills to be covered in the remaining sessions. Some participants opted to use electronic versions (i.e., palmtop computers) for the calendar and task list/notebook system.

This module also contains training or retraining in problem-solving skills.²⁴ Problem-solving skills seek to reduce the "overwhelming" nature of external demands by breaking larger (avoided) tasks into manageable steps. The purpose of having smaller, manageable steps is to reduce the likelihood of avoidance. In addition, for problems for which an action plan is needed, patients learn to generate a range of options, evaluate the pros and cons of each, and select the best option to try.

Finally, patients learn a system by which to prioritize their existing tasks. This system involves rating tasks as "A" (primary), "B" (secondary), or "C" (tertiary) with respect to importance. Prioritizing tasks in this fashion can help patients make informed choices about how they spend their time and can help them realize the difference between tasks that are appealing and easy to complete (C tasks) versus tasks that are important, but may require several steps.

Module 2: distractibility. In this module, the therapist and patient seek to determine the limits of a patient's attention through homework and the use of a timer. After this, patients are taught to divide goal-directed activities into steps that correspond to the length of time of their attention span. Hence, the distractibility module ties directly into the previous problem-solving module. When patients are working on a task and distracting thoughts arise, they learn to write down the distraction so that these topics can receive attention after the work segment is over. This procedure is adopted from "worry time" interventions used in anxiety management and worry control procedures.²⁵

An additional tool in this module involves learning to delay distractions. While working, patients use a wrist

watch or other alarm set for predetermined time intervals. When the alarm sounds, patients are instructed to assess whether they have been distracted from the main task at hand and, if so, to return to that task. This module also teaches techniques for scheduling breaks and reducing external environmental distractions (e.g., Internet, telephone).

Module 3: adaptive thinking (cognitive restructuring). The last core module focuses on helping patients think adaptively in stressful or distressing situations. Procedures for cognitive restructuring for ADHD are adapted from those outlined by Beck.²⁶ For patients with ADHD, identifying automatic thoughts can be a useful exercise because it can help them slow down their thinking and identify and evaluate the role of these thoughts in making a decision to avoid a task that is perceived as unpleasant.

Optional modules. In this first study,¹⁹ we utilized optional modules for coping with procrastination, anger management, communication skills, and relationship problems. Each of the optional modules was 1 or 2 sessions long and mainly involved adapting previously learned skills to these topics. However, as we delivered the treatment, we learned that adding new topics was, for many participants, quite difficult. The core modules alone involve a great deal of behavioral change. Hence, in the revised treatment,^{22,23} we dropped the modules on communication skills and anger/frustration management, as these were not chosen frequently in the first study. We retained the procrastination module as an optional module, as many participants found this necessary. Finally, we added a session with a spouse or significant other to attempt to help facilitate the treatment in the home setting.

This 2-arm randomized controlled trial (N = 31) found the cognitive-behavioral treatment described to be superior to continued medications alone.¹⁹ Individuals eligible for enrollment were adults between the ages of 18 and 65 years who were stable on treatment with medications for ADHD (no more than a 10% change in dose for the past 2 months), had a principal diagnosis of ADHD including childhood onset and moderate illness severity according to the Clinical Global Impressions-Severity of Illness scale (CGI-S)²⁷ (score of 4 or above), and were able to give informed consent and comply with study procedures. Those who had moderate-to-severe major depressive disorder, clinically significant panic disorder, organic mental disorders, psychotic spectrum disorders, bipolar disorder, active substance abuse or dependence, pervasive developmental disorder, active suicidality, history of CBT, or estimated verbal IQ of less than 90 were excluded.

Participants completed a battery of self-report measures and an independent evaluation with an assessor who was blind to treatment assignment. Both the self-report battery and the independent assessment contained scales for ADHD symptoms, anxiety, and depression. The independent assessment also contained a rating of global illness

REFERENCES

severity for ADHD, using the CGI-S.²⁷ Assessments occurred at baseline and at the end of the CBT treatment (or approximately 3 months later for those in the control group). At the outcome assessment, those who were randomly assigned to CBT had less severe independent assessor-rated ADHD symptoms and lower global severity, as well as less severe self-reported ADHD symptoms, than those randomly assigned to continued psychopharmacology alone. Those in the CBT group also had less severe independent assessor-rated and self-reported anxiety, reduced independent assessor-rated depression, and a trend toward less severe self-reported depression.

In this study, we also conducted analyses to rule out the possibility that improvement in ADHD symptoms was due to improvements in depression, which is known to be amenable to CBT. CBT continued to show superiority over continued psychopharmacology alone when levels of depression or changes in depression in analyses of core ADHD symptoms were statistically controlled for.

Finally, we examined the number of treatment responders in each condition, using a conservative outcome of a CGI-S score reduction of 2 points or more. With the use of this method, there were significantly more treatment responders among patients who received CBT (56%) compared with those who did not (13%).¹⁹

Conclusions and Future Directions

Although published guidelines for the treatment of ADHD call for the use of psychotherapy with medications, empirical investigations of psychotherapeutic approaches are just beginning. While there are few studies, those that do exist reveal that skills-based psychotherapeutic approaches can significantly add to the benefit achieved by medications. Our approach^{22,23} involves structured training in the areas that we consider to be key to maintenance of ADHD symptoms. Cognitive-behavioral approaches may be particularly useful for adults with ADHD because the structured nature of the sessions allows the patient and the therapist to follow a specific agenda relevant to the patient's goals and therefore stay on target with the goals of the treatment.

The approach we describe has shown benefit in a randomized controlled trial compared with continued medications alone, and future research will allow us to test its efficacy against a comparison psychosocial treatment. Future study will also allow us to examine the effects of these types of interventions targeting adolescents. Although ADHD is primarily a neurobiological disorder, emerging evidence suggests that this skills-building approach can have statistically and clinically significant effects for adults with this chronic and impairing disorder.

Disclosure of off-label usage: The author has determined that, to the best of his knowledge, no investigational information about pharmaceutical agents that is outside U.S. Food and Drug Administration-approved labeling has been presented in this article.

1. Wilens TE, Biederman J, Spencer TJ. Pharmacotherapy of attention deficit hyperactivity disorder in adults. *CNS Drugs* 1998;9:347-356
2. Wilens TE, Spencer TJ, Biederman J, et al. A review of the pharmacotherapy of adults with attention-deficit/hyperactivity disorder. *J Atten Disord* 2002;5:189-202
3. Biederman J, Wilens T, Spencer T, et al. Diagnosis and treatment of adult attention-deficit/hyperactivity disorder. In: Pollack M, Otto M, Rosenbaum J, eds. *Challenges in Clinical Practice*. New York, NY: Guilford Press; 1996:380-407
4. Wender PH. Pharmacotherapy of attention-deficit/hyperactivity disorder in adults. *J Clin Psychol* 1998;59:76-79
5. Wilens TE, Spencer TJ, Biederman J. Pharmacotherapy of adult ADHD. In: Barkley R, ed. *Attention Deficit Hyperactivity Disorder: A Handbook for Diagnosis and Treatment*. New York, NY: Guilford Press; 1998:592-606
6. McDermott SP. Cognitive therapy of adults with attention-deficit/hyperactivity disorder. In: Brown T, ed. *Attention Deficit Disorders and Comorbidity in Children, Adolescents, and Adults*. Washington, DC: American Psychiatric Press; 2000:569-606
7. Nadeau KG. Life management skills for the adult with ADD. In: Nadeau KG, ed. *A Comprehensive Guide to Attention Deficit Disorder in Adults: Research, Diagnosis, and Treatment*. New York, NY: Brunner/Mazel; 1995:191-217
8. Murphy KR. Psychological counseling of adults with ADHD. In: Barkley R, ed. *Attention Deficit Hyperactivity Disorder: A Handbook for Diagnosis and Treatment*. New York, NY: Guilford Press; 1998:582-592
9. Hallowell EM. Psychotherapy of adult attention deficit disorder. In: Nadeau KG, ed. *A Comprehensive Guide to Attention Deficit Disorder in Adults: Research, Diagnosis, and Treatment*. New York, NY: Brunner/Mazel; 1995:146-167
10. Safren SA, Sprich S, Chulvick S, et al. Psychosocial treatments for adults with attention-deficit/hyperactivity disorder. *Psychiatr Clin North Am* 2004;27:349-360
11. Barkley R. *ADHD and the Nature of Self-Control*. New York, NY: Guilford Press; 1997
12. Quay HC, Focacci M, Quayle AJ, et al. Inhibition and attention deficit hyperactivity disorder: optimized assay for antisperm cell-mediated immunity. *J Abnorm Child Psychol* 1997;25:7-13
13. Wilens TE, McDermott SP, Biederman J, et al. Cognitive therapy in the treatment of adults with ADHD: a systematic chart review of 26 cases. *J Cogn Psychother* 1999;13:215-227
14. Hesslinger B, Tebartz van Elst L, Nyberg E, et al. Psychotherapy of attention deficit hyperactivity disorder in adults: a pilot study using a structured skills training program. *Eur Arch Psychiatry Clin Neurosci* 2002;252:177-184
15. Linehan M. *Cognitive-Behavioral Treatment of Borderline Personality Disorder*. New York, NY: Guilford Press; 1993
16. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*. Washington, DC: American Psychiatric Association; 1994
17. Stevenson CS, Whitmont S, Bornholt L, et al. A cognitive remediation programme for adults with attention deficit hyperactivity disorder. *Aust N Z J Psychiatry* 2002;36:610-616
18. Stevenson CS, Stevenson RJ, Whitmont S. A self-directed psychosocial intervention with minimal therapist contact for adults with attention deficit hyperactivity disorder. *Clin Psychol Psychother* 2003;10:93-101
19. Safren SA, Otto MW, Sprich S, et al. Cognitive-behavioral therapy for ADHD in medication-treated adults with continued symptoms. *Behav Res Ther* 2005;43:831-842
20. Rounsaville BJ, Carroll KM, Onken LS. A stage model of behavioral therapies research: getting started and moving on from stage I. *Clin Psychol Sci Pract* 2001;8:133-142
21. Orvaschel H. Psychiatric interviews suitable for use in research with children and adolescents. *Psychopharmacol Bull* 1985;21:737-745
22. Safren SA, Sprich S, Perlman CA, et al. *Mastering Your Adult ADHD: A Cognitive-Behavioral Treatment Program. Client Workbook*. New York, NY: Oxford University Press; 2005
23. Safren SA, Perlman CA, Sprich S, et al. *Mastering Your Adult ADHD: A Cognitive Behavioral Treatment Program. Therapist Guide*. New York, NY: Oxford University Press; 2005
24. D'Zurilla TJ, Nezu AM. *Problem-Solving Therapy: A Social Competence Approach to Clinical Intervention*. New York, NY: Springer; 1999
25. Craske MG, Barlow DH, O'Leary TA. *Mastery of Your Anxiety and Worry: Client Workbook*. Denver, Colo: Graywind Publications; 1992
26. Beck J. *Cognitive Therapy: Basics and Beyond*. New York, NY: Guilford Press; 1995
27. National Institute of Mental Health. CGI Clinical Global Impression Scale-NIMH. *Psychopharmacol Commun* 1985;21:839-844