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# Brief Cognitive Behavioral Therapy for College Students With ADHD: A Case Series Report

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*Attention-deficit/hyperactivity disorder (ADHD) is often diagnosed in childhood but persists into adulthood in many cases. This disorder, which is defined by the core symptoms of IA and HI, is also associated with impairment in academic settings, interpersonal relationships, and behavioral risk taking. While ADHD is most often treated with medication (e.g., stimulants), brief psychosocial treatments have also been shown to produce improvement in adults with ADHD, although these have not been adequately tested in college-age populations. The current study tested a brief, eight-session cognitive-behavioral protocol in a case-series design with four college students with ADHD. Participants completed measures tapping ADHD symptoms, anxiety, depression, and general impairment in academic, social, and employment domains. The findings indicate that the protocol may be useful as a short-term treatment option for college students with ADHD, warranting further study in controlled trials.*

ATTENTION-DEFICIT/HYPERACTIVITY disorder (ADHD) is a psychological disorder characterized by three core symptoms: inattention (IA), hyperactivity, and impulsivity (HI; American Psychiatric Association, 2013). While previously considered a childhood-limited disorder, research has conclusively showed that symptoms persist into adulthood in the majority of cases (Biederman et al., 2010; Faraone & Biederman, 2005; Fischer, Barkley, Smallish, & Fletcher, 2005; Kessler et al., 2005). Although hyperactivity tends to decline across time (Biederman, Mick, & Faraone, 2000; Mick, Faraone, & Biederman, 2004), the other core symptoms of ADHD can still cause adults considerable difficulties in time management, attention, planning, judgment, and coping, which are all associated with dysfunction in several life domains (e.g., education, work, relationships, and emotional well-being; Mannuzza, Klein, Bessler, Malloy, & LaPadula, 1998; Safren, Sprich, Cooper-Vince, Knouse, & Lerner, 2010). Research has also shown that those with ADHD are at elevated risk for other psychiatric disorders, particularly anxiety, mood, and substance use disorders, complicating assessment and treatment (Kessler et al., 2006; Sobanski et al., 2007). Moreover, not only do adults with ADHD attain less education and professional training as compared with nondiagnosed peers (Sobanski et al., 2007), they also

consistently lag behind in education and occupational attainment when compared with what is expected given their intellectual abilities (Biederman et al., 2008). Adults with ADHD also report more impairment in important critical day-to-day tasks, such as driving (e.g., higher rate of arrests, speeding tickets, accidents) as compared with those without ADHD (Antshel et al., 2009). Research has also indicated that a childhood diagnosis of ADHD is associated with risky sexual behavior in adulthood (e.g., more sexual partners, sexual encounters with strangers, unplanned pregnancies; Flory, Molina, Pelham, Gnagy, & Smith, 2006). The breadth of difficulties encountered by adults with ADHD underscores the importance of developing effective means of intervention with this population.

## Interventions for Adult ADHD

The neurobiological nature of ADHD would seem to lend itself to pharmacological treatment. Indeed, a substantial body of research establishes that medication (e.g., psychostimulants) reduces IA and hyperactivity in adults (Mészáros et al., 2009), while the response rate is noticeably lower than that in children (Wilens, Biederman, & Spencer, 1998; Wilens, Spencer, & Biederman, 2002) and negative side effects such as nausea, lowered appetite, and insomnia may give adult clients further pause when considering this intervention option. Moreover, adults with ADHD who present to outpatient psychiatric clinics typically do not show a high response rate to widely practiced psychodynamic or other “traditional” psychotherapeutic methods (Ramsay, 2010). Finally, while the alternative “ADHD coaching” offers psychoeducation and

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behavioral scaffolding, scant evidence documents its efficacy, and given that many coaches lack sufficient training in other forms of assessment and intervention this form of intervention might only be indicated as an adjunctive therapy (Goldstein, 2005).

Fortunately, evidence exists for efficacy of several other psychosocial treatments for ADHD in adults. Variants of cognitive-behavioral therapy (CBT) have been noted to be particularly fitting for the typical dysfunctions of that population. Safren, Otto, and colleagues (2005), for instance, reason that the core neurological deficits of the disorder often result in (a) a history of failure, underachievement, and relationship problems; and (b) an overarching lack of compensatory strategies such as organization, planning skills, and management of distractibility, which on a daily basis reinforce negative self- and ability-related cognitions. Such models may explain why many affected adults who are treated pharmacologically continue to experience impaired functioning, in that medication treats the core symptoms of ADHD but does not address dysfunction stemming from the lifelong struggle with disorder.

While not extensive, existent data from randomized clinical trials has documented the efficacy of (a) CBT plus pharmacotherapy as compared with pharmacotherapy alone (Safren, Otto, et al., 2005), (b) cognitive remediation as compared with wait-list (Stevenson, Whitmont, Bornholt, Livesy, & Stevenson, 2002), and (c) CBT or a similar metacognitive therapy<sup>1</sup> versus other active treatments (Safren, Sprich, Mimiaga, et al., 2010; Solanto et al., 2010). In addition, an open-label feasibility trial of mindfulness meditation, which can be construed as a metacognition intervention, also facilitated decreases in ADHD and other symptoms (Zylowska et al., 2008). Further, several case studies of CBT for adult ADHD have contributed to the literature by providing detailed information about treating individuals of different ages, backgrounds, and deficits (Mitchell, Nelson-Gray, & Anastopoulos, 2008; Ramsay & Rostain, 2005; Rosenfield, Ramsay, & Rostain, 2008). Thus, it seems reasonable to conclude that cognitive and behavioral therapies, broadly defined, facilitate improvement in adults with ADHD.

A review of this literature indicates, however, that most samples had a mean age over 40, with a notable dearth of typical college-age adult participants (ages 18–23 years). This is a meaningful gap, given that research suggests that college students with ADHD demonstrate strikingly lower academic achievement levels, higher relative rates of emotional problems and social concerns, and higher rates of substance

use (Blase et al., 2009). As Fleming and McMahon (2012) highlight in their review of the developmental context for college students with ADHD, success in undergraduate education may be particularly challenging for affected individuals due to (a) increased demands on self-regulation and management, organization, and planning combined with (b) a simultaneous loss of structure and support from parents and educators, and (c) a neurological system with not-yet-fully developed capacities. Moreover, even when pharmacological interventions produce reductions in core ADHD symptoms among college students, these students still fall substantially below their peers without ADHD in terms of executive functioning and continued psychosocial impairment (DuPaul et al., 2012). Further, most of the published studies on CBT for adult ADHD utilize 10 or more sessions (Knouse & Safren, 2010; see exception in Stevenson et al., 2002), which may pose adherence hurdles, particularly for typical college students with ADHD. In sum, this body of work suggests that special focus on psychosocial treatment for college students with ADHD is warranted.

### Current Study

Given that most controlled trials of CBT have included 10 or more treatment sessions and samples have been largely composed of middle-aged adults, more detailed research on the efficacy of briefer protocols in younger populations is warranted. An eight-session CBT protocol could more readily be completed in one semester at a college or university, making it amenable to use by campus counseling centers, which typically cap services to cope with increased client loads (Stone & McMichael, 1996). Furthermore, some evidence suggests that the number of completed therapy sessions is not predictive of outcome in CBT (Kraft, Puschner & Kordy, 2006), suggesting that an abbreviated protocol may be efficacious while also being more cost-effective. The current study examines the use of an abbreviated CBT protocol, adapted from Safren, Perlman, Sprich, and Otto (2005), to gather more detailed qualitative and quantitative information on its efficacy for treating college students with ADHD. The abbreviated protocol consists of 8 sessions, representing a 33% reduction from the original protocol, which consisted of 12 sessions (Safren, Perlman, et al., 2005). It was hypothesized that completion of the intervention would facilitate functional gains and diminish symptoms of ADHD, and that participants would express satisfaction with the treatment method and content.

### Method

#### Participants

Four participants were recruited via staff referrals and flyers from those seeking services at a psychology department training clinic and other on-campus service providers at a public university. All participants were between 19 and 25 years old and attending the university

<sup>1</sup> The metacognitive protocol of Solanto and colleagues (2010) is based on cognitive-behavioral theory and is fairly similar to the protocol designed by Safren, Perlman, Sprich, and Otto (2005) with respect to content.

or a community college in a rural town in the Southeastern United States. All had a documented diagnosis of ADHD-C (50%) or ADHD-IA (50%; see details in Procedures, below). Comorbid anxiety or depression were not exclusion criteria, and only one participant (25%) met criteria for a comorbid disorder. Participants currently taking medication for ADHD were asked not to deviate from their current regimen during treatment. No compensation was provided, though participants were permitted to keep the materials they used (e.g., therapy workbook). Further details regarding participant characteristics appear in the case-specific sections below.

## Measures

In addition to demographic questions that were administered in a semistructured interview and follow-up questionnaire, the following specific measures were administered.

### *Adult Interview*

The Adult Interview (Barkley & Murphy, 2006) is a semistructured interview covering DSM-IV-TR (American Psychiatric Association, 2000) criteria for ADHD and commonly comorbid disorders. This measure has been shown to be sensitive to the presence of ADHD in adults (Barkley, Fischer, Edelbrock, & Smallish, 1990), and was included as a clinician evaluation tool for that condition. Additional questions clarified nicotine and alcohol consumption patterns.

### *Current Symptoms Scale (CSS)*

The CSS (Barkley & Murphy, 2006) is an 18-item self-report that uses a 4-point scale (0 = *not at all*, 3 = *very often*) to assess current DSM-IV-TR (American Psychiatric Association, 2000) symptoms of ADHD. The CSS has shown satisfactory psychometric properties, with a Cronbach's alpha of .80 for IA and .73 for HI scales (Fedele, Hartung, Canu, & Wilkowski, 2010).

### *Conners Adult ADHD Rating Scale-Self-Report: Long Version (CAARS)*

This measure (Conners et al., 1999) adheres to DSM-IV-TR ADHD criteria (American Psychiatric Association, 2000) and indexes the past 6 months' behavior. Four subscales were used: DSM-IV IA and HI symptoms (9 items each), the ADHD index (12 items, e.g., "I can't get things done unless there's an absolute deadline"), and problems with self-concept (6 items; e.g., "I act okay on the outside, but on the inside I'm unsure of myself"). The latter was of particular interest, and figured in the inclusion of the CAARS to supplement the CSS (see above). Responses are on a 4-point scale (0 = *not at all, never*; 3 = *very much, very frequently*). The CAARS is psychometrically strong, with coefficient alphas ( $\alpha$ ) from .86 to .92, test-retest  $r = .89$ , and expected associations with other measures (Erhardt, Epstein, Conners, Parker, & Sitarenios, 1999).

### *Weiss Functional Impairment Rating Scale, Self-Report (WFIRS-S)*

The WFIRS-S (Weiss et al., 2007) is designed to measure functional impairment associated with ADHD in seven domains: family (8 items), work (11 items), school (11 items), life skills (12 items), self-concept (5 items), social (9 items), and risky behavior (14 items). Responses are scaled and indicate if problems occur *never* (0), *sometimes* (1), *often* (2), or *very often* (3). Impairment is considered to be present in any domain with two items = 2 or one item = 3. Mean item scores are reported for each domain in which the threshold for impairment was met. Psychometric properties of the WFIRS are good, with internal consistency coefficients above .80 for each domain and for the measure as a whole (Weiss et al., 2007).

### *Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I)*

The SCID-I (Spitzer, Williams, Gibbon, & First, 1992) assesses the occurrence of symptoms of disorders from Axis I of the DSM-IV-TR (past month and lifetime), and was included to evaluate for possible conditions comorbid to (or subsuming) ADHD. Independent studies have reported interrater reliability for the SCID-I to be generally satisfactory across diagnoses (kappa .61–.83,  $M = .71$ ; Lobbestael, Leurgans, & Arntz, 2010). The SCID-I screener was employed, with follow-up administration of indicated modules only.

### *Beck Depression Inventory-II (BDI) and Anxiety Inventory (BAI)*

The BDI (Beck, Steer, & Brown, 1996) and BAI (Beck & Steer, 1990) are commonly used self-reports (21 items apiece) with excellent psychometric properties that tap symptoms of depression and anxiety. Responses range from 0 to 3 (0 = *not at all present/not at all upsetting*, 3 = *strongly present/severely upsetting*) and are summed to determine an individual's total score. Scores are classified as minimal (BDI 0–13, BAI 0–7), mild (BDI 14–19, BAI 8–15), moderate (BDI 20–28, BAI 16–25), or severe (BDI 29+, BAI 26+).

### *Clinical Global Impression Scale (CGI)*

The CGI (Guy, 1976) is a commonly used expert-rater measure of treatment effects. The severity of illness and global improvement items, used herein as per procedures of Safren, Otto, et al. (2005), are rated on a 7-point scale. For severity of illness, lower scores indicate better psychological functioning, and lower global improvement scores indicate an improvement in symptoms and functioning. The CGI was completed jointly by the first and second authors.<sup>2</sup>

<sup>2</sup>The same rater who performed treatment integrity checks (see below) also designated CGI ratings as an informal reliability check. Overall, agreement with the original rating was adequate; all instances of differences minimal in magnitude (i.e., 1 point) and in a more lenient direction (i.e., indicating lower impairment than noted herein).

### Outcome Questionnaire 30.2 (OQ-30)

The OQ-30 (Lambert et al., 1996) is a 30-item self-report that is often used and is designed to be sensitive to change across even brief intervention periods. Dimensions of functioning measured include social role, interpersonal, and subjective discomfort. The OQ-30 has demonstrated high internal consistency ( $\alpha = .93$ ) and satisfactory concurrent validity with other measures (e.g.,  $r = .7$  with Symptom Checklist-90-R,  $r = .60$  with BDI; Lambert et al., 1996).

### Treatment Satisfaction Survey

This questionnaire, adapted from Canu and Bearman (2011), consists of five items assessing participant satisfaction and impressions of the treatment. Example items include “How satisfied were you with this intervention?” and “How useful are the techniques you’ve learned so far?” Responses are scaled (1 = *not at all*, 5 = *very*), with a mean item score reported. Internal reliability has been found to be good ( $\alpha = .81$ ; Canu & Bearman, 2011). Qualitative data regarding treatment impressions were tapped with four additional questions; examples include “What aspects (if any) of the treatment led to

improvement of your symptoms or adjustment?” and “Overall, is there anything you would change about this treatment?”

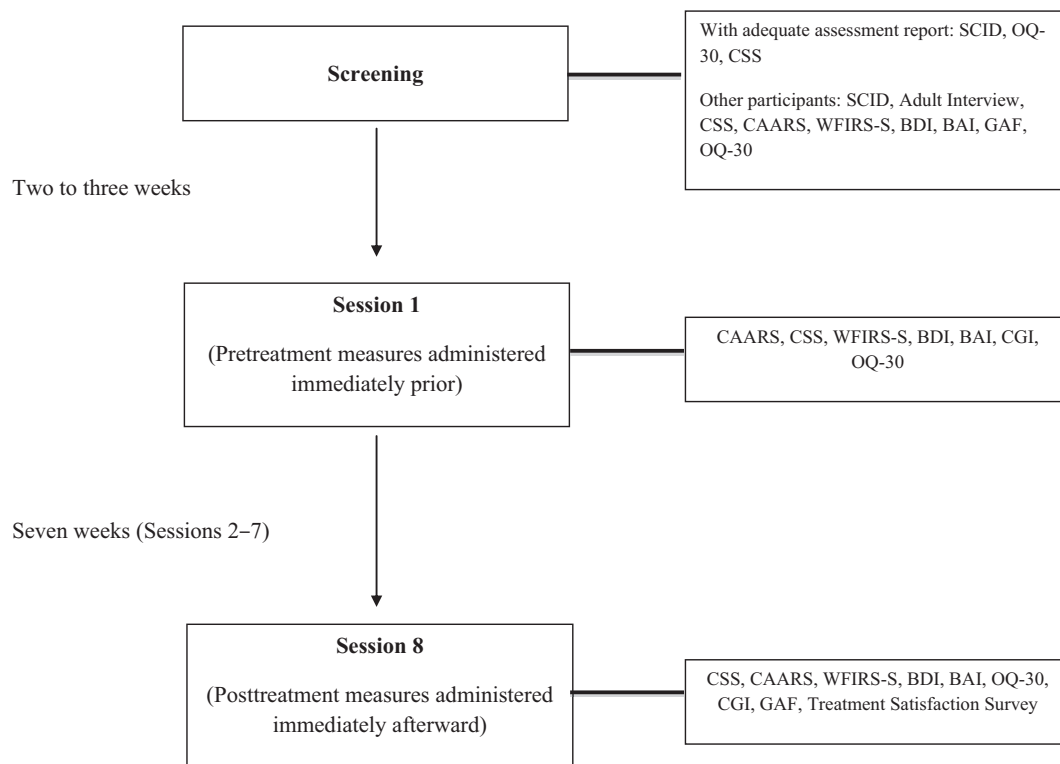
## Procedures

### Design and Assessment

During individual screening interviews (see below), participants provided informed consent. While limited treatment-tracking data was collected at each of the sessions, the primary evaluation points were at pre- and posttreatment (i.e., before Session 1, after Session 8). Further details follow (also see Figure 1).

### Screening Session

Potential participants were instructed to bring corroborating ADHD assessment reports to the screening. The SCID was administered to all participants and, in the absence of adequate prior psychological assessment documentation, all other measures described above (save the OQ-30.2, CGI, and satisfaction survey) were administered to determine eligibility. A current GAF score was assigned, based on available information and consensus between the first and second authors (master’s trainee and licensed clinical psychologist,



**Figure 1.** Timeline and assessment measures used throughout treatment. *Note.* SCID = Structured Clinical Interview for DSM-IV; OQ-30 = Outcome Questionnaire; CSS = Current Symptoms Scale; CAARS = Conners Adult ADHD Rating Scale; WFIRS-S = Weiss Functional Impairment Rating Scale, Self-Report; BDI = Beck Depression Inventory; BAI = Beck Anxiety Inventory; GAF = Global Assessment of Functioning; CGI = Clinical Global Impression Scale.



Table 1  
Original Protocol Sessions and Descriptions

Session	Title	Content
<b>Module One</b>		
1	Psychoeducation and Introduction to Organization and Planning Skills	Provide psychoeducation about ADHD, set client goals and provide overview of treatment, and introduce notebook and calendar systems
2	Involvement of Family Member	Not included
3	Organization of Multiple Tasks	Teach skills pertaining to management of multiple tasks and prioritizing tasks
4	Problem Solving and Managing Overwhelming Tasks	Teach skills pertaining to problem solving and work on breaking down problem into small, manageable parts
5	Organizing Papers	Not included
<b>Module Two</b>		
6	Gauging Attention Span and Distractibility Delay	Teach skills pertaining to gauging attention span, go over how to break down tasks into parts corresponding to attention span, and teach the distractibility delay technique
7	Modifying the Environment	Teach techniques to help manage distractibility in work environment, and engage in problem solving with client to address common distractions
<b>Module Three</b>		
8	Introduction to a Cognitive Model of ADHD	Present CBT model for ADHD, teach skills pertaining to the identification of automatic thoughts, utilize thought records to identify negative thoughts and thinking errors, and discuss how to label thinking errors
9	Adaptive Thinking	Review thought records and discuss the formulation of a rational response to negative automatic thoughts
10	Rehearsal and Review of Adaptive Thinking Skills	Not included
<b>Module Four</b>		
11	Application of Skills to Procrastination	Use a "pros and cons" exercise to identify the attractive aspects and negative consequences of procrastination, and go over how to use problem-solving skills and adaptive thinking techniques to manage procrastination
12	Relapse Prevention	Review strategies and skills learned over the course of treatment, address how to maintain gains, and discuss how to deal with possible problems in the future

*Note.* Sessions in boldface type were retained in full or presented in abbreviated or combined format in the brief protocol.

respectively). All participants met full DSM-IV-TR ADHD diagnostic criteria at screening.

#### *Pretreatment Assessment*

Prior to the start of the first session, each participant completed the CAARS, CSS, WFIRS-S, BDI, and BAI, and was assessed with the CGI.

#### *Posttreatment Assessment*

The posttreatment outcome assessment immediately followed the last session, and included the CSS, CAARS, CGI, WFIRS-S, BDI, BAI, and the treatment satisfaction survey. At the end of the assessment, participants were assigned a GAF score based on all available clinical data. Participants were also invited to give their subjective

impressions of the usefulness of the treatment and its impact on their daily functioning.

#### *Additional Qualitative Assessment*

Therapy sessions were videotaped and reviewed by the first author to enhance treatment delivery and for additional qualitative data regarding treatment response. An independent evaluator examined 25% of the treatment sessions for integrity of treatment delivery. Specific sessions observed across participants were as follows: Participant 1, Sessions 1 and 5; Participant 2, Sessions 2 and 6; Participant 3, Sessions 3 and 7; Participant 4, Sessions 4 and 8. The evaluator found that the administration of the protocol in all sessions was faithful to the design.

### *Treatment Protocol*

The treatment consisted of eight, hour-long weekly sessions adapted from *Mastering Your Adult ADHD* (Safren, Perlman, et al., 2005; see Table 1). The original protocol organizes 12 sessions into 4 modules. Sessions were eliminated based on low apparent relevancy to college students to abbreviate treatment. Two sessions were eliminated from the first module, entitled Psychoeducation, Organization, and Planning, leaving: (a) Psychoeducation and Introduction to Organization and Planning Skills, (b) Organization of Multiple Tasks, and (c) Problem Solving and Managing Overwhelming Tasks. The second module, on reducing distractibility, retained all of the original protocol's content, with two sessions entitled (a) Gauging Attention Span and (b) Distractibility Delay and Modifying the Environment. Two of the three original sessions from the adaptive thinking module were retained to present the cognitive model and teach adaptive thinking—that is, (a) Introduction to a Cognitive Model of ADHD, and (b) Adaptive Thinking. The fourth module, Additional Skills (i.e., Application of Skills to Procrastination and Relapse Prevention), was covered in one session. In addition, a graduate student assistant conducted one brief (i.e., 5- to 10-minute) support phone call to each participant per week, during which guidance and assistance with treatment techniques and homework were provided, as necessary, and a reminder given regarding the subsequent scheduled session time. This is keeping with the structure of the original intervention of Safren, Otto, et al. (2005). Participants were given the *Mastering Your Adult ADHD* (Safren, Perlman, et al., 2005) client workbook for their personal use during treatment.

## **Results**

### **Case Presentation: Participant 1**

Anna<sup>3</sup> was a 19-year-old Caucasian female and a second-semester college freshman. She presented with time management and organization concerns, and reported that although she was highly motivated, she still found it difficult to study effectively, which often led to personal distress. Anna noted that her parents described her as “difficult” in childhood, and she had problems sitting still, interrupting others, and sustaining her attention across settings. She reported getting in trouble at school, and described herself as excitable. In third grade, a psychiatrist diagnosed her with ADHD-C and prescribed a medication regimen. She has continued her pharmacotherapy (currently 54 mg Concerta and 50 mg Zoloft/day). Anna reported making good grades (A's and B's) before college, though her grades declined substantially as an undergraduate. Anna described

<sup>3</sup> Pseudonyms are utilized throughout this document to protect the confidentiality of participants.

finding the expectations of college coursework difficult and anxiety provoking (e.g., regarding future academic prospects). In addition to current challenges in school, Anna reported significant difficulties relating to a roommate resulting in Anna moving to a single room, as well as impulsive behavior that upset other friends. Anna reported no significant substance use.

### *Progress in Treatment*

At her screening session, Anna had elevations on the CAARS problems with self-concept, DSM-IV IA and HI symptoms, and ADHD index scales (see Table 2 for detailed screening, pre-, and posttreatment scores), and she endorsed three symptoms of IA and seven of HI on the CSS. On the WFIRS, Anna reported impairment in work (two items = 2), life skills (one item = 3), social (three items = 2, one item = 3), and risk (two items = 2, one item = 3) domains. Anna reported moderate levels of depressive and anxious symptoms (BDI = 23, BAI = 26), and the clinical interview indicated social phobia and generalized anxiety disorder comorbidities. Anna's OQ-30 score was at the 86.4th percentile of psychiatric impairment, compared with a normative sample. Anna was assigned a GAF score of 54. Anna described her goals for treatment as “learning to work more effectively” and “to manage impulsivity.”

At study initiation (i.e., pretreatment),<sup>4</sup> Anna had high scores on DSM-IV IA symptoms, DSM-IV HI symptoms, and ADHD index scales on the CAARS. On the WFIRS, Anna reported impairment in work (two items = 2), social (two items = 2), and risk (two items = 3) domains. On the CSS, she endorsed two IA and seven HI symptoms. Her BDI score (8) signaled less depressive symptomatology but her BAI score (16) was relatively consistent as compared with screening. Anna's OQ-30 report equated to the 75.8th percentile. Overall, she was assigned a CGI-severity score of 5 at baseline.

At posttreatment, Anna's IA symptoms as measured by the CAARS DSM-IV IA symptoms scale had reduced slightly ( $T = 63$ , from 65 at initiation) into the normal range, but this change did not exceed the range of possible measurement error. Furthermore, Anna's ADHD index score increased from 68 to 75 on pre- to posttreatment measurements. While the latter was an improvement from her screening score of 82, it remained in the clinical range. Anna reported no change on CSS symptoms, as compared with pretreatment. Anna exhibited negligible depression and minimal anxiety (BDI = 6, BAI = 11), representing an improvement from both her screening session scores and her scores at study initiation. On the WFIRS, Anna no longer reported impairment in

<sup>4</sup> Reminder: Study initiation was subsequent to screening; therefore, scores vary between the two.

Table 2  
Screening, Pretreatment, and Posttreatment Scores

Measure	Participant 1			Participant 2			Participant 3			Participant 4		
	Screen	Pre-Tx	Post-Tx	Screen	Pre-Tx	Post-Tx	Screen	Pre-Tx	Post-Tx	Screen	Pre-Tx	Post-Tx
DSM-IV IA	69	65	63	–	90	90	61	77	39	77	77	77
DSM-IV HI	84	84	84	–	64	59	51	56	36	49	54	46
Problems with self-concept	69	57	59	–	68	63	38	49	36	53	49	44
ADHD index	82	68	75	68	71	65	45	50	36	55	55	48
CSS-IA	3	2	2	8	8	9	6	3	0	9	4	4
CSS-HI	7	7	7	7	5	2	4	3	0	4	0	0
WFIRS-Family	0.38	0.25	0.13	–	0.86	0.25	0.25	0.13	0	0.43	0.5	0.25
WFIRS-Work	0.72	0.73	1.09	–	0.91	0.45	0.64	0	0	0.27	0.18	0.18
WFIRS-School	0.27	0.27	0.73	–	1.91	1.73	0.45	0.64	0	1	1.09	1.18
WFIRS-Life Skills	0.58	0.5	0.33	–	0.92	0.25	0.83	0.58	0	0.67	0.75	0.58
WFIRS-Self-Concept	1.2	1	1	–	2	1	1.2	0.4	0	0.6	0.2	0.4
WFIRS-Social	1.2	1	0	–	0.5	0.11	0	0.11	0	0.11	0	0.11
WFIRS-Risk	0.85	0.5	1	–	1.2	0.14	0.29	0.36	0	1	0.79	0.71
BDI	23	8	6	–	13	7	7	1	0	5	2	5
BAI	26	16	11	–	3	1	5	3	5	21	7	6
OQ-30	45	39	18	59	53	30	19	4	5	35	32	22
CGI-severity	–	5	4	–	5	4	–	2	2	–	4	3
GAF	54	–	71	51	–	74	61	–	85	58	–	71

*Note.* Scores for the CAARS subscales (DSM-IV IA; DSM-IV HI; ADHD index, problems with self-concept) are *T* scores. CSS IA and CSS HI scores are positive symptom counts. WFIRS domain scores are composite scores, with higher scores indicating more impairment. BDI and BAI scores are symptom counts of depressive and anxiety symptoms, respectively. Scores for the OQ-30 are composite scores, reflect degree of impairment, and are highly sensitive to change over time and treatment. IA = inattention; HI = hyperactivity and impulsivity; CSS = Current Symptoms Scale; WFIRS = Weiss Functional Impairment Rating Scale; BDI = Beck Depression Inventory; BAI = Beck Anxiety Inventory; OQ-30 = Outcome Questionnaire; CGI = Clinical Global Impression Scale; GAF = Global Assessment of Functioning.

the social domain, but continued to do so in work (two items = 2, one item = 3) and risk (four items = 2) domains. She also noted impairment in school (three items = 2), which was not present at pretreatment.

Anna's score on the OQ-30 was improved at posttreatment (15.9th percentile). At study initiation, Anna reported that she sometimes felt irritated and nervous, and felt stressed at work, school, or other daily activities. In contrast, at posttreatment Anna reported that she rarely or never felt irritated or nervous, and she rarely felt stressed at work, school, or other daily activities. Anna was assigned a GAF score of 71, reflecting her posttreatment ability to manage her symptoms and to function adaptively, particularly in her academic work. She was also assigned a CGI severity score of 4 and a CGI improvement score of 2.

On the treatment satisfaction survey, Anna endorsed high satisfaction (item  $M = 4$ ). Anna reported that she believed the adaptive thinking module and cognitive strategies were integral to her improvement. She noted that using thought records led to a "healthier perspective" and a reduction in her stress. Additionally, by applying strategies to manage distractibility and breaking tasks down into subtasks, Anna reported being able to work

more efficiently, and her confidence in her academic ability increased as a result.

### Case Presentation: Participant 2

Zeb was a 25-year-old Caucasian male student in his second semester at community college after a yearlong academic break. Zeb's complaints were procrastination, poor time management and organizational skills, and severe inattention. Zeb was first diagnosed with ADHD IA at age 13 following academic difficulties, although his documentation included parent reports of prior symptoms. Zeb reported always having difficulty paying attention in his classes, remembering assignments, and studying, and his procrastination and forgetfulness impacted his daily life (e.g., chores, errands). He made average grades through high school, but experienced frustration and amotivation that he partly attributed his performance to. Zeb's inattention and amotivation continued in college; he often dropped classes and had to withdraw from his prior university due to poor grades. While he used prescribed Ritalin through high school, he ceased taking medication regularly in college and had recently fully discontinued due to negative side effects. Zeb reported consuming



alcohol and marijuana regularly since age 17; his current reported consumption of both substances was considerable (i.e., alcohol on weekends at 10+ drinks/day, marijuana 1+ times/day). Despite experiencing substantial impairment due to symptoms of ADHD and substance use, he had not previously sought mental health treatment.

#### *Progress Over Treatment*

Zeb provided a recent evaluation report from the local psychology training clinic as evidence of his diagnosis; as such, the abbreviated battery was administered at screening. At that time, Zeb endorsed eight symptoms of IA and seven symptoms of HI on the CSS. His reports yielded a score at the 97.1st percentile on the OQ-30, and his GAF score was 51. Zeb's goals were to better manage procrastination and work more effectively.

At pretreatment, Zeb had elevated DSM-IV IA symptom and ADHD index scores on the CAARS. On the CSS, he endorsed eight symptoms of IA, and also five HI symptoms. Zeb reported significant impairment in work (two items = 2), school (two items = 2, five items = 3), life skills (two items = 2, one item = 3), self-concept (one item = 3, three items = 2), and risk (two items = 2) WFIRS domains. Zeb reported minimal anxiety (BAI = 3) and borderline depressive symptoms (BDI = 13). He scored at the 93.3th percentile on the OQ-30. Zeb was assigned a pretreatment CGI severity score of 5. Overall, these scores are consistent with the data collected at screening.

At posttreatment, Zeb continued to report high CAARS DSM-IV IA and ADHD index scores; on the CSS, he reported nine symptoms of IA and two of HI. However, Zeb reported improvement on the WFIRS, with impairment noted only in school (four items = 3, two items = 2). Zeb reported minimal anxiety (BAI = 1) and depression (BDI = 7), consistent with previous reports, and his OQ-30 report was improved (50th percentile). The most notable changes on the latter measure were in self-confidence (e.g., "I feel that something is wrong with my mind," "I feel hopeless about the future," and "I feel that something bad is going to happen). Zeb was assigned a post treatment CGI severity score of 4 and an improvement score of 2. His GAF score of 74 reflects that although he still reported some significant ADHD symptoms, he was less impaired and had begun to implement strategies that positively impacted his day-to-day life.

On the treatment satisfaction survey, Zeb indicated high satisfaction (item  $M = 4.1$ ). He noted that the structured nature of the treatment and the individual attention he received were important to his improvement, and that the stimulus control strategies were particularly useful. This is of note given initial skepticism due to his prior failed attempts to control distractions. He also indicated optimism regarding simultaneous use of all his new skills to make further gains.

### **Case Presentation: Participant 3**

Mark was a 21-year-old Caucasian male junior, presenting with complaints about time management, procrastination, forgetfulness, poorly managing large tasks, and impulsivity. Although performing satisfactorily in school, he noted having trouble meeting his personal goals. Mark was first diagnosed with ADHD-C by a family physician in first grade after exhibiting difficulty with emotional lability, sitting still in class, following directions, inattention, and other maladaptive behaviors (e.g., excessive talking). He was prescribed Ritalin to address these symptoms. Mark endorsed math as the only subject that he has long-standing difficulty in, and despite spending lots of time studying for math tests he typically gets very anxious, forgets facts, and performs poorly. Mark consulted a psychiatrist regarding this and social anxiety during high school, and was prescribed Zoloft. He had a current prescription for Strattera (100 mg/day), which Mark perceived to address both his ADHD and anxiety. Mark revealed that he occasionally also takes immediate-release Adderall, when he wants to "really focus" on work. Mark described himself as "rebellious" and "emotional" as a child, but that these tendencies faded and he sees himself currently as "even-tempered." Mark reported that he does not use any illicit drugs or tobacco, but does consume alcohol on weekends (five to six drinks/drinking episode).

#### **Progress Over Treatment**

Mark completed the full screening battery, and endorsed slightly elevated IA ( $T = 61$ ) on the CAARS, and six IA and four HI symptoms on the CSS. On the WFIRS, Mark indicated ADHD-related impairment in work (one item = 3, two items = 2), school (one item = 3), life skills (four items = 2), and self-concept (three items = 2). He reported minimal depression and anxiety. Mark scored at the 18.4th percentile on the OQ-30. He did not meet criteria for any comorbid disorder (per SCID-I). Mark was assigned a GAF score of 61. He described his goals for treatment as improving his efficiency and time management, to keep better track of personal items, and to reduce forgetfulness.

At pretreatment, Mark endorsed elevated DSM-IV IA symptoms on the CAARS, but reported only three symptoms of IA and of HI on the CSS. On the WFIRS, Mark reported significant impairment in school (one item = 3, two items = 2) and life skills (one item = 3) domains, and negligible levels of depressive (BDI = 1) and anxious symptoms (BAI = 3). His OQ-30 result was unimpaired (0.3rd percentile). At this juncture, Mark was assigned a CGI severity score of 2. These pretreatment scores were noticeably lower than those at screening, with the exception of the CAARS DSM-IV IA score. It may be noteworthy that Mark's pretreatment assessment took

place directly after spring break when he reported very low academic stress.

At posttreatment, Mark reported no elevations on any CAARS subscale, symptoms of IA or HI on the CSS, or significant impairment on the WFIRS. He reported no depressive symptoms (BDI = 0) and minimal anxiety (BAI = 5). On the OQ-30, Mark's report again was in an unimpaired range (0.5th percentile). He was assigned a final CGI severity score of 2 and an improvement score of 3. Mark was assigned a GAF score of 85, reflecting high functioning and few ADHD symptoms.

On the treatment satisfaction survey, Mark indicated very high satisfaction (item  $M = 4.6$ ). He also reported that the treatment helped him become more aware of how his symptoms interfered with his adjustment, and how to manage the symptoms. Mark identified the task list, prioritizing system, and the cognitive techniques (e.g., identifying thought errors, using adaptive thinking) as most crucial to his perceived treatment success. Interestingly, despite Mark's low BAI score, he described persistent maladaptive thoughts concerning competence, accompanied by stress and anxiety. By using the adaptive thinking techniques, Mark felt more in control of this worry. Mark also noted that breaking tasks down helped him to work more productively.

#### **Case Presentation: Participant 4**

David was a 22-year-old Caucasian male presenting with complaints about time management, procrastination, and inefficiency in his schoolwork. Despite being a college senior with an impressive academic record, he noted that he turned in most assignments late and had *never* turned in a paper on time. David was diagnosed with ADHD IA at 14 years of age by a neurologist, after the mounting complexity of academic tasks and expectations in class and at home began to cause him difficulty. He was prescribed 25 mg of Adderall/day, which he continued until his junior year in college, desisting at that point due to negative side effects. Unfortunately, David reported this exacerbated ADHD-related impairment, and he could have made better grades if on medication. David indicated that he had significant past HI symptoms as well, such as difficulty sitting still and playing quietly, across settings. Despite having ADHD, his academic performance has been excellent, perhaps due to very superior cognitive ability (per standardized intellectual test results, in prior assessment). David indicated minimal substance use, including some alcohol on weekends and marijuana two- to three-times per month.

#### *Progress Over Treatment*

David completed the CAARS, CSS, BDI, BAI, WFIRS, and the OQ-30 at his screening session, along with the Adult Interview and SCID-1. He had elevations on the

CAARS DSM-IV inattentive and ADHD symptoms total scales. On the WFIRS, David reported significant impairment in school (two items = 2, one item = 3), life skills (three items = 2), and risk (five items = 2) domains. On the CSS, David reported nine symptoms of IA and four of HI. He reported few depressive symptoms, but moderate anxiety. On the OQ-30, David scored at the 65.5th percentile. Overall, he was assigned a GAF of 58. His treatment goals were to improve time management, control over distractibility, and to more successfully attain other personal goals.

At pretreatment, David again had elevated CAARS DSM-IV IA and ADHD total symptoms scores, and significant impairment in WFIRS school (two items = 2, one item = 3), life skills (two items = 2), and risk (two items = 2) domains. On the OQ-30, David's score at pretreatment was at the 57.9th percentile, and he reported minimal depression (BDI = 2). While these data were consistent with his screening, David reported only four IA and no HI symptoms on the CSS, and low anxiety (BAI = 7), all decreases. Overall, he was assigned a pretreatment CGI severity score of 4.

While the treatment was designed to occur over eight sessions, David could only attend seven, one of which was extended to cover missed material. At posttreatment, David reported elevated DSM-IV IA symptoms on the CAARS, but his total symptoms score was in the normal range. On the CSS, he again reported four IA and no HI symptoms. His scores on the WFIRS indicated that he still experienced impairment, but only in school (two items = 3) and life skills (one item = 3). At posttreatment, David was assigned a CGI severity score of 3, CGI improvement score of 3, and GAF score of 71, reflecting that his reported symptoms were similar to study initiation but he was implementing some new skills and felt more in control of his symptoms. However, his verbal reports of improvement were not reflected in WFIRS responses.

David reported minimal posttreatment depression (BDI = 5) and anxiety (BAI = 6). On the OQ-30, David's score at posttreatment was substantially lower, at the 27.4th percentile. This reflected gains in self-confidence regarding schoolwork, even though his workload was higher at the end of treatment (i.e., at end of the semester). David reported that he felt stressed at work, school, and other daily activities only *sometimes*, in contrast with *frequently* at study initiation. For instance, in response to both "I am not working/studying as well as I used to" and "I feel that I am not doing as well at work/school or in other daily activities," David responded *rarely*, a noticeable improvement from pretreatment ratings of *frequently* and *sometimes*, respectively.

On the treatment satisfaction survey, David endorsed high treatment satisfaction (item  $M = 4.2$ ) and described it as helpful and interesting, noting the weekly schedule,

prioritization and task management, and distractibility delay elements as keys to his perceived improvement. Both David and the therapist reflected that his perceived struggle with time management may have been the result of a tendency to set unrealistic deadlines for himself (i.e., finishing an entire lab report in one night). Learning to set more realistic goals and to break tasks into smaller parts allowed him to better accomplish the goals he set for himself.

### Overall Summary of Results

With regard to reduction of core ADHD symptomatology (see Table 2), participants reported a mean *T* score reduction of 8.25 on the CAARS DSM-IV HI, 5 on the CAARS ADHD index, and 5.25 on the self-concept scales. CAARS DSM-IV IA was dramatically reduced in one participant (38 points), but showed little-to-no change in others (zero or 2-point reductions). Participants endorsed .5 fewer IA symptoms on the CSS and 1.5 fewer HI symptoms. On the WFIRS, participants reported impairment in a mean of 3.25 domains (out of 7) at pretreatment, and a mean of 1.5 domains at posttreatment. On the OQ-30, a mean score reduction of 16.25 points was observed. Participants formally reported a high level of satisfaction with the treatment, and verbally indicated that the treatment increased their insight into how ADHD impacts their lives. Overwhelmingly, participants indicated that the treatment was valuable because it improved their ability to manage dysphoria, and the cognitive techniques were specifically noted as effective at reducing anxiety related to maladaptive schemas arising from their life experiences with ADHD.

### Discussion

The principal aim of this study was to gather evidence regarding the possible utility of an abbreviated, eight-session version of the Safren, Perlman, et al., (2005) *Mastering Your Adult ADHD* protocol in typically aged, full-time college students. Considering these four clients as a group, there was a trend toward positive change, but the degree and exact nature of improvement varied. Posttreatment ratings on the OQ-30 and WFIRS consistently indicated improved adjustment, with three out of four participants evidencing a decrease ( $M = .31$  points on a 4-point scale) across WFIRS domains rated as impaired at pretreatment, and similar robust results noted in OQ-30 scores (i.e., three participants demonstrating reliable change, per Jacobson & Truax, 1991). However, improvement of core ADHD symptoms, tapped by the CSS and CAARS, was generally modest.

In this study, there were two major procedural differences that might have contributed to the limited gains, as compared with Safren, Otto, et al. (2005). First, the *Mastering Your Adult ADHD* (Safren, Perlman, et al., 2005) protocol was abbreviated by four sessions herein.

While perhaps better for treatment accessibility and compliance among undergraduates, this obviously limited the breadth and repetition of material covered, especially regarding procrastination management and adaptive thinking. These two topics were generally noted as novel and helpful by participants, and additional emphasis might have led to better outcomes. In addition, relapse prevention was covered in half of a session in the current intervention. This might have reduced participants' confidence in their ability to effectively apply skills in the future, potentially coloring their posttreatment. It may be that adhering to the content of *Mastering Your Adult ADHD*, perhaps in an intervention spanning two college semesters, would be a way to conveniently and effectively deliver CBT to college students with ADHD, and seems a fruitful idea for future study. A second noteworthy procedural difference is in clinician experience. In the study conducted by Safren, Otto, et al. (2005), the therapists were licensed psychologists who had considerable experience delivering CBT, and who had assisted in developing the protocol used in this study. In contrast, the clinician herein was a second-year graduate student with relatively limited experience and prior familiarity with this particular protocol, which may have reduced its effectiveness. While treatment fidelity checks did suggest that the elements of the protocol were faithfully delivered, it could be that unmeasured factors such as overall experience as a therapist or specific level of comfort with delivering this treatment played a role in the observed results.

In addition, participants in Safren, Otto, et al. (2005) had a mean age of 45 years, whereas herein the mean was approximately 22 years. Differences among these age groups in prototypical patterns of activity and related stress may need to be taken into consideration when evaluating treatment response. Workload and related stress may be more highly variable in college populations as compared with older adults, which may have an effect on reports of symptoms and adjustment. In addition, there might be differences in commitment level and motivation to change between college-aged adults and older counterparts. For instance, it has been noted that age is positively associated with adherence in and abstinence after treatment for alcohol dependence (Oslin, Pettinati, & Volpicelli, 2002). Perhaps older adult clients with ADHD have higher motivation for change than their younger peers, as well. Furthermore, three participants listed their top pretreatment goal as learning to work effectively. When reduction of core ADHD symptoms was mentioned, it was clearly secondary to functional improvement goals. Hence, it is possible that participant expectancies may have influenced self-reported outcomes, with a bias toward improvement in functional adjustment (vs. ADHD symptoms). Finally,

while treatment outcomes were less clearly positive than those reported by Safren, Otto, et al. (2005), discrepancies in *case severity* seem likely between the current sample and that enrolled in the latter. Participants across both studies met DSM-IV-TR criteria for ADHD diagnosis at enrollment, yet those in the current study fell in mild-to-moderate impairment ranges (e.g., GAF = 61 to 51, WFIRS mean domain scores  $\leq 1$ ), whereas those in Safren, Otto, et al.'s (2005) CBT treatment group were marked by severe impairment (e.g., CGI  $M = 5.0$ ) despite stable pharmacotherapy at pretreatment. In effect, the relatively mild nature of impairment in the current sample may have created a de facto ceiling effect in terms of observed positive gain, relative to that in Safren, Otto et al. (2005).

Interestingly, it appears that those who chose to forgo medication at least partly (i.e., Participants 2, 3, and 4) showed *more* improvement in functional adjustment, per WFIRS ratings. This is encouraging when considering efficacy of CBT and like therapies for young adults with ADHD, in that it suggests some positive effect is possible even without adjunctive pharmacotherapy, and further that such treatments may be appropriate stand-alone interventions for college students with relatively mild symptoms. This particular pattern of results, however, remains somewhat confusing, as the participants included in a prior study of adults with ADHD using an extended version of the current protocol were *all* stabilized on an ADHD medication regimen and tended to benefit incrementally with CBT (Safren, Otto, et al., 2005). Another CBT approach, Solanto et al.'s metacognitive therapy, however, has tended *not* to produce differential treatment effects based on medication status (Solanto, Marks, Mitchell, Wasserstein, & Kofman, 2008; Solanto et al., 2010). In light of such an ambiguous history, it seems that the best interpretation is that consistent medication use should be neither an inclusion nor an exclusion criteria for psychosocial intervention for ADHD in adults, as the potential for benefit seems to exist for medicated and unmedicated individuals, alike.

Overall, two out of four participants displayed a meaningful pre- to posttreatment decrease in symptoms on either the BDI or BAI (i.e., Anna, BAI: 16 to 11; Zeb, BDI: 13 to 7), and this even with screening- to pretreatment decreases that might have to do with treatment expectancy (e.g., Anna, BAI: 26 to 11) that were observed in all participants who completed the screening session. While it is heartening that the treatment seemed to reduce comorbid symptomatology in some, the overall degree of change attributable to active treatment on these measures was quite modest in comparison with the results observed by Safren, Otto, et al. (2005) and in comparison with that captured by the OQ-30 and WFIRS. However, given that the reported pretreatment mood and anxiety symptoms were

generally low (see Table 2), there may be a floor effect in terms of *possible* improvement and, as such, it might be appropriate to interpret this lesser response with some caution. While these quantitative results regarding anxiety and depression are somewhat equivocal, it is of note that all participants noted via written feedback that the cognitive-behavioral strategies emphasized in their treatment helped reduce stress and anxiety, and also increased self-confidence. This may not been reflected very well in BAI scores, with its focus on somatic symptoms. Future studies might benefit from using a measure of anxiety that captures more of its cognitive aspects (e.g., Penn State Worry Questionnaire; Meyer, Miller, Metzger, & Borkovec, 1990), or one that focuses specifically on academic-related anxiety (e.g., Achievement Anxiety Test; Alpert & Haber, 1960).

### Treatment Implications

The abbreviated protocol used in this study may hold promise for use in college counseling centers, which often choose short-term, cost-effective treatment models. Given the pattern of results, it might serve well as an ADHD-specific adjunct to individual or group CBT for college students with comorbid ADHD and mood and/or anxiety disorders. In addition, the current, structured approach may be particularly suited for college students reporting mild to moderate levels of ADHD-related impairment and symptomology. In such cases, this treatment may serve as a "jump-start" by rapidly helping to improve adaptation and increasing motivation for change, which might be facilitated by longer-term psychotherapy or medical intervention. Alternately, this treatment might be useful for college students recently diagnosed with ADHD, in that offering a nonpharmacological option as a primary or secondary intervention has been shown to increase perceptions of treatment acceptability, which could bolster motivation to begin and follow-through (Krain, Kendall, & Power, 2005; Wilson & Jennings, 1996).

Given an academic term's escalating nature, clinicians are advised to begin treatment early in the semester so that clients may acquire foundational skills while the academic workload is lighter. In addition, clinicians should expect that students' affective symptoms might naturally increase when the workload is heaviest. Extra emphasis on using prioritization, task management, and planning strategies at these times to balance daily responsibilities with academic work might moderate such setbacks. In addition, several participants herein had concerns regarding procrastination, which was not formally addressed until the seventh session. Feedback from the participants confirmed they wished it had been addressed earlier in treatment. Procrastination may be more problematic for college students than the older adults included in Safren, Otto, et al. (2005), and students may benefit from addressing this issue earlier and



monitoring procrastination through a longer period of the treatment (e.g., estimating how much time spent procrastinating in past week). This could be a valuable metric of progress over the course of treatment that is especially relevant to this population. Qualitative, posttreatment data suggests effectiveness at addressing participants' key areas of concern, such as time management and procrastination, and participants reported improved ability to work effectively using the treatments' strategies as well as a high sense of satisfaction with the intervention.

### Limitations and Future Directions

Considering the case series design, the lack of a control group and the small sample size stand out as the two most serious limitations. Generalizability of the results is thus inherently limited, and the possibility that improvements may be due to chance alone cannot be ruled out. Therefore, the evaluation of this protocol in larger, controlled trials is a key direction for future research. Furthermore, given the relatively mild impairment in the current sample it would be particularly important to examine CBT's effectiveness for individuals with more severe ADHD-related symptoms and impairment. However, it should be noted that both males and females as well as 4-year and community college students participated, and gains were observed across the group. A multiple-baseline strategy might also be employed in future small-sample treatment studies to allow for controlled comparison of cases.<sup>5</sup> Furthermore, much of the data reported herein was self-reported, which has its limitations, at least for ADHD symptom reports, in terms of reliability when compared with parent report (see Sibley et al., 2012). Collecting additional treatment outcome data from roommates, close friends, romantic partners, or parents of participants, or utilizing additional measures of posttreatment adjustment (e.g., grade point average at end of term, substance use changes) and pretreatment data regarding readiness to change would be ideal in future studies.

Another direction for future efforts is to optimize the role of "support person" for college student clients. Participants reported that it was better to simply receive reminders about sessions than have discussion of homework and other treatment issues. Many simply did not answer calls from the support assistant. Employing a roommate or friend as a support person, or setting up an automatic text messaging equivalent, might merit consideration. In addition, future studies might employ group or self-directed online treatment formats.

<sup>5</sup> Unfortunately, unexpected delays in recruitment for the current study precluded a multiple baseline design.

### References

- Alpert, R. R., & Haber, R. N. (1960). Anxiety in academic achievement situations. *Journal of Abnormal and Social Psychology, 61*, 207–215. <http://dx.doi.org/10.1037/h0045464>
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders (Rev. 4th ed.)*. Washington, DC: Author.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders, (5th ed.)*. Washington, DC: Author.
- Antshel, K. M., Faraone, S. V., Maglione, K. K., Doyle, A. A., Fried, R. R., Seidman, L. L., & Biederman, J. J. (2009). Is adult attention deficit hyperactivity disorder a valid diagnosis in the presence of high IQ? *Psychological Medicine: A Journal of Research in Psychiatry and the Allied Sciences, 39*, 1325–1335. <http://dx.doi.org/10.1017/S0033291708004959>
- Barkley, R. A., Fischer, M., Edelbrock, C. S., & Smallish, L. (1990). The adolescent outcome of hyperactive children diagnosed by research criteria: I. An 8-year prospective follow-up study. *Journal of the American Academy of Child and Adolescent Psychiatry, 29*, 546–557. <http://dx.doi.org/10.1097/00004583-199007000-0000>
- Barkley, R. A., & Murphy, K. R. (2006). *Attention-deficit hyperactivity disorder: A clinical workbook, (3rd ed.)*. New York, NY: Guilford Press.
- Beck, A. T., & Steer, R. A. (1990). *Beck anxiety inventory manual*. San Antonio, TX: Psychological Corporation.
- Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *Beck depression inventory—second edition manual*. San Antonio, TX: Psychological Corporation.
- Biederman, J., Mick, E., & Faraone, S. (2000). Age-dependent decline of symptoms of attention-deficit hyperactivity disorder: Impact of remission definition and symptom type. *American Journal of Psychiatry, 157*, 816–818. <http://dx.doi.org/10.1176/appi.ajp.157.5.816>
- Biederman, J., Petty, C. R., Fried, R., Kaiser, R., Dolan, C. R., Schoenfeld, S., . . . Faraone, S. V. (2008). Educational and occupational underattainment in adults with attention-deficit hyperactivity disorder: A controlled study. *Journal of Clinical Psychiatry, 69*, 1217–1222. <http://dx.doi.org/10.4088/JCP.v69n0803>
- Biederman, J., Petty, C. R., Monuteaux, M. C., Fried, R., Byrne, D., Mirto, T., . . . Faraone, S. V. (2010). Adult psychiatric outcomes of girls with attention deficit hyperactivity disorder: 11-year follow-up in a longitudinal case-control study. *American Journal of Psychiatry, 167*, 409–417. <http://dx.doi.org/10.1176/appi.ajp.2009.09050736>
- Blase, S. L., Gilbert, A. N., Anastopoulos, A. D., Costello, E. J., Hoyle, R. H., Swartzwelder, H. S., & Rabiner, D. L. (2009). Self-reported ADHD and adjustment in college: Cross-sectional and longitudinal findings. *Journal of Attention Disorders, 13*, 297–309. <http://dx.doi.org/10.1177/1087054709334446>
- Canu, W. H., & Bearman, S. K. (2011). Community-clinic-based parent intervention addressing non-compliance in children with ADHD. *Cognitive and Behavioral Practice, 18*, 491–501. <http://dx.doi.org/10.1016/j.cbpra.2010.07.005>
- Conners, C. K., Erhardt, D., Epstein, J. N., Parker, J. A., Sitarenios, G., & Sparrow, E. (1999). Self-ratings of ADHD symptoms in adults I: Factor structure and normative data. *Journal of Attention Disorders, 3*, 141–151. <http://dx.doi.org/10.1177/108705479900300303>
- DuPaul, G. J., Weyandt, L. L., Rossi, J. S., Vilaro, B. A., O'Dell, S., Carson, K. M., . . . Swentosky, A. (2012). Double-blind, placebo-controlled, crossover study of the efficacy and safety of lisdexamfetamine dimesylate in college students with ADHD. *Journal of Attention Disorders, 16*, 202–220. <http://dx.doi.org/10.1177/1087054711427299>
- Erhardt, D., Epstein, J. N., Conners, C. K., Parker, J. A., & Sitarenios, G. (1999). Self ratings of ADHD symptoms in adults II: Reliability, validity and diagnostic sensitivity. *Journal of Attention Disorders, 3*, 153–158. <http://dx.doi.org/10.1177/108705479900300304>
- Faraone, S., & Biederman, J. (2005). What is the prevalence of adult ADHD? Results of a population screen of 966 adults. *Journal of Attention Disorders, 9*, 384–391. <http://dx.doi.org/10.1177/1087054705281478>
- Fedele, D. A., Hartung, C. M., Canu, W. H., & Wilkowski, B. M. (2010). Potential symptoms of ADHD for emerging adults. *Journal of Psychopathology and Behavioral Assessment, 32*, 385–396. <http://dx.doi.org/10.1007/s10862-009-9173-x>



- Fischer, M., Barkley, R. A., Smallish, L., & Fletcher, K. (2005). Executive functioning in hyperactive children as young adults: Attention, inhibition, response perseveration, and the impact of comorbidity. *Developmental Neuropsychology*, 27, 107–133. [http://dx.doi.org/10.1207/s15326942dn2701\\_5](http://dx.doi.org/10.1207/s15326942dn2701_5)
- Fleming, A. P., & McMahon, R. J. (2012). Developmental context and treatment principles for ADHD among college students. *Clinical Child and Family Psychology Review*, 15, 303–329.
- Flory, K., Molina, B. G., Pelham, W. R., Gnagy, E., & Smith, B. (2006). Childhood ADHD predicts risky sexual behavior in young adulthood. *Journal of Clinical Child and Adolescent Psychology*, 35, 571–577. [http://dx.doi.org/10.1207/s15374424jccp3504\\_8](http://dx.doi.org/10.1207/s15374424jccp3504_8)
- Goldstein, S. (2005). Coaching as a treatment for ADHD. *Journal of Attention Disorders*, 9, 379–381. <http://dx.doi.org/10.1177/1087054705282198>
- Guy, W. (1976). *ECDEU assessment manual for psychopharmacology, revised*. Rockville, MD: U.S. Department of Health, Education, and Welfare, Public Health Service, Alcohol, Drug Abuse, and Mental Health Administration, National Institute of Mental Health, Psychopharmacology Research Branch, Division of Extramural Research Programs.
- Jacobson, N. S., & Truax, P. (1991). Clinical significance: A statistical approach to defining meaningful change in psychotherapy research. *Journal of Consulting and Clinical Psychology*, 59, 12–19.
- Kessler, R. C., Adler, L. A., Barkley, R., Biederman, J., Conners, C., Demler, O., . . . Zaslavsky, A. M. (2006). The prevalence and correlates of adult ADHD in the United States: Results from the National Comorbidity Survey replication. *American Journal of Psychiatry*, 163, 716–723. <http://dx.doi.org/10.1176/appi.ajp.163.4.716>
- Kessler, R. C., Adler, L. A., Barkley, R., Biederman, J., Conners, C., Faraone, S. V., . . . Zaslavsky, A. M. (2005). Patterns and predictors of attention-deficit/hyperactivity disorder persistence into adulthood: Results from the National Comorbidity Survey replication. *Biological Psychiatry*, 57, 1442–1451. <http://dx.doi.org/10.1016/j.biopsych.2005.04.001>
- Knouse, L., & Safren, S. A. (2010). Current status of cognitive-behavioral therapy for adult attention-deficit hyperactivity disorder. *Psychiatric Clinics of North America*, 33, 497–509. <http://dx.doi.org/10.1016/j.psc.2010.04.001>
- Kraft, S., Puschner, B., & Kordy, H. (2006). Treatment intensity and regularity in early outpatient psychotherapy and its relation to outcome. *Clinical Psychology and Psychotherapy*, 13, 397–404. <http://dx.doi.org/10.1002/cpp.505>
- Krain, A. L., Kendall, P. C., & Power, T. J. (2005). The role of treatment acceptability in the initiation of treatment for ADHD. *Journal of Attention Disorders*, 9, 425–434. <http://dx.doi.org/10.1177/1087054705279996>
- Lambert, M. J., Burlingame, G. M., Umphress, V., Hansen, N. B., Vermeersch, D. A., Clouse, G. C., & Yanchar, S. C. (1996). The reliability and validity of the outcome questionnaire. *Clinical Psychology and Psychotherapy*, 3, 249–258. <http://dx.doi.org/10.1002/109908793:4/ CPP106>
- Lobbetael, J., Leurgans, M., & Arntz, A. (2010). Inter-rater reliability of the structured clinical interview for DSM-IV Axis I Disorders (SCID I) and Axis II Disorders (SCID II). *Clinical Psychology and Psychotherapy*, 18, 75–79. <http://dx.doi.org/10.1002/cpp.693>
- Mannuzza, S., Klein, R., Bessler, A., Malloy, P., & LaPadula, M. (1998). Adult psychiatric status of hyperactive boys all grown up. *American Journal of Psychiatry*, 155, 493–498.
- Mészáros, A., Czobor, P., Bálint, S., Komlósi, S., Simon, V., & Bitter, I. (2009). Pharmacotherapy of adult attention deficit hyperactivity disorder (ADHD): A meta-analysis. *International Journal of Neuropsychopharmacology*, 12, 1137–1147. <http://dx.doi.org/10.1017/S1461145709990198>
- Meyer, T. J., Miller, M. L., Metzger, R. L., & Borkovec, T. D. (1990). Development and validation of the Penn State Worry Questionnaire. *Behaviour Research and Therapy*, 28, 487–495. [http://dx.doi.org/10.1016/0005-7967\(90\)90135-6](http://dx.doi.org/10.1016/0005-7967(90)90135-6)
- Mick, E., Faraone, S. V., & Biederman, J. (2004). Age-dependent expression of attention-deficit/hyperactivity disorder symptoms. *Psychiatric Clinics of North America*, 37, 215–224. <http://dx.doi.org/10.1016/j.psc.2004.01.003>
- Mitchell, J. T., Nelson-Gray, R. O., & Anastopoulos, A. D. (2008). Adapting an emerging empirically supported cognitive-behavioral therapy for adults with ADHD and comorbid complications: An example of two case studies. *Clinical Case Studies*, 7, 423–448. <http://dx.doi.org/10.1177/1534650108316934>
- Oslin, D. W., Pettinati, H., & Volpicelli, J. R. (2002). Alcoholism treatment adherence: Older age predicts better adherence and drinking outcomes. *American Journal of Geriatric Psychiatry*, 10, 740–747. <http://dx.doi.org/10.1176/appi.ajgp.10.6.740>
- Ramsay, J., & Rostain, A. L. (2005). Girl, repeatedly interrupted: The case of a young adult woman with ADHD. *Clinical Case Studies*, 4, 329–346. <http://dx.doi.org/10.1177/1534650103259741>
- Ramsay, J. R. (2010). *Nonmedication treatments for adult ADHD*. Washington, DC: American Psychological Association.
- Rosenfield, B. M., Ramsay, J., & Rostain, A. L. (2008). Extreme makeover: The case of a young adult man with severe ADHD. *Clinical Case Studies*, 7, 471–490. <http://dx.doi.org/10.1177/1534650108319912>
- Safren, S. A., Otto, M. W., Sprich, S., Winett, C. L., Wilens, T. E., & Biederman, J. (2005). Cognitive-behavioral therapy for ADHD in medication-treated adults with continued symptoms. *Behavior Research and Therapy*, 43, 831–842. <http://dx.doi.org/10.1016/j.brat.2004.07.001>
- Safren, S. A., Perlman, C. A., Sprich, S., & Otto, M. W. (2005). *Mastering your adult ADHD: A cognitive behavioral treatment program: Therapist guide*. New York, NY: Oxford University Press.
- Safren, S. A., Sprich, S., Mimiaga, M. J., Surman, C., Knouse, L., Groves, M., & Otto, M. W. (2010). Cognitive behavioral therapy vs. relaxation with educational support for medication-treated adults with ADHD and persistent symptoms: A randomized controlled trial. *Journal of the American Medical Association*, 304, 875–880.
- Safren, S. A., Sprich, S. E., Cooper-Vince, C., Knouse, L. E., & Lerner, J. A. (2010). Life impairments in adults with medication-treated ADHD. *Journal of Attention Disorders*, 13, 524–531. <http://dx.doi.org/10.1177/1087054709332460>
- Sibley, M. H., Pelham Jr., W. E., Molina, B. S. G., Gnagy, E. M., Waxmonsky, J. G., Waschbusch, D. A., . . . Kuriyan, A. B. (2012). When diagnosing ADHD in young adults emphasize informant reports, DSM items, and impairment. *Journal of Consulting and Clinical Psychology*, 80, 1052–1061. <http://dx.doi.org/10.1037/a0029098>
- Sobanski, E., Brueggemann, D., Alm, B., Kern, S., Deschner, M., Schubert, . . . Rietschel, M. (2007). Psychiatric comorbidity and functional impairment in a clinically referred sample of adults with attention-deficit/hyperactivity disorder (ADHD). *European Archives of Psychiatry and Clinical Neuroscience*, 257, 371–377. <http://dx.doi.org/10.1007/s00406-007-0712-8>
- Solanto, M. V., Marks, D. J., Mitchell, K. J., Wasserstein, J., & Kofman, M. D. (2008). Development of a new psychosocial treatment for adult ADHD. *Journal of Attention Disorders*, 11, 728–736. <http://dx.doi.org/10.1177/1087054707305100>
- Solanto, M. V., Marks, D. J., Wasserstein, J., Mitchell, K., Abikoff, H., Alvir, J., & Kofman, M. D. (2010). Efficacy of meta-cognitive therapy for adult ADHD. *American Journal of Psychiatry*, 167, 958–968. <http://dx.doi.org/10.1176/appi.ajp.2009.09081123>
- Spitzer, R. L., Williams, J. B., Gibbon, M., & First, M. B. (1992). The structured clinical interview for DSM-III-R (SCID): I. History, rationale, and description. *Archives of General Psychiatry*, 49, 624–629. <http://dx.doi.org/10.1001/archpsyc.1992.01820080032005>
- Stevenson, C. S., Whitmont, S., Bornholt, L., Livesy, D., & Stevenson, R. J. (2002). A cognitive remediation programme for adults with attention deficit hyperactivity disorder. *Australian and New Zealand Psychiatry*, 36, 610–616. <http://dx.doi.org/10.1046/j.1440-1614.2002.01052.x>
- Stone, G. L., & McMichael, J. (1996). Thinking about mental health policy in university and college counseling centers. *Journal of College Student Psychotherapy*, 10, 3–27. [http://dx.doi.org/10.1300/J035v10n03\\_02](http://dx.doi.org/10.1300/J035v10n03_02)
- Weiss, M. D., Brooks, B. L., Iverson, G. L., Lee, B., Dickson, R. A., & Wasdell, M. (2007). Reliability and validity of the Weiss Functional Impairment Rating Scale. Abstract presented at the 54th Annual

Meeting of the American Academy of Child and Adolescent Psychiatry, Boston, MA. Retrieved from , [http://www.aacap.org/cs/54th\\_annual\\_meeting\\_program/new\\_research\\_poster\\_session\\_d](http://www.aacap.org/cs/54th_annual_meeting_program/new_research_poster_session_d).

- Wilens, T., Spencer, T., & Biederman, J. (2002). A review of the pharmacotherapy of adults with attention-deficit/hyperactivity disorder. *Journal of Attention Disorders, 5*, 189–202. <http://dx.doi.org/10.1177/108705470100500401>
- Wilens, T. E., Biederman, J., & Spencer, T. J. (1998). Pharmacotherapy of attention deficit hyperactivity disorder in adults. *CNS Drugs, 9*, 347–356. <http://dx.doi.org/10.2165/00023210-199809050-00002>
- Wilson, L. J., & Jennings, J. (1996). Parents' acceptability of alternative treatments for attention-deficit hyperactivity disorder. *Journal of Attention Disorders, 1*, 114–121. <http://dx.doi.org/10.1177/108705479600100204>
- Zylowska, L., Ackerman, D. L., Yang, M. H., Futrell, J. L., Horton, N. L., Hale, T., . . . Smalley, S. L. (2008). Mindfulness meditation training in adults and adolescents with ADHD: A feasibility study. *Journal of Attention Disorders, 11*, 737–746. <http://dx.doi.org/10.1177/108705470730850>