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Brief Behavioral Therapy for Pediatric Anxiety and Depression:
Piloting an Integrated Treatment Approach

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Abstract

Mood and anxiety disorders in youth are disabling, distressing, and prevalent. Furthermore, depression and anxiety frequently co-exist, may share several etiological factors, and respond to similar interventions. In this paper, we report preliminary results from a treatment adaptation project designed to condense existing cognitive behavioral therapy protocols for anxiety and depression to their core components and combine them into a brief, integrated treatment suitable for the broad population of internalizing youth seen in primary care. Specifically, we discuss: (a) the rationale for targeting anxiety and depression in pediatric primary care and the deployment-focused treatment development model; (b) the content of our behaviorally-based treatment program; and (c) clinical outcomes of two sample cases with comorbid depression and anxiety.

Brief Behavioral Therapy for Pediatric Anxiety and Depression:
Piloting an Integrated Treatment Approach

Development of an integrated treatment for anxiety and depression in youth seems well-justified on both theoretical and public health grounds. Mood and anxiety disorders in childhood and adolescence are disabling, distressing, and prevalent (e.g., Bell-Dolan, Last, Strauss, 1990; Lewinsohn et al., 1993). Depression and anxiety may share several common causes (e.g., Axelson & Birmaher, 2001; Kendler, 1996); certainly, the level of comorbidity is extremely high (Angold & Costello, 1999; Birmaher et al., 1996). In addition, anxiety and depression respond to similar interventions. Focusing on psychosocial treatment, there is copious evidence that cognitive behavioral therapy (CBT) can produce significant symptom relief in mild to moderately impaired samples (Compton et al., 2004), and many of the CBT techniques used to treat the two conditions are similar.

From a public health perspective, development of an integrated treatment for internalizing youths also would seem valuable, as service settings struggle with limited sessions and resources available to train clinicians in multiple protocols. This need may be particularly pressing in an increasingly important service setting for children and adolescents – pediatric primary care. As with adults, primary care has become a *de facto* part of the mental health system for youth. The majority of youths visit primary care at least once annually (Costello et al., 1988); families look to medical professionals for guidance on psychosocial problems (Horwitz et al., 1992), and primary care clinicians (PCCs) write the majority of youth psychotropic prescriptions (e.g., Kelleher, Hohmann, & Larson, 1989). While surveys of PCCs indicate that they view internalizing disorders as part of their clinical responsibilities (Olson et al., 2001), many families and PCCs are unwilling to consider the use of antidepressant medication and prefer the use of psychosocial treatments (Rushton, Clark, & Freed, 2000).

Further arguing for a primary care-based treatment model, youths with mood and anxiety problems come with added costs to physical health systems. Internalizing youths utilize significantly more health services than youths without anxious or depressive symptoms, an effect not explained by differences in physical health status (Zuckerman, Moore, & Gleib, 1996). Pediatric anxiety and depression also are frequently comorbid with somatic symptoms that prompt use of medical services, such as recurrent abdominal pain and headaches (Campo et al., 2002). In adulthood, experience of depression is generally correlated with poorer health (e.g., increased mortality following heart attack; Katon, 2003) and negative health risk behaviors (e.g., risky sexual behavior; Kosunen et al., 2003).

This article describes the deployment-focused development a brief treatment for youths with depression, anxiety, or comorbid depression and anxiety, suitable for use in pediatric primary care. Specifically, we discuss: (a) the rationale for and development of the integrated treatment; (b) the content of our program; and (c) clinical outcomes of two sample cases, Kristi (age 13) and Aaron (age 17). Throughout, we discuss practical issues involved in conducting translational, treatment development work within real world service contexts.

Rationale

Deployment-Focused Development Model

Many commentators and critics of the field have decried the gap between research and practice in mental health and the very slow rate of dissemination of empirically tested interventions into active clinical service (e.g., Weisz, Donenberg, Han, & Weiss, 1995; Kazdin, 2000; Hoagwood, 2002). Indeed, speeding the process of treatment dissemination is a major priority of National Institute of Mental Health (NIMH; Blueprint for Change, 2001). One prominent prototype for this type of service-oriented translational research is the deployment-focused model (Weisz, 2000). In traditional treatment models, interventions are typically developed and tested in conditions designed

to maximize internal validity – homogenous samples of patients, highly trained therapists, and strict experimental control. While this model does allow for strong causal inferences to be drawn about the efficacy of treatment compared to a control condition, the traditional framework is not a strong test of the ability of the intervention to work well in the conditions of real world practice. To speed the development of practice-ready interventions, the deployment-focused model quickly moves from small, pilot efficacy tests to real world trials in actual service settings. This model may be “risky” from the standpoint of experimental control, and it may or may not be advised in completely novel areas of treatment research. However, we have found it to be a very useful framework for *treatment adaptation*.

Treatment Adaptation and Integration: Choosing the Simple Path

Although we are primarily interested in developing practice-ready interventions, we began our work by conducting extensive reviews of the psychopathology and efficacy literature. With this step, we hoped to be able to leverage existing data as a rough, efficacy test and conduct the first pilot test of our adapted protocol within an effectiveness setting and sample, with reasonable confidence in our ability to show an effect.

Fortunately, basic research literature in psychopathology provides a solid base from which to justify the adaptation of existing treatments into an integrated protocol for anxiety and depression. Modern theories of the etiology and maintenance of anxiety disorders focus on the interplay between (a) biological vulnerability to acute stress reactions (e.g., Biederman et al., 1993); (b) the experience of uncontrollable stressful life events (e.g., Chorpita, & Barlow, 1998); (c) learned, maladaptive behavioral responses to threat (e.g., parental avoidance behavior; Dadds, Barrett, Rapee, & Ryan, 1996); and (d) inaccurate, overly-threatening, cognitive interpretations of events (e.g., anxious apprehension; Barlow, 1988). In a similar fashion, theories of depression implicate interactions between (a) genetic vulnerability to mood dysregulation in response to stress (e.g.,

Caspi et al., 2003); (b) the experience of stressful life events, with evidence that the threshold for stress-triggered mood episodes may fall over the course of disorder (e.g., Kendler, Thornton, Gardner, 2001); (c) maladaptive behavioral responses to stress (e.g., avoidance and poor interpersonal problem solving skills; e.g., Gazelle & Rudolph, 2004); and (d) inaccurate, overly negative, and hopeless cognitive styles (e.g., Gladstone & Kaslow, 1995). Although these lists are not identical, the similarity of the processes implicated in the development and maintenance of mood and anxiety disorders is striking.

Not surprisingly, the CBT interventions developed to treat these conditions contain similar elements and focus most strongly on modifying responses to stress. However, CBT programs differ markedly in their level of complexity and the number of techniques employed. For example, CBT manuals for adolescent depression may or may not include problem solving, assertiveness training, cognitive restructuring, family communication skills training, relaxation, mindfulness techniques and self soothing, pleasant activity scheduling, and behavioral activation (Weersing, 2004). The list would grow even longer should CBT anxiety techniques be appended. In our view, the constraints of busy, real world service in primary care preclude a comprehensive approach, as did our desire to create a simple intervention that can be delivered by Master's level clinicians. To select between these core components, we turned to the treatment literature for evidence on the relative efficacy of specific CBT techniques, focusing on child and adolescent findings when available. From this review, two techniques emerged as critical – exposure and behavioral activation.

In the anxiety literature, there is evidence to suggest that exposure to threatening stimuli may be the central pathway through which effective psychosocial interventions achieve the bulk of their effects. In the treatment of childhood phobias, exposure alone is as efficacious as more comprehensive CBT protocols (Ollendick & King, 1998), and the majority of symptom improvement for anxious youth appears to occur in the second half of treatment, during the

exposure phase of therapy (Kendall et al., 1997). Furthermore, Gould and colleagues found that CBT and exposure therapy produced equivalent outcomes in meta-analyses of the adult literature (Gould, Buckminster, Pollack, Otto, & Yap, 1997; Feske & Chambless, 1995) and that the total number of exposure sessions (across studies) was predictive of outcome (Gould, Otto, & Pollack, 1995; Feske & Chambless, 1995). In a similar fashion, data are accumulating on the effectiveness of behavioral activation (BA) as a stand-alone treatment for depression (e.g., Jacobson et al., 1996; Hopko, Lejuez, & Hopko, 2004; Dimidjian et al., 2006). Findings of a recently completed randomized trial comparing CBT, BA, medication, and placebo found that BA outperformed CBT and matched medication effects in the short-term (Dimidjian et al., 2006). Clinical impressions of this new BA protocol indicate that the intervention was particularly effective with adults who “didn’t get” the cognitive portions of CBT (Dimidjian et al., 2003) – a result, if confirmed, that would certainly inform our efforts to create a protocol suitable for the cognitive-developmental level of children and adolescents, especially real world youth likely to also suffer from comorbid attention and learning problems.

In our view, these two basic, behavioral techniques – exposure and BA – may be able to be adapted and combined as “graded engagement.” In exposure therapy, youths with anxiety are exposed to fear-provoking stimuli with the hope of (a) extinguishing fear responses (classical conditioning process), and (b) manipulating the timing of anxiety relief (i.e., habituation) so that it occurs after successful maintenance in anxiety provoking states and situations (i.e., negative reinforcement, an operant process). In modern behavioral activation approaches to depression (e.g., Dimidjian et al., 2006), patients are explicitly encouraged to seek out rewarding experiences (operant processes), especially those activities that can be maintained in the regular social environment (e.g., developing new friendships, rather than simply going to the movies alone). Many depressed individuals have significant issues with procrastination, low motivation,

hopelessness, and fear of failure. Graded engagement in avoided activities serves as an exposure-like function in terms of negative affect tolerance. These basic behavioral conceptualizations of anxiety and depression seem quite compatible to us, and offer a natural treatment plan – graded engagement – for the many youths who suffer from comorbid anxiety and depression.

In addition to this theoretical connection between exposure and behavioral activation, in our clinical experience, we have been struck by the strong similarity in content between the hierarchies of anxious youths and the graded task assignments of depressed youths. For example, consider the task of “attending a classmate’s birthday party.” This item could (and has) appeared on the homework list of youths with anxiety, depression, or both conditions. This task could serve as a traditional exposure assignment for a socially anxious youth, but increasing attendance at social events is also frequently used as a scheduled, pleasant activity for depressed youths. For youth with comorbid anxiety and depression, attending a party may well be an activity in which the youth would like to engage but is too fearful to attempt, combining both a behavioral activation and exposure function. Across diagnostic presentations, this item broadly represents graded engagement into a previously avoided social situation. Again, in our work to date, we have found that this central process of avoidance of feared, difficult, or challenging activities has been central to the presentation of internalizing youths, regardless of their primarily anxious or primarily depressed profile.

In the next section, we describe, session-by session, how this core technique of active engagement and reduction of avoidance has been crafted into an integrated brief behavioral treatment (IBBT) for anxiety and depression. We also discuss the supplemental role of psychoeducation, relaxation, and problem solving skills in the protocol. Although these techniques did not emerge as strongly from our literature review, relaxation has shown benefit for anxiety and is a technique used for managing pain and somatic symptoms, most common comorbidities of

internalizing disorders in primary care (Campo et al., 2002). Similarly, problem solving skills cut across anxiety, depression, and other potential comorbid problems, and are the core of several successful adult depression protocols embedded in QI primary care interventions (e.g., Unützer et al., 2002).

Integrated Brief Behavioral Therapy for Anxiety and Depression (IBBT)

For our draft protocol, we developed a brief 8 session treatment to be conducted over a maximum of 12 weeks (to allow for absences), with four educational and skill-building sessions, three practice sessions, and a termination/relapse prevention session. Techniques are strongly behavioral, as described previously, with an emphasis on active engagement in life activities and use of relaxation and problem solving skills to manage stress. Materials for the program include the therapist manual, a youth workbook, a parent information packet, and a relaxation CD.

To map onto the standard 15-minute billing units of primary care, IBBT sessions are designed to be 30 minutes with the youth, with an additional 15 minute check-in and review with a parent at the end. For Sessions 1 (Psychoeducation), Session 4 (Goal Setting), and Session 8 (Relapse Prevention), we encourage greater parental involvement, with the parents of school age (8-12 years) youth in attendance for the entire session and parents of teens (13-17 years) attending for approximately half of the session. These developmental guidelines are based on our clinical experience to date; however, we have adjusted these age limits in our own work to map on to the specific competencies of our young patients (e.g., if an older youth has difficulty understanding treatment content in Session 3 without parental assistance).

Next, we briefly review the content of each session and provide sample therapist dialogue drawn from our treatment manual and training materials, before discussing key issues involved in successful implementation of the program with our sample cases drawn from pediatric primary care.

Session 1: Psychoeducation and Treatment Rationale

During the first session, the clinician provides psychoeducation on depression and anxiety in youth, focusing on how both types of negative affect are typically a response to stress or environmental threat. For example:

Why do people get stuck feeling nervous and sad? No one knows exactly, but, a lot of the time, something rotten happens first. This can set off a cycle of feeling and acting grumpy, and this tends to make the bad feelings worse rather than better.

Throughout the treatment program, youths are prompted to provide examples from their own lives that illustrate the major concepts being discussed. For youths that are unwilling or unable to provide appropriate personal experiences, example scenarios are provided in the youth workbook.

Take a look at the “Emotional Spirals” handout in your workbook. This shows an example of how a small negative event – getting bad grades – can turn into major bad feelings of stress, anxiety, and depression. Let’s go through this together. What is the first thing that Rachel does after she sees her bad grade on the test?

Youth and parents also are provided information on the fight or flight response and the natural reaction to withdraw and avoid in the face of threat. The goal of the session is to normalize the experience of stress, anxiety, and low mood as well as to engage the youth and parent in a discussion of how these patterns may map on to their current experience. Sanitized clinician self-disclosure is encouraged to aid in normalizing these reactions.

When I am really nervous, like if I have to give a speech, I sometimes get sweaty, and I run out of breath and sound funny. Do you ever feel things like that when you are stressed out? You know, these changes in our bodies happen for a reason. When we feel like we are in danger, our body gears up for serious action. Have you ever heard of the “fight or flight” response?

The adaptive function of fight or flight is reviewed, and youths encouraged identify their own somatic symptoms. Internalizing youths recruited from medical settings have very high rates of chronic pain disorder and somatic symptoms and, as such, this is typically an extensive and illuminating discussion (Campo et al, 2002). At the end of the session, youths are given mood monitoring as homework.

Session 2: Relaxation and Coping with Negative Affect

In keeping with the short-term, primary care frame of the treatment program, the second session is designed to move quickly from psychoeducation toward active practice of skills. The youth is taught relaxation to lower baseline physiological arousal and cope with stress (interrupting the negative mood processes discussed in Session 1). Youths are provided with three tools for relaxation – somatic relaxation, guided imagery, and the use of soothing and pleasant activities.

For the rest of the time today, we are going to learn how to interrupt bad moods before they get out of control. Sometimes, if we can catch ourselves at the very beginning of a bad mood, it is a lot easier to calm down than if we wait till we are really stressed. Does that make sense? There are three main ways to calm down when you are starting to feel stressed out. You can relax your body, relax your mind, or relax the world around you. We will be talking about all three, and then you will get to pick a favorite to practice at home this week. Sound like a good plan?

Youths are then guided through a brief breathing exercise and, depending on symptom presentation, a more extensive progressive muscle relaxation (PMR) exercise. PMR is practiced in-session for all youths with prominent and impairing somatic symptoms such as comorbid tension headaches or recurrent functional abdominal pain. In addition, all youths are presented with an overview of the use of pleasant and soothing activities to raise mood, although formal behavioral activation techniques are not introduced until Session 4. The use of pleasant activities is framed as a way to change mood, by changing “the world around you.” For example:

OK, let’s talk a bit about how to “relax your world.” Some things in life are just stressful and not very fun – like getting stuck in traffic or having an argument. If that is going on in your world, it’s pretty likely that you’ll feel irritated and that could trigger a bad mood spiral. Of course, the opposite is also true. Some activities are almost always fun or relaxing. For a lot of people, listening to music, talking with a friend, or exercising really helps them to calm down and feel good. Do you have any activities like this?

After discussing each of the three relaxation techniques, the youth is encouraged to pick one for at-home practice. If youths do not express a preference, somatic relaxation techniques are assigned as default. Youths are given relaxation practice and mood monitoring as homework.

Session 3: Problem Solving Skills Training

We next focus on problem solving as a tool for interrupting negative affective spirals and selecting responses that (a) “solve” controllable problems through active engagement (e.g., talking to a teacher about making up a missed test rather than skipping school), and/or (b) lower physiological arousal and raise positive mood (e.g., visiting your friend next door when your sister is fighting with your parents). Youths are prompted to identify several problems that routinely lead to feelings of anxiety and/or depression and to start generating possible ways to either solve or cope with these situations. Self-contracting approaches are used to form specific plans for action.

If you want to make a plan for action, then let nail it down. If a plan is vague, it isn't really a plan – it is more of an idea or a wish, something that you might do someday. Specific goals and plans are much more likely to actually happen. Can you think of any examples of this? Have you ever had a vague plan fall through, like a plan to “do something” with friends? Why do you think it fell through?

Again, for youths who have difficulty generating or sharing personal problems to work on in-session, sample scenarios are provided in the youth workbook. However, this activity is designed to prepare for treatment planning in the following session, and it is generally very difficult to move into the second phase of treatment without substantial youth engagement. Clinicians are strongly encouraged to use this session to enhance youth participation and commitment to treatment.

For home practice, youths are assigned continued mood monitoring, relaxation, and (if appropriate) trying a strategy identified through the problem solving exercise.

Session 4: Reducing Avoidance and Setting Goals

Session 4 is designed to set the agenda for the remainder of treatment. To this point, youths have learned skills for coping with the “front end” of negative affect. From this point forward, youths are encouraged to engage in different responses on the “back end” of affect – approach instead of avoidance, and activation instead of withdrawal. A substantial portion of the session is spent on the rationale for reducing avoidance:

Today, we are going to talk about the “flight” part of fight or flight. When we are feeling really stressed, we usually try to avoid – or run away from – whatever is making us feel nervous or bad. Have you ever avoided doing something? What was it?

For everybody, avoidance is a pretty natural reaction to unpleasant, painful, or boring situations. People don’t like feeling uncomfortable, and we usually try to get out of or avoid situations that are hard, especially if it feels overwhelming to try to deal with them. Even though wanting to escape from hard situations makes perfect sense, it may not be the best idea in the long run. This is especially true if avoiding something means that a problem piles up – like avoiding math class and missing a bunch of tests. Avoiding math has probably made going to class harder, because now there are also bunch of old tests to deal with.

Avoidance can also be a problem because we never really learn how to deal with the problems that are bothering us. You can get stuck in a serious negative spiral of feeling bad, hiding away, feeling more helpless and stressed, and then pulling back and avoiding even more. Does this make sense to you? Can you think of any examples of this from your own life?

This description is designed to lead into a discussion of the opposite of avoidance – graded engagement. As this is a short-term protocol, youths and parents are shaped to (a) select practical, attainable goals that (b) they have a high motivation to complete and (c) seem likely to improve mood. In our pilot work, youth engagement plans have tended to center around two main themes (a) increasing developmentally appropriate separation from parents, especially around sleeping and staying home alone, and (b) enhancing engagement with peers.

For anxious youths, these plans closely resemble traditional hierarchies, with a series of planned steps, increasing in anticipated anxiety, leading to a goal task (e.g., beginning with sleeping on the floor next to a parent’s bed and ending with spending the night at a friend’s house). For depressed youths, these graded engagement plans are similar, though the tasks are typically ranked by the level of effort needed to accomplish each step (e.g., beginning with smiling in the hall and ending with actively phoning friends and arranging a group social task). For anxious and depressed youths, the plans combine elements of anxiety hierarchies and graded activity scheduling, namely, a series of simple, low effort, low anxiety steps leading to higher effort, high anxiety tasks.

Sessions 5-7: Increasing Engagement and Activation

Sessions 5-7 are devoted to making incremental progress on engagement plans. Youths are provided with *in vivo*, enactive practice in session (e.g., exposure to the dark for youths afraid of sleeping alone, role play of conversations for socially anxious and depressed youths wishing to increase their social connections) and planned out of session activities. In the manual and training, clinicians are provided guidance on how to craft graded hierarchies and plans; but, by design, these sessions are less structured and more interactive than the previous skill-building sessions. Each session follows the general structure of homework review, problem solving obstacles to progress, praising effort, in-session practice, and planning for the following week.

Session 8: Relapse Prevention

In the final session, youths and parents review the central lessons of treatment, the youth's specific progress on goals, and plan for future growth. The problem solving framework is re-introduced and youths and parents are encouraged to imagine specific, future stressors and develop coping plans, using the same self-contracting framework employed throughout the protocol.

Flexibility in Implementation

The IBBT treatment manual and workbook contain a host of specific in-session exercises and homework assignments. These have been developed to make the most efficient use of the brief treatment time available by focusing on the core components that, in the literature, have been shown to be central to treatment of internalizing disorders, such as psychoeducation, problem solving, exposure, and behavioral activation. Adherence to the session agenda ensures the employment of skills-focused activities that are presented in a logical order. However, in clinician training, supervision, and the manual materials, we stress that these structured activities are not “magic” and that the therapy content should be adapted as needed to enhance youth comprehension and engagement. While the session outline provides guidance and directs session content, it is designed to be sufficiently broad and flexible so that it may be adapted to the individual needs of the client.

For example, after Session 1, youths are assigned mood and activity monitoring to complete each week. A worksheet is provided for this purpose (*My Week*); however, we believe that it is acceptable for youths to complete this homework assignment in a journal, Palm Pilot, notebook, or by calling the clinician's voicemail. The goal is to help the youth learn to link environmental triggers, negative affect, and avoidant / withdrawing behaviors, and thus, the form of the exercise should be secondary to accomplishing this goal. This is true of all specific activities and example therapist scripts – they are framed as good suggestions but not required elements.

This flexible implementation frame has led to several innovations coming from the medical personnel involved in and aware of the project. Nurses and PCCs have significantly enhanced the delivery of our *Fight or Flight* psychoeducation materials through their knowledge of human anatomy and biological processes. For example, the clinicians were well suited to illustrate the interaction of psychological factors and bodily reactions by describing the relationship between stress, cortisol, and getting sick during finals. In addition to enhanced medical knowledge, clinicians provided setting-specific, creative ways to implement the manual. For example, with a young, shy client, our clinician encouraged the parent to trace their child's outline on the paper covering the examination table in the treatment office and to have the child draw where he experienced somatic symptoms.

Implementation in Primary Care

The two example cases presented in this report were drawn from the sample of a recently completed pilot treatment effectiveness study ($N = 54$). This effectiveness study was based in two, large pediatric primary care practices in rural Pennsylvania, approximately 50 miles from Pittsburgh. Both of these practices were participants in a Practice-Based Research Network (PBRN) funded by NIMH. As participants in the PBRN, PCCs and clinical and administrative staff had attended several meetings prior to this investigation focusing on the mental health needs of

youth in primary care, and pediatricians and clinical staff at one site had participated in a screening study to identify rates of internalizing disorders in primary care. In addition, these two practices had existing, in-house mental health resources – a nurse-practitioner at one site and a social work therapist at the other site. These two clinicians were involved in triage, brief on-site counseling in primary care, and facilitating referral of cases to external specialty mental health programs. At the nurse-practitioner site, psychiatric consultation for medication management also was available, in a stepped-care model (see Campo et al., 2005).

Clinician training and supervision. For this first effectiveness trial, we chose to train these two existing mental-health clinical staff on-site at each practice. These clinicians were both primary care and mental health savvy, and they had been exposed to workshops on CBT methods in the course of their professional development. However, the clinicians had not provided manualized CBT prior to training in the protocol, and they were required to maintain a full clinical caseload in primary care outside of their responsibilities on this project. We, thus, viewed the use of these clinicians as a reasonable, developmental step along the efficacy-effectiveness dimension.

The first author (VRW), a Ph.D.-level clinical psychologist, conducted the two-day clinician training that included a didactic presentation of the model, a thorough session-by session review of the manual, and group role play exercises throughout each section of the protocol. Prior to training, clinicians were encouraged to identify youths in their current or past caseload that suffered from significant anxiety and/or depression symptoms. These youths were used as role play models and example cases throughout the training process. After this initial training, VRW reviewed digital recordings of all sessions for the first six pilot cases for each therapist, and provided weekly one hour phone supervision per clinician prior to the clinicians' next session. After these initial cases, VRW listened to the first session for each participant and reviewed other sessions as requested by the treating clinicians (approximately 1/3 of sessions in the pilot sample). Minimal supervision and

feedback was needed for didactic portions of the manual, including psychoeducation and introduction of topics and techniques. However, clinicians generally sought additional supervision (approximately 30-60 minutes per patient) for sessions that included more applied content, such as the creation of hierarchies. In particular, clinicians experienced relative difficulty breaking goals down into small, easily attainable psychological steps and sought additional supervision for generating ideas for exposures that mimic real-life situations but could be completed during session (e.g., role-playing interactions with peers or talking to patients in the waiting room).

Identifying anxious and depressed youths. We considered using waiting room screening questionnaires to identify youths; however, after consultation with practices, we chose not to employ this method. Based on the sites' prior mental health experience, PCCs and clinical staff were confident that they could identify internalizing youth who would meet project criteria, with a high degree of specificity (i.e., few false referrals). While screening might be more sensitive to atypical or "quiet" cases, the practice staff expressed some concern that screening methods tend to over-identify youth and families who are generally distressed and help-seeking, rather than specifically impaired for any given target problem (such as anxiety). These false positives would then become the responsibility of the practice to treat, refer, or calm down – increasing their workload. Given these concerns, we chose to begin with project as referral only, with the option to employ screening if the target sample could not be enrolled through this method alone (this was not necessary).

Youths were identified as potential participants by their PCC, who sought assent from youths and parents to FAX contact information to our research study office. After a brief phone screen assessing basic criteria such as appropriate age, youths were scheduled for a baseline assessment with our project research staff on-site in the primary care clinic. This method proved to be both

efficient and effective, as 71% of cases referred by PCCs met criteria for inclusion, consented to participation, and were enrolled in the study.

Youths were enrolled in the study who: (a) were age 7 to 17 years; (b) met criteria for Major Depression, Dysthymia, or Minor Depression or met full or probable (missing one, non-core symptom) diagnostic criteria¹ for Separation Anxiety Disorder, Generalized Anxiety Disorder, Social Phobia, or Specific Phobia; and (c) lived with a consenting legal guardian. To enhance generalizability, we excluded only those youths with (a) bipolar disorder, psychosis, active suicidal ideation with plan, post-traumatic stress disorder (PTSD), substance dependence, or mental retardation; (b) experience of recent physical or sexual maltreatment; or (c) serious or unstable physical illness (e.g., poorly controlled diabetes). Baseline demographic and clinical characteristics are provided in Table 1 for our two example cases; throughout this report, names and identifying details of these youths have been altered to preserve confidentiality.

Assessments. Cases were assessed by an independent evaluator on three occasions: (a) pre-treatment baseline interview; (b) 12-week, post-treatment assessment, and (c) 24-week follow-up. In addition, youths and parents completed dimensional symptom measures over the telephone at Weeks 8 and 16. At baseline, diagnoses were assessed by a semi-structured interview, the *Schedule for Affective Disorders and Schizophrenia for School Age Children, Present and Lifetime Version (K-SADS-PL; Kaufman et al., 1997)*. Our main dimensional measure of anxiety symptoms was the *Screen for Child Anxiety Related Emotional Disorders (SCARED; Birmaher et al., 1999)*, a reliable and valid 41-item youth and parent-report questionnaire. Scores above 25 on the SCARED are considered clinically significant. *Children's Depression Inventory (CDI; Kovacs, 2001)* served as our main depression symptom scale. The CDI is a 27-item youth-report questionnaire, and scores above 13 are generally considered to be clinically elevated. Finally, the *Clinical Global Impression Scale (CGI-S and CGI-I; Guy, 1976)* was used to assess overall global illness severity (CGI-S) and

improvement (CGI-I). The CGI is an interviewer-completed measure, and scores of 1 (“very much improved”) or 2 (“much improved”) indicate an acceptable treatment response.

Clinical Examples

Two patients are presented to illustrate the application of the IBBT model in the pediatric primary care setting. The cases were chosen to highlight the most innovative use of the program, namely as an integrated treatment protocol for youths with a mixed anxious-depressed presentation. The first case, Kristi, provides a snapshot of the model in a younger teen with prominent somatic symptoms, separation anxiety concerns, and a new-onset mild depression symptoms. The second case, Aaron, illustrates the application of the model with an older adolescent with a longer-standing ruminative depressed and worried presentation. Following description of these two specific cases, we discuss similarities and differences in the flexible application of the protocol to each youth and treatment themes that characterize work in the IBBT model versus in other more traditional cognitive-behavioral approaches.

Kristi. Kristi was a 13 year old female suffering from a first-onset major depressive episode and long-standing problems with Separation Anxiety Disorder. Kristi reported difficulty making the transition to high school, worries about academic achievement, difficulty talking with new people and making new friends, daily stomachaches and headaches, frequent tearfulness, sadness, and anhedonia. In addition, her parents reported a significant increase in separation anxiety since her transition to high school, particularly if they chose to leave home in the evening. In middle school, Kristi had been a popular girl, by her and her parents’ report, with a close circle of familiar friends since childhood. She had been highly engaged in after school sports, although only in the presence of her well-known friends and family members. Kristi had joined one after school club since starting high school but was seriously considering dropping out, since her only old friend in the club had been away sick for a week.

At the beginning of treatment, Kristi was quite shy and refused to separate from her parents to meet the therapist. Given her somatic symptoms, the general discussion of fight to flight in the first session was strongly emphasized, and Kristi appeared to find this information very interesting and useful. In her mood monitoring, she chose to keep track of both her emotions and her experiences of unexplained pain. By the second session, it was clear that headaches and stomachaches were closely tied to anticipatory anxiety (e.g., Sunday night, when thinking about school on Monday). This “insight” appeared to have a strong impact on Kristi. She appeared to begin trusting the therapist’s opinions and suggestions and was willing to separate from her parents to have direct sessions with the clinician. Early success at using relaxation in the evening provided immediate symptom relief at home.

Building on this base, by Session 4 (treatment planning session) Kristi committed to an ambitious plan to dramatically increase her social interaction at school. She identified “making friends” as the most rewarding activity she could engage in to impact her feelings of sadness and hopelessness. In session, Kristi practiced the component skills of making conversation that were most anxiety provoking (e.g., eye contact, smiling). These skills were practiced with her therapist first, and then with general reception staff, and finally other youths in the pediatric waiting room (e.g., making conversation with youths waiting for sports physicals). Away from the office (and the coaching of her therapist), Kristi sought opportunities to hang out with her old friends, meet the new people that they had befriended in high school, and engage in conversation with people in classes where she did not know anyone (with daily exercises on this theme). This was anxiety provoking but also very socially reinforcing, and Kristi was able to significantly expand her social circle by the end of treatment, including attending a party where no family members or childhood friends were present.

As can be seen in Figure 1, Kristi's scores on the SCARED at baseline were extremely high, with her self-reported level of anxiety a full standard deviation above the *clinical* cut-off for the measure. Her levels of depression were also above the clinical cutoff for the CDI, according to both her and her parents' report. The independent evaluator rated her as markedly ill, with significant impairment in multiple settings due to problems with anxiety and depression. Over the course of treatment, Kristi showed steady improvement across all symptom domains. Indeed, mid-way through BCBT (Week 8), Kristi's anxiety symptoms, while still high, were no longer within the clinical range. This reduction represented a *reliable change*², according to conventional criteria for evaluating clinical significance (Jacobsen & Truax, 1991), and Kristi maintained this reliable change in anxiety symptoms consistently through the 6 month follow-up assessment.³ Kristi's depression symptoms also substantially improved over the course of care; however, this drop did not meet criteria for reliable change until Week 16. This said, by Week 12, Kristi's depression symptoms were negligible and had functionally disappeared by six month follow-up (CDI total score of 2). In terms of overall improvement, by Week 12, she was rated as "much improved" and as "very much improved" by Week 24, with no impairing symptoms present.

Aaron. Aaron was a 17 year old male who met criteria at baseline for Major Depression, Generalized Anxiety Disorder (probable), and Specific Phobia (flying). Aaron had recently ended his first significant romance and was attempting to find a new girlfriend. By his report, his previous partner was unhappy with their break-up, was spreading rumors about him at school, and had actively threatened potential new girlfriends. Aaron described feeling helpless to counter these actions and had withdrawn from almost all social activity in order to avoid any accidental contact with or conversation about his former girlfriend. Aaron ruminated about his current circumstances, worried about his ability to form relationships in the future and his capacity to function as an adult (e.g., going to college, getting a job, moving from home), and feared being a burden to his parents

as they grew older. Though many of these worries predated the current stressful situation, their intensity had increased dramatically in recent weeks. Simultaneously, Aaron reported inability to concentrate, difficulty staying asleep, and loss of appetite.

Given his age (17), treatment with Aaron was primarily individual, with only occasional check-ins with his mother. In the first session of therapy, Aaron identified the stress around his unpleasant break-up as the trigger for his current depression and increase in general worries. Aaron endorsed broad problems in handling stressful situations and a tendency to avoid unpleasant interactions as much as possible. He did not evidence significant somatic symptoms (other than insomnia) and found that relaxation made his body feel “weird” and “worried” about whether he was doing it correctly. He did, however, identify the problem solving skills in Session 3 as interesting, but anxiety provoking to consider trying.

In Session 4, Aaron agreed to a conceptualization of his current distress and impairment as result of avoiding social situations as an ineffective way of coping with the negative affect around his break-up. The goals of the remainder of treatment with Aaron were to (a) help him to use problem solving methods to develop plans for actively managing his ex-girlfriend’s behavior, (b) role play in session his responses to her and to questions about his relationship by others in their social group, and (c) practice graded re-engagement into social settings. Aaron evidenced a high degree of anticipatory worry around social re-engagement, beginning with the first step of talking about his “girl problem” with his male friends. Once he began talking with his friends, his depression symptoms dropped markedly, and he was able to quickly move up his exposure/activation hierarchy and begin attending social events on a regular basis.

As can be seen in Figure 2, Aaron’s improvement in depression symptoms was noted by his mother by the mid-treatment assessment point. Her ratings of his mood showed *reliable change* by Week 8 and maintained these gains over follow-up. Aaron’s report of his own depression

symptoms did not show sustained reliable improvement until Week 16; however, from that point onwards, he reported no symptoms of depression. In terms of anxiety, both Aaron and his mother agreed that clinically significant, reliable improvement from baseline had occurred at mid-treatment (Week 8), post-treatment (Week 12), and one month follow-up. At the six month follow-up, Aaron's mother was concerned about his anxiety around college entrance exams and potentially needing to fly across the country once he was away at school. Aaron did not report an increase in symptoms at this assessment point. Overall, Aaron's improvement at post-treatment and follow-up was rated as "much" and "very much improved", with only mildly impairing symptoms at latest follow-up.

Themes of the treatment program. Examining our two cases in detail reveals core commonalities in clinical presentation and response to treatment. Neither Kristi nor Aaron met criteria for Social Phobia; however, avoidance of and impairment in age-appropriate social relationships was a key aspect in each case. For both youths, symptoms of anxiety significantly impacted their abilities to adapt to changing social situations. For Kristi, the challenge was separation from familiar friends and family, and, for Aaron, the ability to manage the worry and uncertainty around romance. In our conceptualization of each case, anxiety and avoidance of negative affect was viewed as fueling social withdrawal, and withdrawal from socially reinforcing relationships as contributing to the development of low mood and maintenance of depression symptoms. As each youth successfully reduced avoidance and mastered graded social re-engagement, they appeared to experience a sharp reduction in feelings of anxiety and general re-moralization. Their symptom trajectories on the SCARED and CDI paralleled the improvements noted in sessions.

This apparently shared process toward recovery did not translate into identical paths through treatment. Kristi suffered from prominent somatic symptoms, as is quite common in internalizing

youths drawn from medical settings (Campo et al., 2002). Her treatment began with targeting these symptoms with relaxation techniques, which proved very successful and increased her commitment to the “hard work” of graded social exposure. In contrast, Aaron presented with few somatic complaints, other than insomnia associated with nighttime worry and rumination. He found relaxation almost aversive and was much more oriented toward active problem solving. We were pleased that problem solving provided a useful “hook” for engaging Aaron into BA-type social activity. Given his GAD/MDD presentation, there were initial concerns that a primarily behavioral protocol may be a poor fit to his significant cognitive symptoms. Taken together, with consideration of the clinically dissimilar symptom presentations, these two case examples provide support for the flexibility and external validity of the combined techniques included in this single intervention model.

Of course, with our current design, we cannot assess whether inclusion of techniques such as cognitive restructuring would have provided additional benefit: For the purpose of our work in primary care, parsimony in treatment was placed as a higher value than comprehensiveness. This strategy stands in contrast to many efforts in the field to produce comprehensive, modular treatments for youth anxiety and mood problems. The modular approach seeks to provide practitioner with flexibility to choose between many techniques drawn from empirically supported therapies in order to develop a custom-fit to the particular needs of each patient. There is some evidence that for youth anxiety a modular treatment approach produces positive outcomes (Chorpita et al, 2004). However, in the area of adolescent depression, the most well-known modular treatment manual is CBT protocol employed in the Treatment of Adolescents with Depression Study (TADS), in which CBT failed to outperform a pill placebo condition. The TADS manual strove to be comprehensive and to provide a great deal of therapist choice in selecting what specific CBT treatment techniques were used with each case (Curry & Wells, 2005). While this strategy is

intuitively appealing, in practice, it may have led to many youths receiving a less than optimal dose of “core” CBT techniques (e.g., behavioral activation) with less central activities dominating the treatment dose (e.g., rekindling attachment) (see, e.g., Hollon, Garber, & Shelton, 2005). Such concerns drove our focus on selecting a small set of core, behavioral techniques and encouraging youths to practice and gain mastery in these focused domains.

Summary and Future Directions

The primary aim of our work has been to develop a brief, integrated treatment for anxiety and/or depression, in order to efficiently intervene with the broad spectrum of mild to moderately impaired youths seen in primary care settings. Though the behavioral techniques that form the core of this intervention program themselves are not novel, the combination and brief application of these techniques offer an innovative approach to treating “near neighbor” disorders in an efficient, flexible, and practice-friendly intervention protocol. Overall, we view the successful application of the intervention to the cases of Kristi and Aaron as promising support for the effectiveness of a simple, integrated behavioral protocol across the internalizing disorders.

While this initial work has been promising, many lessons have already been learned in our pilot study, and we foresee several improvements in the program and implementation process that could be undertaken. For example, we can well imagine that our brief treatment model may be insufficient to produce remission of symptoms in some youths. We developed a brief, eight session model to map onto short lengths of stay reported in studies of real world community mental health care (e.g., Weersing & Weisz, 2002) and the even lower number of mental health sessions attended in youth primary care mental health clinical trials (mean of three sessions; Asarnow, 2003).

Fortunately, there are some data to suggest CBT may have acute effects on youth depression in as few as four weeks (Ackerson, Scogin, McKendree-Smith, & Lyman, 1998; Renaud et al., 1998), and the shortest exposure-based interventions for anxiety last 4 to 8 sessions (Compton et al., 2004).

Taken together, these findings seemed to provide a solid rationale for crafting an eight-session intervention program and assessing whether this minimum dose of therapy will prove effective with mild to moderately impaired youths.

Our sense of the study, as it has unfolded, is that this very short program may work well at immediate post-treatment, but there may be youths over the longer-term who would benefit from additional intervention as they encounter new stresses and challenges in the months following IBBT. In the depression literature, there are data to suggest that booster sessions help youths with incomplete remission to consolidate gains (Clarke et al., 1995). Although not within protocol per se, our project clinicians have reported that families routinely drop by their offices when they are at the practice for other appointments, even after IBBT is over. These conversations typically have been brief hellos, updates on youth progress, and, occasionally, a 10-minute conversation about how to “keep the plan going.” To systematize opportunities for this sort of quick coaching, we have considered whether it may be efficient to deliver boosters as a brief phone consultation or a drop-in group-based refresher session, rather than continuing full IBBT sessions.

Conversely, for youths who do not demonstrate substantial improvement over the course of IBBT, additional intervention with a psychosocial model may not be the most effective plan. Primary care settings are particularly well-suited to offer stepped psychosocial-pharmacological care, and initial treatment with a psychotherapy program may lower youths’, parents’, and providers’ resistance to the use of antidepressant medications in youths as a follow-up intervention. The psychoeducation model in IBBT explicitly discusses the interplay of stress, mood, and bodily reactions, and, in our conversations with PCCs, this frame has seemed very compatible with a later discussion of the role of medication in the treatment of internalizing symptoms.

As expected, in our pilot cases to date, we have noted extensive comorbidity between anxiety and depression. Many of our youths also have suffered from attention problems and learning

disabilities, and these youths have appeared to benefit from the program. Indeed, by focusing on an active behavioral approach to treatment, we hoped that this model would be a better fit for these youths than more cognitive interventions. In our sample, thus far, we have not seen significant comorbidity with severe conduct problems. This may be a function of our referral process. PCCs referred internalizing youths to the project, and they did an excellent job of specifically identifying youths with anxiety, depression, and somatic symptoms – and perhaps excluding more seriously acting-out children and adolescents. Youths in our sample were not without oppositional behavior; for example, school refusal has been an issue in the majority of cases. However, our flexible parent check-in and consultation model may need to be expanded to manage the behavior of more seriously oppositional children and adolescents. In a different vein, we also can see a role for additional coaching for parents with current anxiety or depression themselves or the development of a conjoint, family-practice treatment model for families with internalizing symptoms across the generations.

In the future, we also hope to explore how implementation of the model in different pediatric practice models with different staff and clinicians may influence the success of the program – and the ability of the program to be implemented and sustained over time. We based our initial effectiveness trial of the IBBT protocol in two large pediatric practices, and we trained existing staff to deliver the intervention. However, both the practices and clinicians were likely much more mental health savvy and research friendly than average, given their previous connection to NIMH-funded research. We view our use of these practices as a developmental step along the efficacy-effectiveness continuum. As we have discussed elsewhere (Weersing et al., 2006), research and practice settings differ along a multitude of dimensions, and it may be valuable to take advantage of half-step opportunities – settings that are successive approximations to real world care and that can serve as “natural labs” in the process of translational research. To prepare for future implementation

in more everyday settings, we have begun by exploring ways in which the intervention may be made more robust to differences in clinician familiarity with CBT techniques. For example, we have begun developing a multi-media version of our psychoeducation materials and relaxation skills training. These materials are not meant to replace clinician-patient contact but rather to be a session support and reduce the burden of training, learning, and applying unfamiliar new skills in the midst of busy pediatric practice.

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Footnotes

¹These inclusion criteria for “probable anxiety disorder” were designed to parallel the diagnosis of Minor Depression.

²Reliable change index (RCI) was calculated according to methods outlined by Jacobson and Truax (1991) using the following formula: $RCI = \frac{x_1 - x_2}{S_{diff}}$, where $S_{diff} = \sqrt{2(S_E)^2}$, $S_E = s_1 \sqrt{1 - r_{xx}}$, x_1 = pretreatment score, x_2 = posttreatment score, s_1 = standard deviation of normal population, r_{xx} = test-retest reliability of the measure. An $RCI > 1.96$ represents a reliable change (at $\alpha=.05$). A change is said to be clinically significant if (1) there is a reliable change and (2) the pre- to post-treatment score on the measure crosses the clinical cutoff (c). Normative data used to measure RCI and clinical significance in these cases were as follows: CDI: $s_1 = 7.04$, $r_{xx} = .74$ (Smucker et al. 1986), $c = 13$ (Kovacs, 2001); SCARED: $s_1 = 12.14$ (Wren et al., 2004), $r_{xx} = .86$, $c = 25$ (Birmaher et al., 1999).

³Due to missing data, the RCI was not calculated for Parent SCARED at Week 12 for Kristi. In Figure 1, this value was interpolated for graphical depiction.

Table 1. Descriptive Data for Two Patients with Anxiety and Depression

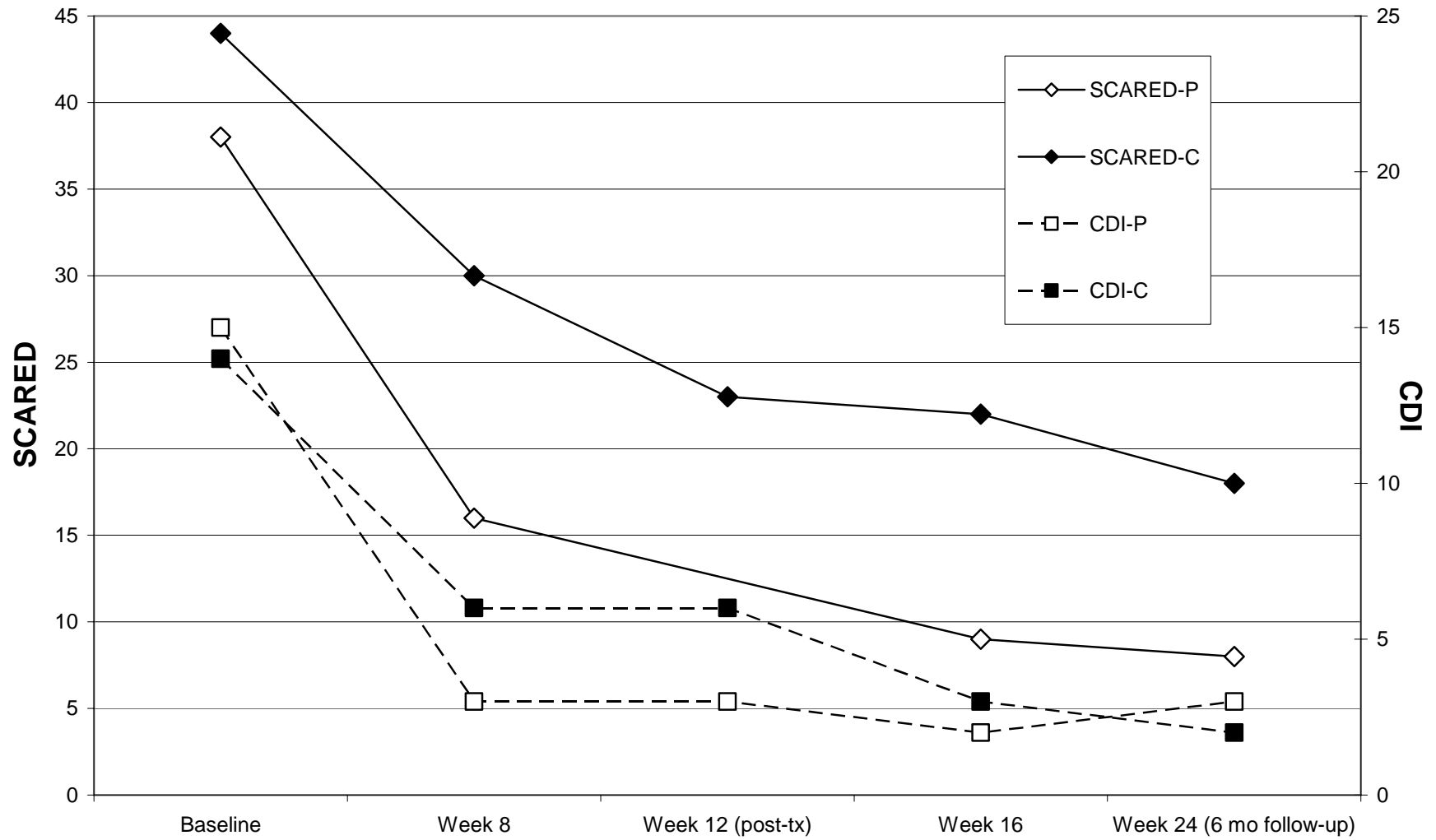
	Age	Gender	Grade in school	Ethnicity	Diagnosis
Kristi	13	Female	10	White	Major Depressive Disorder Separation Anxiety Disorder Anxiety NOS
Aaron	17	Male	12	White	Major Depressive Disorder Simple Phobia (flying) Probable Generalized Anxiety Disorder

Figure Captions

Figure 1. Outcome trajectory for *Kristi* on youth- and parent-report of anxiety (SCARED) and depression (CDI) symptoms

Figure 2. Outcome trajectory for *Aaron* on youth- and parent-report of anxiety (SCARED) and depression (CDI) symptoms

Kristi



Aaron

