CHAPTER 4

Cognitive-Behavioral Treatment for Adolescent Depression

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OVERVIEW OF THE CLINICAL PROBLEM

Among adolescents, major depressive disorder (MDD) is one of the most prevalent mental disorders, with approximately 15–20% of adolescents experiencing an episode of depression during the teenage years (e.g., Merikangas et al., 2010). Early-onset MDD is often marked by a recurrent course and psychiatric comorbidity, with increased risk for academic failure, teen childbearing, impaired marital and parental functioning, poor work performance, and increased risk of numerous physical disorders and early mortality (Kessler, 2012).

Our research in adolescent depression treatment has been influenced by findings from a longitudinal epidemiological study that happened concurrently. The Oregon Adolescent Depression Project (OADP; Lewinsohn, Hops, Roberts, Seeley, & Andrews, 1993) began as a large, randomly selected cohort of high school students assessed twice over the course of one year. A subset of participants completed a third assessment after their 24th birthday, and a fourth assessment occurred after participants turned 30 years of age. One of the most surprising OADP findings was the high prevalence of MDD: 3% reported current MDD at the first two assessments, but one in four (24%) reported lifetime MDD by the second assessment, which occurred around 18 years of age. By age 30, the cumulative MDD incidence was 51% (Rohde, Lewinsohn, Klein, Seeley, & Gau, 2013). The apparent ubiquity of early MDD was concerning, but it emphasized the need to develop effective interventions for this age group. Adolescent MDD had a mean duration of 6 months, but longer episodes were associated with earlier onset, suicidal ideation, or treatment receipt (Lewinsohn, Clarke, Seeley, & Rohde, 1994).

The experience of MDD impacts adolescent functioning in almost all domains we examined, including depression-related cognitions, self-consciousness, excessive

emotional reliance on others, major life events and hassles, coping skills, social support from family and friends, social competence, interpersonal conflict, poor health, and smoking (Lewinsohn, Clarke, et al., 1994). Formerly depressed adolescents continued to differ from their never-depressed peers on many of these psychosocial variables. Many of the depression-related measures also acted as risk factors for future depression, especially past depression, other mental disorders, suicide attempt, and physical symptoms. The diversity of associated deficits suggested that there probably is not a single cause or maintaining factor, which led to our cognitive-behavioral therapy (CBT) program having a "smorgasbord" of skills.

Another striking feature of adolescent MDD in the OADP was the high occurrence of comorbid psychopathology, with almost half of depressed adolescents (43%) having a lifetime co-occurring disorder (significantly higher rates for anxiety disorders, alcohol and drug use disorders, conduct disorder; Rohde, Lewinsohn, & Seeley, 1991). Adolescent comorbidity rates appear higher compared to depressed adults. When comorbidity was present, depression tended to occur after rather than before the other psychiatric condition, though we also found that adolescent MDD increased the risk for future non-mood disorders. Comorbidity was associated with greater suicidality and treatment seeking. The high rates of adolescent comorbidity strongly influenced the direction of our treatment research.

CONCEPTUAL MODEL GUIDING THE TREATMENT PROGRAM

CBT for adolescent depression is based on cognitive and behavioral treatment interventions initially developed and evaluated with depressed adults. The cognitive vulnerability model (Beck, 1967) posits that individuals at risk for depression (and those currently depressed) selectively attend to, and have stronger recall for, negative rather than positive stimuli. The primary goal of cognitive-based treatment is to help people become aware of pessimistic thoughts, depressotypic beliefs, and causal attributions in which they blame themselves for failures but do not take credit for successes. Once these depressotypic thinking patterns are recognized, individuals are taught to develop and substitute more realistic cognitions for these counterproductive ones.

Behavioral theories of depression (Lewinsohn, 1974) emphasize the role that maladaptive actions play in the onset and maintenance of depression, positing that depressive symptoms develop (and persist) as the result of decreased environmental reward, reductions in positively reinforced behaviors, and reinforcement of depressive behaviors. The primary goal of behavior-based treatment is to increase engagement in activities that are personally reinforcing.

CBT combines cognitive and behavioral strategies aimed at ameliorating the types of problems common among depressed individuals. CBT for depression shares elements found in CBT treatments for other disorders, such as the focus on specific and current actions and cognitions, structured sessions, repeated skills practice in and out of session, the use of rewards and contracts, homework assignments, and a relatively small number of sessions. Our version of CBT rests on an underlying model that assumes that multiple causal factors contribute to depression, none of which is necessary or sufficient. CBT is therefore based on the premise that

teaching adolescents a variety of coping strategies will allow them to counteract the diverse factors that contribute to their depression and deal more effectively with problems posed by their environment.

CHARACTERISTICS OF THE TREATMENT PROGRAM

Our program of research revolves around the Adolescent Coping With Depression course (CWD-A; Clarke, Lewinsohn, & Hops, 1990), a group-based CBT intervention. The CWD-A was adapted for adolescents from an adult version by simplifying the in-session material and homework, enhancing experiential learning opportunities (e.g., adding role plays), and adding modules to improve communication and problem-solving skills. The CWD-A comprises 16 two-hour sessions conducted over 8 weeks for mixed-gender groups of up to 10 adolescents.

The CWD-A comprises eight core components:

1. Treatment begins with the CBT model of depression, which provides a treatment rationale.
2. Participants monitor their mood daily throughout treatment to provide baseline data, see that their mood does change, and identify mood changes that occur as a result of new skills practice.
3. Increasing pleasant activities is provided as a form of behavioral activation and includes baselining current activity level, setting realistic goals to increase frequency and/or variety of activities, developing a change plan, and self-reinforcing goal achievement.
4. Social skills training includes practice in basic conversation techniques, planning social activities, and strategies for making friends.
5. Given the frequent co-occurrence of anxiety, relaxation training with progressive muscle relaxation and deep-breathing techniques are taught.
6. A significant portion of the CWD-A focuses on reducing depressogenic cognitions, using simplified versions of interventions developed by Beck and colleagues for identifying, challenging, and changing negative thoughts and irrational beliefs. Cartoon strips (e.g., Garfield the cat) are initially used to illustrate depressotypic thoughts and generate alternative positive thoughts, followed by repeated application of these skills to personal triggers.
7. The next component is improved communication (active listening, expressing negative and positive thoughts) and problem solving (defining problem, brainstorming, evaluating options, specifying an agreement).
8. The intervention concludes with relapse prevention, which involves skills integration, anticipation of future problems, and development of a life plan.

Given that parents are an integral part of the adolescent's social system and may contribute to the onset and maintenance of depression, a parallel parent group intervention was developed (Lewinsohn, Rohde, Hops, & Clarke, 1991). The parent course has two goals: (1) to inform parents of the CBT material their children are learning to encourage support and reinforcement of the adolescent's use of skills, and (2) to teach parents the communication and problem-solving skills that are

being taught to their child. Parents meet with a separate therapist weekly for 2-hour sessions conducted at the same time as the teen group. Two joint sessions are held in the seventh week, during which the adolescent and parent groups come together to practice these skills on issues salient to each family.

EVIDENCE ON THE EFFECTS OF TREATMENT

The CWD-A as a group treatment intervention has been evaluated in five randomized controlled trials (RCTs). In addition, individual treatment interventions based on the CWD-A have been evaluated in two RCTs, and the program has formed the basis for an impressive body of research on depression prevention for at-risk adolescents. An overview of our research program is shown in Figure 4.1, and information about each RCT appears in Table 4.1.

Initial Efficacy Trial

Our first RCT involved 59 depressed adolescents who were randomized to (1) the CWD-A group for adolescents only; (2) the CWD-A group for adolescents with a separate parent group; or (3) the wait-list condition, and followed for 24-months posttreatment (Lewinsohn, Clarke, Hops, & Andrews, 1990). Planned comparisons indicated that all improvements were accounted for by the two active treatments compared to wait-list control. Contrary to expectation, differences between the Adolescent-Only and Adolescent + Parent conditions on diagnostic outcomes were nonsignificant. Forty-six percent of the treated adolescents no longer met depression criteria by the end of treatment compared with 5% of wait-list participants. By 6-months posttreatment, the rate of recovery for treated adolescents increased to 83%. Gains were maintained for the adolescents in the two active interventions, with very few teenagers experiencing recurrence.

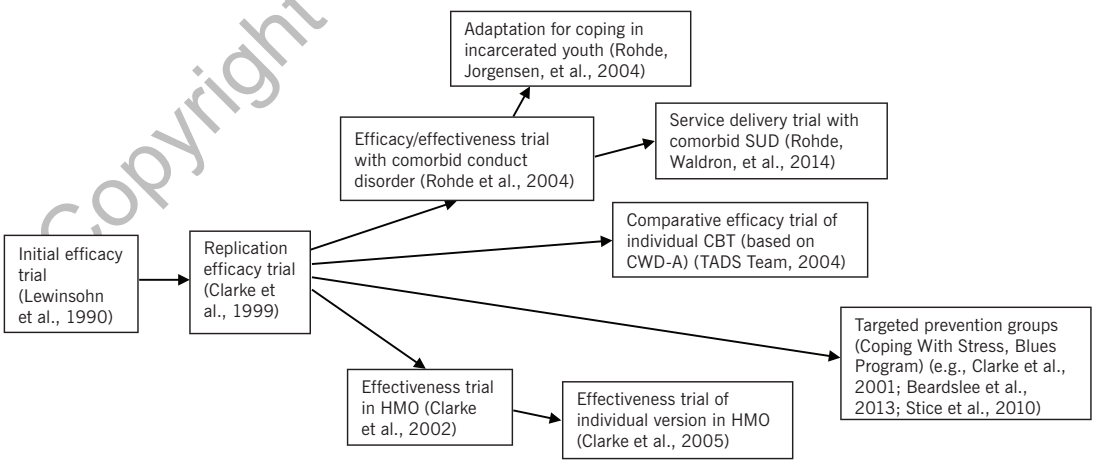

FIGURE 4.1. Program of research involving the Adolescent Coping With Depression course (CWD-A).

TABLE 4.1. Description of Treatment RCTs Conducted in Our Program of Research

Study	Study design	Sample	Outcome rates	Notes
Lewinsohn et al. (1990)	Three conditions: (1) CWD-A (adolescent only; 14 2-hr sessions) vs. (2) CWD-A (adolescent + parent) vs. (3) WL	*N* = 59 with depression (MDD, minor, intermittent depression)	Posttreatment remission: 43% Adolescent Only vs. 46% Adolescent + Parent vs. 5% WL; sig difference active vs. WL	Remission for active tx ~70% by 1-mo follow-up
Clarke et al. (1999)	Three conditions same as Lewinsohn et al. (1990) but CWD-A increased to 16 sessions	*N* = 96 with depression (MDD, dysthymia)	Posttreatment remission: 65% Adolescent only vs. 69% Adolescent + Parent vs. 48% in WL; sig difference active tx vs. WL	Recurrence by 2-yr follow-up = 22%
Rohde, Clarke, et al. (2004)	Two conditions: (1) CWD-A (adolescent only) vs. (2) life skills/tutoring (matched on duration, modality)	*N* = 93 with MDD and conduct disorder	Posttreatment MDD recovery: 39% vs. 19% (sig difference)	MDD recovery rates at 12-mo follow-up 63% vs. 63% (ns)
Rohde, Waldron, et al. (2014)	Three conditions: (1) CWD-A (12 2-hr sessions) then functional family therapy (FFT) vs. (2) FFT then CWD-A vs. (3) coordinated CWD-A + FFT	*N* = 170 (MDD, dysthymia, D-NOS) and substance use disorder	Posttreatment depression remission: 45% CWD-A/FFT vs. 44% FFT/CWD-A vs. 52% coordinated tx (ns)	60% depression remission across conditions by 1-yr follow-up (ns)
Clarke et al. (2002)	Two conditions: (1) CWD-A + usual care vs. (2) usual care	*N* = 88 (MDD, dysthymia) with depressed parent receiving tx	Posttreatment remission: 58 vs. 53% Posttreatment recovery: 32% vs. 30% (both ns)	Recovery at 2-yr follow-up 90% vs. 92% (ns)
Clarke et al. (2005)	Two conditions: (1) individual CWD-A (5–9 sessions) + usual care SSRI vs. (2) usual care SSRI	*N* = 152 with MDD (who had received SSRI medications)	Remission 6-wk follow-up: 57% vs. 43% Remission 12-wk follow-up: 77% vs. 72% Remission 52-wk follow-up: 89% vs. 94% (all ns)	Recurrence by 1-year follow-up = 24%
TADS (2004, 2007)	Four conditions: (1) CBT (no. of sessions: 15 acute, 3–6 continuation, 3 maintenance) vs. (2) fluoxetine vs. (3) combination CBT/fluoxetine vs. (4) pill placebo	*N* = 439 adolescents with MDD	12-week response: 43% vs. 61% vs. 71% vs. 35% 12-week remission: 16% vs. 23% vs. 37% vs. 17% (combination superior to other conditions, which were ns)	Remission by end of tx (36-wk) ~60% (ns) for active conditions

Note. Response, significant reduction in symptoms; Remission, depression resolution (symptom-free) or nearly symptom-free; Recovery, remission that is maintained (generally 8 weeks or longer); Recurrence, new episode of depression after achieving recovery. CWD-A, Adolescent Coping With Depression course; WL, wait list; MDD, major depressive disorder; tx, treatment; sig, statistically significant; D-NOS, depression not otherwise specified; wk, week; mo, month; yr, year.

Replication Efficacy Trial

Our primary goal in the second RCT was to replicate the initial findings with a larger sample. A total of 96 depression adolescents were randomized to the same three conditions and followed for 2 years (Clarke, Rohde, Lewinsohn, Hops, & Seeley, 1999). Our secondary goal in this RCT was to evaluate a booster protocol aimed to enhancing the maintenance of treatment gains. At the end of group treatment, clients in the two treatment conditions were randomized to (1) individual booster sessions (and assessments) every 4 months, (2) assessments every 4 months, or (3) assessments once a year.

As in the first RCT, posttreatment diagnostic recovery rates for the two active treatments were superior to wait-list condition, but recovery rates for the two CWD-A versions did not differ. Both treatments also showed comparable improvements in depression continuous measures and functioning scores that were superior to the wait-list condition. The two active treatments also did not differ in 2-year recovery rates.

We found no evidence to support the hypothesis that boosters reduced the risk of recurrence; instead, their main effect appeared to be facilitating recovery among adolescents who were still depressed at the end of the group. Thus, the boosters may be better described as "continuation" treatment rather than "depression recurrence prevention." Based on these results, we propose that booster sessions be provided only to adolescents who are still experiencing depressive symptoms at the end of acute treatment, and perhaps that boosters occur more frequently initially, reducing in frequency as the adolescent improves. Given the lack of support for boosters in this RCT, we have not continued to evaluate them as a part of the CWD-A (though they are retained in the individual CBT provided in the Treatment for Adolescents with Depression Study [TADS]).

Both the initial and replication RCTs found no evidence that parental involvement significantly enhanced CWD-A outcomes. These results were inconsistent with widely held clinical beliefs (including our own!) that parental involvement is necessary in the treatment of adolescent depression. Parental attendance (especially for fathers) in both trials was less than ideal, and both studies examined only one method of involving parents in treatment. I address the issue of parents in CBT later in this chapter when discussing important unresolved issues.

Hybrid Efficacy–Effectiveness Trial with Comorbid Adolescents

A secondary analysis of data from the first two RCTs found that depressed adolescents with substance use disorders had a slower time to depression recovery and those with disruptive behavior disorders were more likely to experience MDD recurrence (Rohde, Clarke, Lewinsohn, Seeley, & Kaufman, 2001). Given these negative outcomes, in combination with the high rates of comorbidity, our treatment research next shifted into evaluating the CWD-A among depressed adolescents with significant comorbidity, specifically conduct disorder (CD). Our next RCT evaluated effectiveness of the CWD-A for depression among 93 adolescents with current MDD/CD. Participants were recruited from the local juvenile justice department and randomized to the CWD-A or a life skills/tutoring control group matched on duration and modality (Rohde, Clarke, Mace, Jorgensen, & Seeley,

2004). MDD recovery rates posttreatment were significantly greater in the CWD-A compared to life skills group, and CWD-A participants reported greater reductions on both self-report (d = 0.48) and interviewer-based (d = 0.44) depression measures. However, MDD recovery rate were comparable at both 6- and 12-month follow-up.

This study was the first RCT of a psychosocial intervention with depressed adolescents with significant comorbidity. Although the CWD-A appeared to be an effective depression treatment in multidisordered adolescents (in addition to MDD and CD, 26% had concurrent attention-deficit/hyperactivity disorder [ADHD] and 72% had one or more diagnoses of substance abuse/dependence), the overall response rates were much lower than the earlier trials, highlighting the challenges of treating adolescents with co-occurring disorders and emphasizing the need to improve long-term outcomes for comorbid depressed adolescents. In addition, we found no evidence that the CWD-A intervention had any impact on the course of CD, suggesting that interventions for comorbid populations focus directly on each disorder, which we would do in our next treatment RCT.

Pilot Study Adaptation of the CWD-A as a General Coping Skills Intervention for Incarcerated Youth

During the time of our third treatment RCT, we also piloted a modification of the CWD-A for all (male) adolescents who were incarcerated in the Oregon youth correctional system (Rohde, Jorgensen, Seeley, & Mace, 2004). The goal of this group (entitled the Coping Course, based on the CWD-A) was to enhance general coping and problem-solving skills among incarcerated youth. Male adolescents incarcerated at a youth correctional facility were assessed by questionnaire and randomized to the Coping Course (n = 46) or usual care (n = 30), repeating the survey after the program; a second correctional facility provided additional control group data (n = 62). We found significant changes for reduced suicide proneness and externalizing problems, increased self-esteem, and increased sharing of feelings with staff.

Second RCT with Comorbid Adolescents: Evaluation of Service Delivery Models

Given that our first RCT with comorbid adolescents found no effects from CBT on depression or the comorbid condition, we next examined different methods of delivering two treatment interventions, each focused on one disorder. We focused on depression and substance use disorders (SUDs), as both are highly prevalent and frequently co-occur. We evaluated three methods of integrating the CWD-A with functional family therapy (FFT; Alexander & Parsons, 1982), an evidence-based treatment of externalizing problems and substance abuse, randomizing 170 adolescents with depressive disorder and an SUD to (1) treating the SUD first, (2) treating the depression first, or (3) treating both disorders simultaneously. Depressive symptom reductions occurred early in all three treatment sequences, with no evidence that one sequence resulted in more rapid depression recovery (Rohde, Waldron, Turner, Brody, & Jorgensen, 2014). Approximately half of the adolescents achieved depression remission during treatment, which rose to 60% one year later. Regarding substance use outcomes, among adolescents with depression at the level

of MDD (54% of the sample), providing CWD-A first resulted in greater substance use reductions. Conversely, if the adolescent's depression was not at the level of MDD, the three treatment sequences had a similar pattern of substance use outcomes.

To our knowledge, this was the first RCT to evaluate the effectiveness of psychosocial treatments for depression and SUDs. Most relevant to clinical recommendations, no treatment sequence resulted in more rapid depression recovery. In addition to changes in depression and substance use outcomes, we examined the degree to which adolescents across treatment sequences attended therapy, as substance abusing adolescents are notoriously difficult to engage and retain in therapy. For youth in either sequenced condition, there was significantly lower engagement for the second modality, suggesting a fairly narrow "window of opportunity" for engaging adolescents in sequential treatment.

Contrary to expectation, coordinated treatment failed to be superior to either sequenced condition for depression or SUD. One potential explanation is that coordinated care failed to create a coherent change model; a second possibility is that working on two separate problems concurrently was overly demanding. Also, adolescents in coordinated treatment had different therapists for each treatment, which may have impacted the alliance with each provider. Many of these same issues apply to individual CBT delivered in combination with antidepressants, which I discuss later.

Effectiveness Trial in a Health Maintenance Organization Setting

As my colleagues and I at Oregon Research Institute (ORI) were evaluating the CWD-A with different comorbid populations, Greg Clarke was evaluating methods to integrate versions of the CWD-A into standard care. In the only evaluation, to my knowledge, of a group-based adolescent depression treatment in usual care, Clarke et al. (2002) identified depressed adolescents who had a depressed parent receiving treatment in a health maintenance organization (HMO) and randomized teens to CWD-A plus usual care versus usual care alone, following participants up to 24-months posttreatment. Survival analyses predicting depression recovery or remission found no advantage for CWD-A at posttreatment compared to usual care. Similar nonsignificant recovery differences were reported at 12- and 24-month follow-ups. Differences on continuous measures of depression and functioning were also nonsignificant. Thus, CWD-A group treatment did not incrementally benefit depressed adolescents who were receiving the usual type and amount of care provided in this HMO setting. One possibly significant factor was that depressed adolescents were selected on the basis of having a depressed parent (later depression prevention work conducted by Clarke and colleagues (e.g., Beardslee et al., 2013) suggests that parental depression may be a contraindication for CBT prevention).

HMO Effectiveness Trial Using an Individualized CWD-A

There are significant logistical difficulties in conducting group-based treatments in usual care settings. Given these practical concerns, Clarke et al. (2006) developed a streamlined version of individual CBT, based on the CWD-A, that targets

cognitive restructuring or behavioral activation training. Treatment comprised five to nine individual sessions, followed by 1 year of periodic telephone check-ins. During acute treatment, the adolescent and therapist collaboratively chose one of two approaches to try for four sessions. After completing this module, they could jointly decide to implement the other module. The intervention was delivered in conjunction with antidepressant treatment and the program includes material to encourage medication adherence. This new collaborative care CBT program adjunctive to selective serotonin reuptake inhibitor (SSRI) treatment was evaluated in HMO pediatric primary care, identifying adolescents who had recently received SSRI medication (Clarke et al., 2005). Adolescents were randomized to the individual CBT plus usual care versus usual care. Although a marginal trend ($p = .07$) favored CBT augmentation on a continuous depression measure, no differences were found on the primary dichotomous outcome of MDD recovery. As in the first HMO effectiveness trial, results suggested that CBT does not markedly improve outcomes to well-delivery usual care. Worthy of note, however, is that usual care in this study achieved high and rapid recovery rates.

Comparative Effectiveness Trial of Individual CBT and/or Antidepressant Medication: The Treatment of Adolescents with Depression Study

Early evaluations of CBT for adolescent depression generally found it to be more efficacious that alternative treatments, including relaxation training, supportive therapy, and traditional counseling (e.g., Brent et al., 1997; Wood, Harrington, & Moore, 1996), but CBT had not been systematically evaluated in comparison to, or in combination with, antidepressant medications. The comparison of CBT versus antidepressants and the impact of combined CBT/medication were evaluated in greatest detail in the Treatment of Adolescents with Depression Study (TADS; TADS Team, 2003). TADS compared individual CBT, fluoxetine, combination CBT/fluoxetine, and a pill placebo with clinical management in 439 depressed adolescents. Treatment was delivered in three stages (acute, continuation, and maintenance therapy), followed by a 1-year follow-up.

CBT in TADS reflects a synthesis of the group-based CWD-A and a version of individual CBT developed by David Brent, which had achieved superior response rates compared to both systemic behavior family therapy and individual nondirective supportive therapy (60% for CBT compared to 39% for supportive therapy and 38% for family therapy; Brent et al., 1997). The 12-week acute CBT treatment focused on alliance building, goal setting, and skills building, starting with basic core skills, followed by more individually tailored skills. Eight core skills were required for all clients (i.e., treatment rationale, mood monitoring, goal setting, increasing pleasant activities, problem solving, automatic thoughts/cognitive distortions, realistic counterthoughts, relapse prevention); five additional skills were optional depending on client need (i.e., social interactions, assertion, communication/compromise, relaxation, affect regulation). Acute treatment included two parent-only psychoeducation sessions and at least one conjoint family session.

The continuation phase (i.e., Weeks 12–18) focused on relapse prevention for adolescents who had fully responded, and continued skill practice (with optional new skills) for partial responders (nonresponders were referred out). The maintenance

phase (i.e., Weeks 18–36) consisted of three sessions, once every 6 weeks, focusing on skills consolidation, maintenance of gains, and relapse prevention. The structure and content of the continuation and maintenance sessions resembled the booster sessions evaluated in Clarke et al. (1999) but were conceptualized as ongoing treatment for the index MDD rather than relapse/recurrence prevention, which is consistent with their function in Clarke et al.

It is fair to say that the poor outcomes for CBT at the end of acute therapy were shocking to TADS CBT researchers. At the end of 12 weeks, a continuous measure of depression severity indicated that only combination treatment achieved significantly greater reductions than placebo (TADS Team, 2004). Combined treatment was also superior to both monotherapies; however, fluoxetine alone was also superior to CBT alone. Furthermore, using a dichotomous measure of recovery by 12 weeks, the two treatment conditions involving fluoxetine were superior to either CBT alone or placebo, which did not differ. Across conditions, only 23% of adolescents reached the most stringent threshold of remission by 12 weeks, with significantly higher rates for combination therapy relative to the other treatment modalities, which did not differ (Kennard et al., 2006).

Although the initial TADS results were very disappointing for CBT monotherapy, by the end of 18 weeks, CBT outcomes were comparable to fluoxetine, and by 36 weeks (i.e., end of treatment), the three active treatments were comparable. One difficulty in evaluating treatments in TADS is that the double-blind was broken after 12 weeks, and those adolescents who had not responded to placebo were given the treatment of their choice. Thus, we do not know whether MDD simply ran its course for the majority of adolescents irrespective of treatment intervention(s), but the consensus from TADS was that CBT "worked" but took more time than either combination treatment or fluoxetine alone (TADS Team, 2007). It should be noted that the two versions of CBT that were combined to form the treatment in TADS were considerably more intensive than 12 weekly sessions (i.e., Brent's CBT lasted 16 weeks, the CWD-A consists of 32 hours of group intervention). Other explanations for the poor results of CBT in TADS were that the intervention was a hybrid CBT that had not been tested previously and that contained too many components (Hollon, Garber, & Shelton, 2005). In hindsight, both of these concerns are reasonable, especially the suggestion that TADS CBT was overly structured and complex.

Promising New Approaches

Four emerging trends in CBT intervention appear to have especially strong potential for clinical impact, widespread implementation, or both. These include (1) shifting the CBT focus from treatment to prevention; (2) using CBT to augment (either failed or successful) medication treatment; (3) embedding CBT within standard medical care; and (4) using eMental Health approaches, either as a stand-alone treatment or a supplement to traditional CBT.

Shifting CBT from Treatment to Prevention

Applying the cognitive-behavioral (CB) model of depression intervention to prevention in adolescents is not new, but it remains an active area of research, and one

that holds future promise. Greg Clarke modified the CWD-A to create a relatively brief (14–15 sessions) targeted prevention group intervention (called "Coping with Stress") for adolescents with either elevated depressive symptoms and/or depressed parent. The program significantly reduced MDD onset rates compared to usual care over 2-year follow-up in the initial efficacy trial (MDD onset rates were approximately 20 vs. 32%, respectively; Clarke et al., 2001) and more recently, in a large four-site study (37 vs. 48%, respectively; Beardslee et al., 2013). Before he joined me at ORI, Eric Stice developed a briefer (four- to six-session) group intervention ("Blues Program") that further simplified the intervention content, and found that it significantly reduced depression onset rates relative to assessment control over 2-year follow-up (14 vs. 23%, respectively; Stice, Rohde, Gau, & Wade, 2010). To my knowledge, six RCTs have collected diagnostic data over 2-year follow-up to evaluate CB adolescent depression prevention interventions to either assessment only, minimal intervention, or "usual care," with 17–58% lower MDD onset rates in the CB condition. Though not all studies had statistically significant differences, the consistent pattern of results appears clinically meaningful and important. Two factors that may encourage the use of CB prevention programs are that (1) pharmacotherapy is not recommended as an adolescent depression prevention intervention, and (2) most of these prevention programs are group-based, which may be a preferable method of delivering CBT (discussed below).

Using CBT to Augment Medication Treatment

The Treatment of SSRI-Resistant Depression in Adolescents (TORDIA) study was an RCT of 334 depressed adolescents who failed to respond to SSRI treatment. Participants were randomized to four conditions, two of which involved medications only, and two of which involved medications plus CBT (which was partially based on TADS CBT). At the end of 12-week augmentation therapy, the combination of CBT plus either medication resulted in significantly higher response than did either medication alone (55 vs. 40%; Brent et al., 2008). Betsy Kennard has built on the idea that the most efficacious treatment may initially provide antidepressants to achieve symptom response/remission, followed by CBT to build on this positive response and reduce recurrence. This continuation CBT (labeled relapse prevention CBT) significantly reduced relapse over 30 weeks in those treated with 6 weeks of antidepressants followed by relapse prevention CBT compared to those treated with medication only (9 vs. 26%; Kennard et al., 2014).

Collaborative Care Models to Deliver CBT Embedded in Medical Care

Given that the vast majority of depressed young people (60–80%) do not receive treatment (Cummings & Druss, 2011), researchers are focusing on improving the quality of depression treatment in the primary care setting, using a team-based collaborative care approach. Richardson et al. (2014) evaluated 101 depressed adolescents in primary care, randomized to a collaborative care intervention or usual care. Collaborative care consisted of a depression care manager conducting an initial engagement session in which adolescents chose either brief CBT (selected by 38%), medication (4%), or combination therapies (54%), with regular follow-up

over 12 months. After 1 year, adolescents in the collaborative care, compared to usual care, had a significantly higher response (68 vs. 39%) and remission (50 and 21%, respectively) rates. These approaches appear to be cost-effective and practical, as the large majority of adolescents have a regular primary care provider.

Using Other Modalities to Deliver CBT

As noted, few depressed adolescents (or adults) seek or are able to find treatment, due to therapist shortages, long waiting lists, lack of therapists trained in evidence-based practice, costs, and possibly stigma. Bibliotherapy offers a low-cost and readily available alternative intervention that has achieved a strong level of support for both depression treatment and prevention in adults (e.g., Gregory, Schwer Canning, Lee, & Wise, 2004). Even more appealing to adolescents are Internet-delivered CBT procedures, given increases in access and the greater potential for engaging interactive content. A meta-analytic review has found that, compared to wait-list control, Internet-delivered CBT for adults with mild/moderate depression achieved large between-group differences on self-report measures ($d = 0.83$; Arnberg, Linton, Hultcrantz, Heintz, & Jonsson, 2014). Interestingly, almost all of this research is happening outside of the United States (e.g., 88% of trials in Arnberg et al. had been conducted in Australia or Sweden). Very little research on either bibliotherapy or Internet-based intervention has examined depression treatment with adolescents, although computerized stand-alone CBT has been found to achieve higher remission rates for adolescents seeking depression treatment, but only among those who complete a minimum amount of homework (Merry et al., 2012).

FUTURE DIRECTIONS

Future directions in the area of CBT for adolescent depression are closely linked to significant unresolved issues. The first of these concerns the value of CBT relative to other approaches to adolescent depression treatment. It seems unlikely that CBT will be significantly superior to adequate doses of other evidence-based treatment (either psychosocial or pharmacological). Therefore, how do we personalize treatment delivery, providing an evidence-based match. Potential moderators include depression severity (especially when combination therapy is recommended), patient (adolescent or parent) preference, and possibly current parental depression (which negatively impacted the effectiveness of adolescent depression prevention [Beardslee et al., 2013]; does it also impact CBT treatment?). CBT for adult depression appears to reduce the risk of recurrence. Is that same outcome achieved for adolescent depression treatment? If not, can we figure out why?

A second major unresolved issue is how can CBT for adolescent depression achieve stronger effects. I see three areas for potential improvement. First, I agree with Hollon et al. (2005) that adolescent depression CBT may be too complicated, trying to address too many components without sufficient depth. Can we eliminate certain components without losing effects? When is a predominantly cognitive focus optimal, and when is a predominantly behavioral focus best? Many years ago, Rude and Rehm (1991) articulated two models of change, labeled “capitalization”

(clients are most responsive to treatments that build on their strengths) and "compensation" (treatment is most effective when it specifically focuses on areas of greatest deficit). Depression treatments generally assume a compensation model, and some evidence supports this approach, but, to my knowledge, no RCT of adolescent depression treatment has specifically matched clients to CBT based on their strengths or deficits.

A third potential way of improving the impact of adolescent depression CBT is to clarify when and how parents should be involved. The current model consists of fairly limited parental involvement, mainly focused on psychoeducation and some targeted skills practice (e.g., communication and problem solving), but early evaluations found no evidence that parental involvement improved outcomes. Understanding the optimal level of parental involvement in CBT for depressed adolescents is complicated by the fact that high levels of parental involvement may be helpful in some cases (i.e., some parents are clearly strong and positive advocates) but be ineffective or even iatrogenic in others (i.e., parental involvement appears to exacerbate existing conflicts without adequate time/effort to resolve problems/teach new skills, "opening a can of worms"). At times, treatment seems best aimed at helping the adolescent more quickly individuate from the parents. Clarifying the circumstances in which to involve parents in CBT would be a valuable step toward the broader goal of personalizing interventions to achieve greater efficacy.

A fourth possible way to increase the effects might be to reexamine group-based CBT. The delivery of group-based CBT for treatment seems to have stalled, and there are clear logistical problems in conducting closed groups, such as the CWD-A. However, I wonder if groups might more easily deliver a thorough "dose" of CBT skills practice compared to individual care. Might adolescents in group therapy better tolerate the large amount of CBT skills practice that is needed to "overlearn" a skill, so it can be used in a time of emotional upset?

The fifth major unresolved area is how does CBT actually work, and what are the mechanisms of change? It is surprising how few studies have examined the mediators of response to CBT for adolescent depression. The available studies, which have almost exclusively relied on self-report questionnaire measures at the beginning and end of treatment, provide only limited support for mediation factors specifically proposed by CBT. Self-report measures are plagued with demand characteristics, so we need more objective measures, starting with the primary theorized treatment mechanisms of cognitive and behavioral change. Cognitive change could be measured by observational data on the speed and effectiveness of cognitive restructuring (can the teen do this in the lab?) or implicit tests, or some measure of the duration of emotional upset following an activating event. We need objective measures of behavioral change, perhaps including observational data of interactions with peers and parents, and measures of physical activity. I suggest we try to objectively measure both an increase in the diversity of pleasant/mastery behaviors and behavioral engagement as a distraction activity (the original Lewinsohn model of depression etiology hypothesized that increased self-focus led to increased dysphoria). Another potential mechanism of change may be the sense of hopefulness and self-efficacy that is provided by the CBT model. We know that change often happens very early in CBT, and it seems possible that the CBT change model itself, which is provided in the first session, makes strong intuitive sense, providing

hope and structure. Last, researchers are beginning to incorporate neuroscience measures and have found that pretreatment brain functioning (i.e., reward-related brain function) may predict treatment response for depressed adolescents receiving CBT or CBT/antidepressant combination therapy (Forbes et al., 2010); these types of indices should also be examined to understand change in CBT.

The sixth important area for future CBT research involves how and when to use computer technology in its various forms ("eMental Health") in the treatment of adolescent depression. By its nature and focus, CBT may be more easily translated to a computerized format than other forms of talk therapy. Computer-based interventions can function as either stand-alone interventions or a supplement to more standard treatment; we need to examine both. Regarding stand-alone interventions, the two main questions seem to be (1) how to encourage engagement to complete the intervention, and (2) how to ensure sufficient safety monitoring. It will be easier to incorporate computers, the Internet, and smartphone methodology to supplement standard CBT, using the electronic technology to provide reminders of skills usage/homework practice, conduct more frequent assessments, and to allow clients to find answers to questions if confused and to have more frequent interactions with the therapist (a week can be a very long time in an adolescent's life). The most powerful method for incorporating computer technology into current CBT is yet unknown.

CONCLUDING COMMENTS

Adolescent depression continues to be extremely prevalent, debilitating, associated with high suicidality and increased psychiatric comorbidity. The CBT approach for treating adolescent depression has received a great deal of attention—the most attention of any psychosocial treatment and, I believe, the only talk therapy to be compared to antidepressant medication for depressed adolescents. Initially, results were very encouraging, but the control condition was often a wait list or a general intervention not directly focused on depression. In addition, the samples were often noncomorbid and of mild/moderate (rather than severe) depression levels. CBT is clearly better than nothing and probably better than usual psychosocial care, but it is not clearly superior to usual care involving antidepressant medications. We do not need another horse race comparing CBT to well-delivered forms of other treatments—it is unlikely to "beat" them. Rather, we need to identify which subset of depressed adolescents contains the best candidates for a CBT approach. Also, we need to focus on areas in which effective alternatives are less available (e.g., prevention, patients who have failed antidepressant treatment).

I believe CBT researchers also need to backtrack a bit and redesign CBT interventions so they achieve stronger effects for depressed adolescents. I have offered several suggestions (e.g., simplifying/focusing CBT, understanding how best to include the range of parents, using formats other than individual therapy) but there are undoubtedly other, equally valid avenues that should be considered. This revamping of CBT is likely to be most beneficial if it is grounded in more rigorous testing of what actually changes during the treatment process, compared to both other forms of psychosocial treatment and to pharmacotherapy. We need to look

at the effects (and limitations) of CBT objectively, but we also need to creatively consider how the CBT approach can effectively treat a broader range of depressed young people.

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