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Core Components of Therapy in Youth:

Do We Know What to Disseminate?

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Manuscript in press at *Behavioral Modification*

Abstract

Bridging the gap between lab and clinic has become a rallying cry for a generation of treatment researchers and identifying and overcoming barriers to successful dissemination of best-practice treatment a major public mental health priority. In this review, we argue that a key limit on our ability to accomplish this goal may be found back in the original research laboratories where these treatments were developed. Despite fifty years of research and 1500 clinical trials, there are surprisingly little data on what makes youth psychotherapy therapeutic. To illustrate problem this poses for dissemination, the adolescent depression literature is reviewed in terms of (a) critical core components of intervention and (b) basic processes through which these techniques operate. Process-outcome relationships in cognitive-behavioral, interpersonal, and family therapy models are examined with descriptive meta-analytic techniques. Discussion of treatment dissemination follows, focusing on the value of basic research on core psychotherapeutic techniques and processes.

Keywords: depression, dissemination, child and adolescent psychotherapy, Cognitive Behavior Therapy, treatment mechanisms

Core Components of Therapy in Youth:

Do We Know What to Disseminate?

Fifty years ago, the first major review of the youth psychotherapy literature appeared in print (Levitt, 1957). This groundbreaking paper came to the startling conclusion that the young field of child clinical psychology was, perhaps, simply peddling the latest snake oil: Across 18 studies, youths who received therapy recovered from their "neuroses" no faster than untreated youths (Levitt, 1957), and long-term follow-up data suggested that the recovery rate for child therapy might be *worse* than the simple improvement associated with the passage of time (Levitt, 1963). Despite this ignominious beginning, fifty years later, the empirical basis of child and adolescent therapy would seem to be on solid ground. Psychotherapy for children and adolescents has produced positive benefits in literally hundreds of randomized controlled trials (Kazdin, 2000), and effect sizes for youth therapy in meta-analyses rival those found in the general medical literature (Casey & Berman, 1985; Kazdin, Bass, Ayers, & Rodgers, 1990; Weisz, Weiss, Alicke, & Klotz, 1987; Weisz, Weiss, Han, Granger, & Morton, 1995). Psychotherapy for youth has soundly demonstrated that it is *efficacious*, namely, that it can work well when tested carefully in experimental conditions.

The papers in this special section wrestle with a somewhat different question – the question of psychotherapy *effectiveness*. Knowing that youth therapy can work in experiments does not answer the question of whether youth therapy generally does work in practice, especially given well-documented differences between (a) the treatments tested in clinical trials versus those generally employed in practice (e.g., Weersing, Weisz, & Donenberg, 2002), (b) the characteristics of the youths and families enrolled in therapy research studies versus those seen in community care, particularly those served in public mental health service settings (e.g., Southam-Gerow, Weisz, & Kendall, 2003; Hammen, Rudolph, Weisz, Rao, & Burge, 1999), and (c) the resources available for

training, supervision, and administrative support in controlled trials versus active practice (Kendall & Southam-Gerow, 1996). Studies of everyday services delivered in these samples, settings, and circumstances bring back the specter of snake oil. Effect sizes for "real world" youth psychotherapy are significantly lower than the those seen in randomized efficacy trials (Weisz, Donenberg, Han, &Weiss, 1995; Weisz, Jensen-Doss, & Hawley, 2006), and, in some cases, outcomes of usual community services appear to resemble natural remission more than an active therapy response (Weersing & Weisz, 2002a). This apparent gap in outcomes between the efficacy of therapy in research and the effectiveness of therapy in practice has been the driving force behind the movement to identify empirically supported treatment protocols for specific youth disorders (see Lonigan & Elbert, 1998) and to improve the quality of everyday youth mental health care by bringing these treatments to the public.

As discussed throughout this special section, a variety of factors make this task quite challenging, ranging from issues in therapist training to problems in mental health financing. We certainly agree that these are critical factors to consider in the dissemination of empirically based treatment (EBT). However, our analysis of the barriers to treatment dissemination has led our research group in a somewhat different direction, back into the research labs where these protocols were originally developed. In our view, a critical step in the translation of treatments from lab to clinic may be to understand what about therapy "matters" and what aspects of research protocols can be adapted (or omitted entirely) to fit the needs of local populations and service agencies. This step relies on a thorough theoretical and empirical understanding of (a) the critical core components of intervention and (b) the basic processes of disease recovery through which these components operate. Perhaps surprisingly, this basic, lab-based knowledge is almost entirely lacking from the research literature. In a comprehensive review of the youth therapy literature through the 1980s, Kazdin and colleagues found that less than three percent of published clinical trials of

psychotherapy included measures of the processes thought to underlie intervention effects (Kazdin, Bass, Ayers, & Rodgers, 1990). In our recent review of EBTs for depression, anxiety, and disruptive behavior, we documented a similar gap in the literature. In a set of 67 clinical trials, we found only six studies that measured core processes of treatment and statistically assessed whether change in these processes appeared to account for intervention outcomes (Weersing & Weisz, 2002b). In no case did we find a study that simultaneously tried to isolate which intervention techniques mattered most *and* which client change processes were responsible for therapy effects. In short, a central problem limiting the success of treatment dissemination may be that we simply do not know what we ought to disseminate.

In the remainder of this paper, we zero in on the treatment of adolescent depression as an example of the problems inherent in this state of affairs. We begin with a brief review of the efficacy of psychosocial interventions for depressed teens, before (a) examining the core treatment techniques employed in these protocols and (b) providing a descriptive meta-analysis on process-outcome relationships in the adolescent depression literature. We conclude with a discussion of how additional knowledge on core treatment components and key therapy processes in this area might speed successful treatment dissemination.

Treatment of Adolescent Depression

Depression in adolescence is widely prevalent, with nearly 1 in 5 youths experiencing a clinically significant episode before the end of puberty (Lewinsohn, Hops, Roberts, Seeley, & Andrews, 1993). Depressed teens do more poorly in school, have more conflictual family, peer, and romantic relationships, and attempt and complete suicide at higher rates than non-depressed youths (e.g., Rohde, Lewinsohn, & Seeley, 1994). Depression in adolescence is a strong predictor of recurrent depression in adulthood and of long-term functional disability (Weissman et al, 1999). Furthermore, the age of onset of depression appears to be dropping, and the overall population

prevalence of depression increasing (Ryan et al., 1992; Kovacs & Gastonis, 1994). As a result, the World Health Organization (WHO) has estimated that mood disorder, which is currently the fourth leading cause of disease-related disability, likely will be the second leading cause of disability in the world population by 2020 (WHO, 2007). Indeed, depression is already the second leading cause of disability for individuals in late adolescence through mid-adulthood (ages 15-44; WHO, 2007).

Basic research in psychopathology has suggested that adolescent depression may arise from: (a) the experience of stressful life events (e.g., Kendler, Thornton, & Gardner, 2001); (b) genetic vulnerability toward mood dysregulation in response to stress (e.g., Caspi et al., 2003); (c) maladaptive behavioral responses to stress (e.g., avoidance, poor interpersonal problem solving skills; e.g., Gazelle & Rudolph**,** 2004); and (d) inaccurate, overly negative cognitive interpretations of stressful events (e.g., Gladstone & Kaslow, 1995). Intervention programs for depressed youths have been crafted to interrupt these core processes of disorder. Cognitive behavioral therapy (CBT) explicitly targets cognitive styles and maladaptive coping behaviors. Interpersonal Psychotherapy (IPT-A) for adolescent depression focuses more strongly on reducing interpersonal stress and developing better behavioral responses to relationship difficulties. In a similar fashion, family therapy models for youth depression target family conflict and work to improve communication skills and relationship warmth and satisfaction.

While all three of these psychosocial intervention models have been tested in randomized controlled trials, CBT clearly has been the dominant approach with 12 of 16 trials including a CBT protocol (Weersing & Gonzalez, in press). Generally, results of these studies have been positive, and, up until the late 1990s, CBT for adolescent depression boasted the largest effect sizes in the youth treatment literature (Reinecke, Ryan, & DuBois, 1998; Lewinsohn & Clarke, 1999). Given concerns about the public health impact of youth depression and the poor quality of everyday adolescent depression care (e.g., Weersing & Weisz, 2002a), CBT was widely promoted as the best

practice intervention for this condition (e.g., National Health and Medical Research Council, 1997) and a treatment model ripe for dissemination into general practice. In this context, CBT was chosen for inclusion in the Treatment of Adolescents with Depression Study (TADS, 2004) – a large, multi-site clinical trial designed to compare the efficacy of antidepressant treatment (fluoxetine), psychosocial intervention (CBT), and combination therapy (CBT + fluoxetine) against a pill placebo control condition. Much to the surprise of the investigators and the field, in the TADS trial, CBT without medication failed to separate from the placebo condition and posted a response rate (43%) nearly half the size as those reported in the older CBT literature (e.g., 60%; Brent et al., 1997). Although the TADS investigators have recommended the combination of CBT and fluoxetine as the overall best intervention for depressed youth (TADS, 2007), the TADS results appeared to stand in contradiction to nearly 20 years of positive CBT clinical trial findings.

Against this backdrop of shifting CBT effects, research on interpersonal and family treatment programs has continued. In a five year span, three randomized trials of IPT-A appeared in the literature (Mufson et al., 1999; Roselló & Bernal, 1999; Mufson et al., 2004), all of which supported the interpersonal model. Studies of family therapy have yielded a more inconsistent pattern of results. In a trial directly comparing family therapy, CBT, and a supportive therapy control condition, family therapy was equivalent to control and significantly worse than CBT across multiple indices of depression (Brent et al., 1997). Furthermore, the addition of parent sessions to CBT did not appear to boost response beyond individual teen-focused treatment, raising further questions about the necessity and value of addressing parenting and family factors in the treatment of depressed teens (Lewinsohn et al., 1990; Clarke et al., 1999). In contrast, a new relationship/attachment-based therapy program for depressed teens with histories of trauma has produced positive effects in a small pilot sample (N = 32; Diamond et al., 2002).

Taken together, these findings have presented a conundrum to scientists, practitioners, policymakers, and payers interested in improving real world depression care for adolescents. What is the best-practice intervention for depressed youths? Are any psychosocial treatment models ready to stand alone and be disseminated widely into the public health system? Why have the results of CBT, in particular, varied so dramatically across recent studies?

Core Components of Treatment

The complexity of the adolescent depression treatment literature may stem, in part, from a misplaced urge to simplify. As we have done in our own review, commentators routinely refer to the confusing effects of "CBT" or "family therapy" with the implicit assumption that the specific treatment protocols grouped under these broad brand names are functionally identical to each other. The adolescent depression literature does have some examples of treatment replication – the *Coping with Depression* course, for example, has been used in five studies, albeit with minor modification over time. The IPT model, too, has been modified only slightly across investigations.[1] However, each of the family therapy trials has used a different manual, and the majority of CBT investigations have used novel treatment programs. Variance in manual content may provide one explanation for the contradictory effects of interventions of the same brand name in different clinical trials. It has been argued, for example, that the poor effects of CBT in TADS are less surprising given that the specific CBT manual used in TADS had never been tested in another independent clinical trial (Hollon, Garber, & Shelton, 2005). "CBT" may have a prior response rate of 60%, but the specific response rate of *TADS* CBT is necessarily an unknown quantity. Technique-level variation within manuals also has implications for identifying what specific therapy components may be "do or die" elements of care for treatment dissemination.

To explore these issues in detail, we review the similarities and differences between three core "CBT" manuals for depressed teens: (a) the *Coping With Depression for Adolescents* (CWD-A)

program (Lewinsohn, Clarke, Hops, & Andrews, 1990), (b) the cognitive therapy manual from the Pittsburgh CBT trial conducted by Brent and colleagues (Brent et al., 1997), and (c) the modular CBT manual of TADS (Curry & Wells, 2005), which combined elements of CWD-A and the Pittsburgh cognitive manual. As discussed previously, CWD-A is a major source manual in the adolescent depression literature and has been tested in various forms across multiple trials. The Pittsburgh cognitive therapy program produced large, reliable effects for CBT compared to alternate psychosocial treatments in a sample of teens with moderate to severe depression (Brent et al., 1997). This Pittsburgh sample of youth is perhaps more similar in severity to the TADS sample in than any other study in the literature (Bridge & Brent, 2004), and, as noted, the Pittsburgh manual (Brent & Poling, 1997) served as a source manual for TADS. Given these connections, it is of interest that the response rate for CBT alone (without medication) in Pittsburgh was 23 percentage points higher than the outcomes of CBT in TADS, and we compare the manuals of these programs with this outcome difference in mind.

Broadly, all CBT programs for youth depression target cognitive distortions and behavioral skill deficits with the goal of improving current dysphoric mood and preventing future episodes of depression. Despite this common orientation, specific CBT manuals vary substantially in the extent to which they (a) emphasize the primacy of cognitive or behavioral strategies, (b) employ techniques drawn from other therapy traditions (e.g., family therapy), (c) require meeting with adolescents only or include parents, and (d) utilize a group versus individual therapy approach. Manuals also differ in the total number of sessions and the overall structure of sessions (e.g., didactic and scripted versus based on flexible application of principles). In Table 1, we have sought to graphically capture variance in technique use, dose, and involvement of parents across our three example manuals. Columns in the table mark the week of therapy, and rows are labeled by the specific technique employed. The resulting grid is shaded to indicate if a particular technique was

used in any given week (white = no use) and whether this use was required by the treatment manual (black) or left to the discretion of the therapist (grey). The techniques listed in the table represent the core of most CBT manuals for adolescent depression: (a) basic psychoeducation on the nature of depression and the rationale for the CBT model, (b) pleasant activity scheduling and other behavioral activation techniques designed to directly raise mood, (c) cognitive restructuring strategies, (d) problem solving skills training to assist depressed teens in stress management and appropriate behavioral responses to challenge, and (e) other techniques ranging from relaxation training to traditional family therapy maneuvers (Weersing & Brent, 2006). The final "technique" row indicates whether substantial parental involvement was allowed or required at the therapy session. As illustrated in the table, variation in *dose x technique* is striking, and discussed further below.

Coping with Depression. CWD-A is a comprehensive CBT program that includes required multi-session exposure to all of the core techniques in Table 1, plus additional training in social skills and relaxation techniques (indicated in the *other technique* row). The treatment is a highly structured group therapy "course" delivered in an interactive classroom style, with structured in-class activities, a teen workbook, and standardized homework assignments to practice skills (Clarke, DeBar, & Lewinsohn, 2003). As with many CBT programs, it began as a skills group for depressed adults and was adapted to be developmentally appropriate for adolescents (e.g., by including cartoon examples for cognitive restructuring). CWD-A has been tested in its basic form in two trials (Lewinsohn et al., 1990; Clarke et al., 1999) with very positive effects. The manual has also been adapted (a) to test the effects of additional parent sessions on outcome (Lewinsohn et al., 1990; Clarke et al., 1999), (b) to serve as a shortened, individual therapy program for teens receiving CBT, case management, and antidepressant medication in primary care (Asarnow et al., 2005; Clarke et al., 2005), (c) for use in samples of clinically complicated youth, including teens

with comorbid Major Depression and Conduct Disorder (Rohde et al., 2004) and depressed adolescent offspring of parents who are themselves currently depressed (Clarke et al., 2002); and (d) to work as a prevention protocol, *Coping with Stress* (CWS), for youth at high risk for depression due to family history of mood disorder and/or current sub-syndromal mood symptoms (Clarke et al., 2001). In general the intervention has been most efficacious in less severe samples (including prevention samples), although only in Clarke et al (2002) and Clarke et al, 2005 did CWD-A fail to significantly separate from control conditions.

Pittsburgh cognitive therapy. As can be seen in Table 1, the Pittsburgh protocol is similar in length to CDW-A; however, the content of the treatment is strikingly different. All youths and parents in this program are exposed to structured psychoeducation at the beginning of therapy; indeed, youths in all treatment conditions in the clinical trial were provided this core of psychoeducation. Following this initial didactic component, though, treatment sessions were designed to be highly flexible and were administered largely to the adolescent, in an individual therapy format. The Pittsburgh treatment was driven by cognitive case conceptualization, with no pre-set exercises or homework assignments (see Brent et al., 1996, for case examples). According to investigator report, content of the intervention in this clinical trial focused largely on cognitive restructuring (as required) with frequent supplemental use of behavioral activation and problem-solving skills on a case-by-case basis (Weersing & Brent, 2003). Adherence to the protocol was established by coding of therapy tapes, and the cognitive program was reliability differentiated from the alternate interventions in the trial (family therapy and a supportive therapy control) and delivered with a high degree of fidelity (Brent et al., 1997). CBT in the Pittsburgh study had a similar response rate (60%) to the than the original trials of CWD-A (65% and 47%), even though the Pittsburgh sample appears to be more seriously depressed and impaired than the youths in

CWD. Results across these very different manuals, thus, converge on the efficacy of CBT for depressed adolescents across a range of severity.

TADS modular CBT. As discussed previously, the results of TADS stand in sharp contrast to the positive effects of CWD-A and the Pittsburgh program. At first glance, this is especially puzzling, as the TADS CBT intervention manual was created by combining elements of CWD-A, aspects of the Pittsburgh manual, and the investigators' expertise in CBT for anxiety and CBT and family interventions for substance abuse (see Curry & Wells, 2005). How is it that the TADS version of CBT seems to have produced effects less than the sum of its parts?

One explanation may lie in the differences between the Pittsburgh program and CWD-A obscured by the common label of "CBT." The TADS protocol attempted to merge a very structured, group-administered coping class (CWD-A) with, perhaps, the least structured, most principle-driven individual therapy manual in the youth depression literature. In general, the TADS manual strove to keep the comprehensiveness of CWD-A. As can be seen in Table 1, the TADS manual required exposure to all of the CBT techniques included in the longer, didactic CWD-A course. In addition, TADS provided optional modules designed to treat common comorbid conditions (e.g., anxiety, family conflict). In order to preserve some of the flexibility of the Pittsburgh approach, algorithms were given to guide therapists and supervisors in selecting different modules for patients on a case-by-case basis. However, unlike the Pittsburgh model, the actual sessions of TADS were quite didactic, with scripted in-session exercises, worksheets, and required homework assignments.

This combination is intuitively appealing; however, in practice it may have led to an odd therapeutic experience – it is imaginable that the didactic format of CWD may work better in a group setting than one-on-one with a depressed teen. In addition, the strategy of allowing therapists and supervisors to pick from a range of possible skill modules may have led to many youths

receiving a lower dose of "core" CBT techniques than in other protocols (for discussion, see Hollon, Garber, & Shelton, 2005). Examining Table 1, TADS has the lowest number of required sessions of the core elements of cognitive restructuring, behavioral activation, and problem solving skills. Indeed, following the TADS algorithm, it would be possible to spend more session time on family therapy techniques (e.g., communication skills, rekindling attachment) than these three core CBT components. Components analyses of CBT implementation in TADS have not yet appeared in the literature, and we await these with interest.

Mechanisms of Action

We turn next to an examination of the client change processes thought to be impacted by the specific techniques of therapy for adolescent depression. By focusing on these processes of disease recovery, we hope to highlight commonalities across our three major models – CBT, IPT, and family therapy – and probe potential differences in mechanism specific to each therapeutic approach.

The psychotherapy process literature is quite sparse – across all 16 investigations of CBT, IPT, and family therapy, only three CBT studies formally tested whether change in cognitive, behavioral, or interpersonal process variables accounted for differences in treatment outcome. However, while formal tests of mediation are rare, many of the studies contain findings relevant to the question of treatment mechanism. It is common for investigations of CBT to include cognitive change measures as outcomes, and all published studies of IPT assess change in social adaptation as a function of treatment. These outcome-focused investigations do not provide critical data on the timing of change in potential mediators; logically, for a mediator to produce an outcome, change in the mediator must happen first (see, e.g., Weersing & Weisz, 2002b; Kazdin & Nock, 2003). However, these RCTs can demonstrate whether there is specificity in processes – for example, that

CBT has a larger impact on cognitive change than control conditions – and serve as a useful first step in understanding mechanisms of treatment action.

To aid in our summary of these effects, we reviewed each measure in every clinical trial of a psychosocial treatment for adolescent depression and coded whether these measures assessed youth-reported depression symptoms, cognitive skills (e.g., social problem solving) or styles (e.g., negative self-talk), behavioral mood regulation skills (e.g., pleasant activity scheduling, relaxation), or interpersonal functioning (e.g., quality of friendships, attachment to parents). We then computed Hedges' g effect sizes (adjusted for sample size) for youth self-reported depression symptoms and for the three classes of process variables. Table 2 lists each measure, by process category, for all of the studies that provided data for this analysis. Figure 1 displays the mean effect sizes, by each domain, for CBT, IPT, and family therapy. Please note that these effect sizes are presented for illustrative, rather than inferential, purposes. Many of the effect size "means" are single effect sizes drawn from a single clinical trial, and some process areas have not been investigated at all (e.g., behavioral self-regulation in IPT). Effect size data are intended to provide a descriptive rubric for discussing the size and strength of relationships rather than simply relying on counts of statistically significant effects across studies.

Cognitive-Behavioral Therapy

Cognitive processes. As can be seen in Figure 1, on average, CBT produced greater change on measures of depressogenic cognitions than did comparison conditions. Three investigations formally tested whether this change in cognitions mediated the impact of CBT on depression: (a) the Kolko et al. (2000) re-analysis of the Brent et al. (1997) clinical trial of the Pittsburgh cognitive therapy model, (b) the Ackerson et al. (1998) trial of cognitive bibliotherapy for teens with mild depression, and (c) a paper by Kaufman et al. (2005) examining the process and outcome of CWD-A for youths with depression and comorbid conduct problems (Rohde et al., 2004).

In the original Brent trial (1997), CBT was found to be more efficacious than family and supportive therapies on multiple measures of depression, including indices of clinically significant change. Kolko et al. (2000) investigated the mediating role of several cognitive and family process variables in producing these treatment effects. Data were available on symptom and process change at midpoint of treatment and at outcome, aiding in the interpretation of any possible mediating effects. As hypothesized, CBT did have a significantly greater effect than alternate interventions on cognitive distortions, but it was not superior in changing the specific cognitions of hopelessness. Furthermore, Kolko and colleagues were not able to demonstrate that change in cognitive distortion mediated the effect of CBT on depression symptoms, although low power may have limited their ability to find significant effects (e.g., the sub-sample youth with complete data did not even show a significant effect of the intervention on depression symptoms).

Stronger support for the role of cognitive change in CBT outcome comes from an investigation of a CBT bibliotherapy program for depressed teens. Ackerson et al. (1998) found that youths who were given a CBT self-help book demonstrated a reduction in depression symptoms four weeks later (youth self-report ES = 1.01). Teens also had a significant reduction in depressogenic thinking as measured by the Dysfunctional Attitudes Scale (DAS; ES = 1.32), but they did not show significant change in negative automatic thoughts, despite a positive effect size on Automatic Thoughts Questionnaire (ES = 0.78). Change in dysfunctional attitudes did mediate the effects of the intervention on youth-reported depression symptoms, but the conditions for statistical mediation were not met for other measures of depression (i.e., interviewer ratings). Again, power may have been a limiting factor in this investigation, as cell sizes were below 15 and only the largest effects demonstrated statistical significance.

In the Kaufman re-analysis of the Rohde et al. (2004) trial, CBT also was found to significantly impact one cognitive process measure, and change in cognitions did statistically

mediate program effects on depression symptoms (all constructs were measured post-treatment). However, effects were inconsistent across measures of cognition, and the specific pattern of findings was opposite to that of Ackerson – small but significant effects on the ATQ (ES = 0.20) and non-significant results for the DAS, with an effect size near zero (ES = -0.09).

Behavioral processes. Three studies assessed behavioral mechanisms in CBT. Lewinsohn et al. (1990) measured the frequency and enjoyment of pleasant activities before and after CBT. As targeted in the CDW-A intervention, CBT beneficially impacted pleasant activities; however, insufficient data were provided in the published report to allow for effect size computation. Vostanis and colleagues reported similar effects of CBT on the quality of spare time activities (ES = 0.43), and quality of spare time predicted level of depression over follow-up (Vostanis, Feehan, Grattan, & Bickerton, 1996a, 1996b; Vostanis et al. 1998). Kaufman et al. (2005) created "face valid" subscales from the Pleasant Events Schedule to capture engagement in relaxing activities and other behavioral activation tasks. Participants in CBT did not improve more from pre- to post-treatment than youth in the control group, although post-treatment effect sizes favored CBT (relaxing activities ES = 0.39, pleasant activity scheduling ES = 0.14).

Interpersonal processes. Five CBT clinical trials examined the role of social skills and interpersonal adaptation in depression recovery. Evidence on the effects of CBT are mixed, with one study reporting improved social skills after CBT but no differential effects on depression (Vostanis et al, 1996a), three investigations indicating that CBT did produce positive effects on depression but did *not* outperform comparison conditions on social skills and peer adaptation (Rosselló & Bernal, 1999; Wood, Harrington, & Moore, 1996; Kaufman et al., 2005), and one trial suggesting that CBT was as effective as family therapy at improving family relationships (Kolko et al., 2000). As discussed previously, only the Kolko paper assessed the possible mediating role of interpersonal processes in CBT effects, and evidence for mediation was not found.

Interpersonal Psychotherapy

Cognitive processes. Although IPT-A targets interpersonal processes, several studies did include measures of cognition. These cognitive measures may be useful in examining the validity of mechanism findings. Logically, interpersonal therapies should not affect cognitive measures better than wait list conditions, and they should produce significantly inferior effects than CBT.

Rosselló and Bernal (1999) found that IPT-A was significantly superior to wait list in improving youths' self concepts (ES = 0.45), and the effects of IPT were not statistically distinct from those of CBT. Mufson and colleagues (1999) assessed change in social problem solving skills – a cognitive process closely tied to tasks of IPT-A. Adolescents who participated in IPT-A showed significant improvements, relative to wait list, on several subscales of the social problem solving measure. At post-treatment, teens were able to generate multiple solutions to problem situations and engage in solution implementation and verification. Youth did not change significantly on their overall problem solving orientation (negative problem orientation, impulsivity/carelessness, or avoidance). Descriptive statistics were not provided on this measure, and effect sizes could not be computed.

Behavioral processes. None of the investigations of IPT included measures of behavioral change processes, such as participation in pleasant activities.

Interpersonal processes. All of the IPT RCTs included interpersonal process measures, and IPT did produce significant changes in youths' self-reported social functioning relative to wait list (Mufson et al., 1999), CBT (Rosselló & Bernal, 1999), and school counseling services (Mufson et al., 2004). As with cognitive change in CBT, the specific interpersonal domains that demonstrated statistically significant improvement varied across the three studies. However, across investigations, IPT appeared to show the most consistently positive effects on dating, and the most variable effects

on family relationships (ES ranging from -0.29 to 0.60). Mediation was not assessed in any of these investigations.

Family Therapy

Cognitive processes. Two studies examining the effects of family therapy included measures of cognitive processes. In the Kolko et al. (2000) reanalysis of the Brent et al. (1997) trial, youths reported small to moderate improvements in hopelessness (ES = 0.28) and the commission of cognitive errors (ES = 0.26) when receiving family therapy compared to NST. However, Diamond and colleagues (2002) found that, compared to youths on a wait list, youths who received family therapy reported large improvements on hopeless thinking (ES = 0.74). Both studies show positive effects of family therapy on hopelessness, but differ greatly in magnitude – this difference may partly be a function of comparison condition, NST versus wait list. Taken together, these studies suggest that family therapy moderately impacts improvement of depressogenic thinking (ES = 0.50); however, additional data are needed to substantiate these initial findings.

Behavioral processes. None of the investigations of family therapy included measures of behavioral change processes.

Interpersonal processes. While Diamond et al. (2002) reported moderate effects of family therapy on interpersonal processes compared to wait list (ES = 0.32), Kolko and colleagues (2000) report non-significant effects compared to NST (ES = 0.05). Closer inspection of specific process domains and informant reports add further confusion to the picture.

Looking closely at the Kolko re-analysis (2000), youth report of family functioning did not differ between family and supportive therapy (ES = 0.00). Though parents in family therapy reported positive effects on overall family functioning (ES = 0.50), parents in NST reported slightly higher marital satisfaction (ES = -0.12). In some areas, the direction of effects differs by informant. Youth in family therapy reported greater improvement in conflict behaviors compared to those in

NST (ES = 0.54). Conversely, parents reported change in the opposite direction, with those in NST reporting moderate improvement in conflict behaviors compared to those in family therapy (ES = -0.27). Parents of youth in family therapy report slight improvement in the parent-child relationship compared to those in the NST group (ES = 0.15), while youth report a moderate effect in the opposite direction (ES = -0.41).

Although Diamond et al. (2002) describe more promising results, the effects of family therapy on interpersonal processes do not present as uniformly as one would expect, given that treatment explicitly targets family functioning. Not surprisingly, youth receiving family therapy report greater improvement in relationships with their mothers (ES = 0.64) and significantly greater reduction in family conflict (ES = 1.31) than wait list youth. On the other hand, youth receiving family therapy reported no difference in family cohesion (ES = 0.07) and less improvement in expressiveness (ES = -0.53) than youth in the wait list group.

In combining the results of these two studies, family therapy shows a small effect on overall changes in interpersonal processes (ES = 0.19). However, interpretation of this effect requires attention to two caveats. First, duration of treatment and wait list in the Diamond (2002) study are not equal (12 weeks of family therapy versus 6 weeks of wait list); it is unclear how results may have changed if the two conditions had been matched in length. Furthermore, large differences in sample size between the two studies warrants caution in weighting them equally when drawing overall conclusions about the effects of family therapy on interpersonal processes.

Dissemination and Mechanism

Bridging the gap between lab and clinic has become a rallying cry for a generation of treatment researchers, and identifying and overcoming barriers to successful EBT dissemination a major public mental health priority. In this review, we have argued that a key limit on our ability to accomplish this goal may be found back in the original research laboratories where our treatments

were developed. Despite fifty years of research and 1500 clinical trials, we still have surprisingly little data on what makes youth psychotherapy therapeutic.

Treatment of depression in adolescence is a useful case example to illustrate the problems in dissemination that this engenders. Adolescent depression is clearly a condition with a high public health burden and available data suggest that usual community services for depressed teens may have room for improvement (see Weersing & Weisz, 2002a). Three intervention models – CBT, IPT, and family therapy – have at least one clinical trial supporting their efficacy, with CBT boasting the largest number of positive results (Weersing & Gonzalez, in press). CBT would seem to be a prime candidate for psychosocial treatment dissemination; however, in a climate of limited resources, would this effort be justified as a large-scale public health campaign?

In our view, it is difficult to answer this question with a resounding yes, given that we lack a basic understanding of what techniques in CBT must be delivered, without fail, for the intervention to work well. As depicted in Table 1, the three major CBT treatment manuals differ markedly in content. The two successful manuals, CDW-A and the Pittsburgh cognitive manual, are almost mirror images, albeit within the overall framework of CBT. CWD-A is group-based, didactic, and emphasizes broad exposure to a core of CBT skill modules. In contrast, the Pittsburgh cognitive program is individual, non-scripted, based on flexible application of principles, and emphasizes just one primary technique – cognitive restructuring. While these "opposites" both produce good outcomes, the TADS manual *based* on these two programs posted one of the worst response rates for CBT in the entire adolescent depression literature. This technique-level analysis does suggest there may be a *dose x technique* minimum threshold for core components of CBT such as cognitive restructuring and behavioral activation (the TADS dose of these components was substantially lower than the dose in CWD-A). However, this plausible hypothesis lacks sufficient data to create specific, technique-focused dissemination recommendations.

Indeed, an alternate explanation is that type of technique is secondary to depth of focus. Therapists may merely need to teach some stress management skill intently, over several practice sessions, and with persuasive conviction for depressed teens to improve (for discussion, see Jensen, Weersing, Hoagwood, & Goldman, 2005). This hypothesis receives some support from our analysis of youth change processes in treatment. As displayed in Figure 2, CBT, IPT, and family therapy all impact youth reported depression symptoms, although the only the effect size estimates for CBT and IPT reliably separate from zero. Furthermore, all three intervention models have substantial effects on cognitive processes implicated in depression recovery. Indeed, IPT effects on cognition are larger than IPT effects on interpersonal functioning – purportedly the main mechanism of action for the model. Only CBT shows treatment specificity in the figure; namely, greater effects on symptoms and core cognitive processes than on processes outside the theoretical model of intervention. However, while summary data across the CBT literature supports this pattern, results of individual clinical trials that have tested statistical mediation of effects are much more mixed, and the data supporting cognitive change as a critical, specific mechanism for CBT are far from definitive.

Difficulty understanding what core components of treatment matter and how these techniques work are not limited to CBT, nor to interventions for adolescent depression. In our 2002 review of the EBT literature, we found that clinical trials generally did a poor job of addressing these issues across the depression, anxiety, and disruptive behavior literature, with only six treatment mechanism studies in our sample of 67 (Weersing & Weisz, 2002). Untangling questions of treatment mechanism are an issue for the field at large, and, though they may be basic from a science perspective, it is becoming increasingly clear that the answers to these questions may have a useful payoff in practice.

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This work was made possible by support from the William T. Grant Foundation to the first author.

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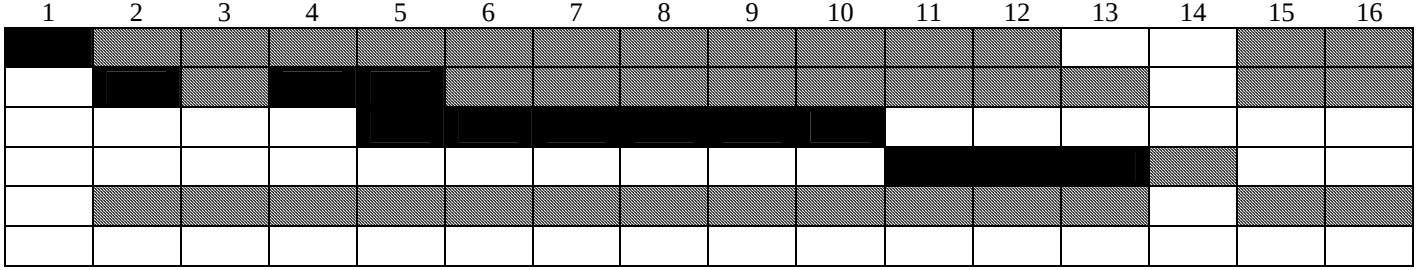
Footnotes

[1] Roselló and Bernal (1999) reported modifying IPT-A to be culturally appropriate for Puerto Rican adolescents. Both of the Mufson clinical trials utilized the same intervention manual (Mufson et al., 1999; Mufson et al., 2004).

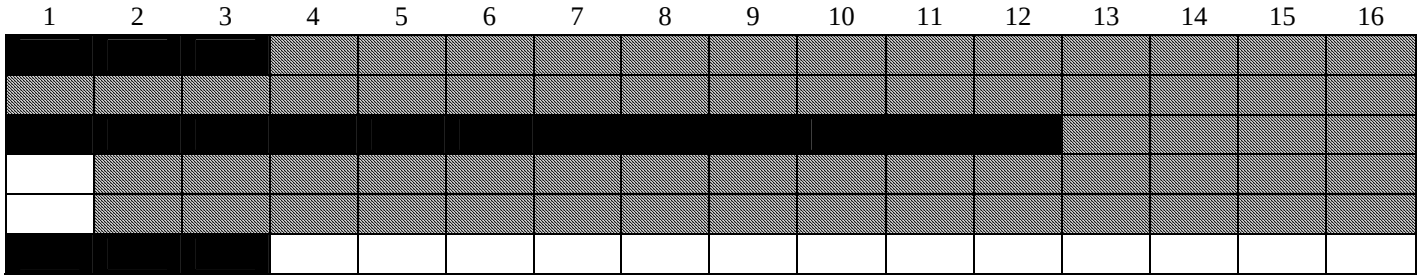
Table 1. Content of major cognitive-behavioral therapy manuals for depression in adolescents

Major technique	Use of technique in session

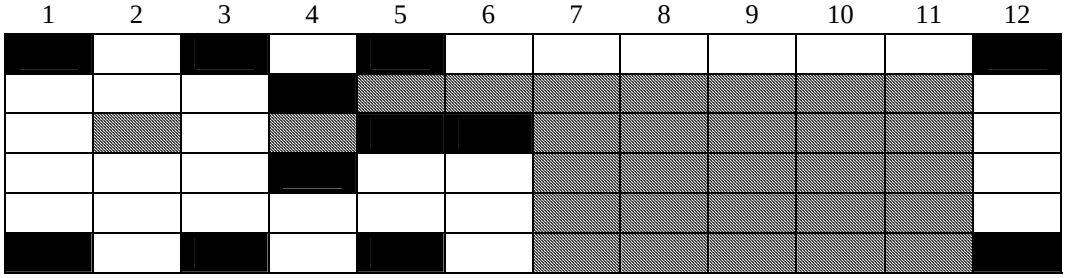
Coping With Depression for Adolescents



Pittsburgh Cognitive Therapy



TADS (acute phase)



NOTE: Black boxes indicate primary emphasis on technique or scripted use; patterned boxes indicate optional use

Table 2. Process measures in clinical trials for CBT. IPT, and family therapy

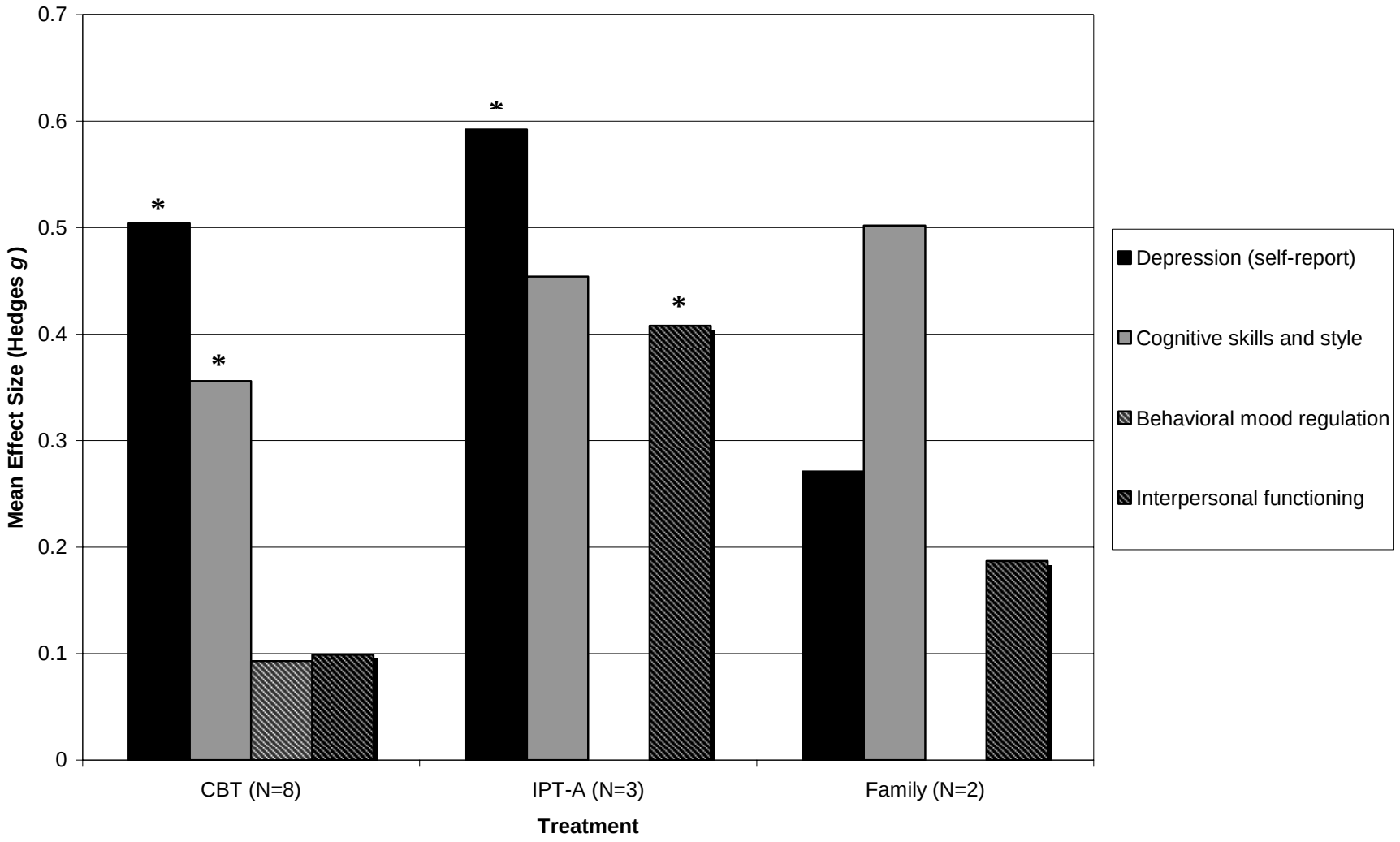
Study	Process Measures		
	Cognitive	*Behavioral*	*Interpersonal*
Cognitive Behavioral Therapy			
Ackerson et al. (1998)	ATQ DAS		
Brent et al. (1997)	BHS CNCEQ		FAD (AP) CBQ (AP) ACQ (AP) LW-MAT
Lewinsohn et al. (1990)	DAS* PBI* SPQ*		IC (AP)
Reynolds & Coats (1986)	ASCH-HS RSES		
Roselló & Bernal (1999)	PHCSCS		CBCL social (AP) FEICS CRIT FEICS EI SASCA
Rohde et al (2004)	ATQ DAS	PAS relaxation PAS activities	PAS social skills IS problem solving
Vostanis et al. (1996)	Self-esteem (AP)	SAICA spare time SAICA family SAICA peers	
Interpersonal Therapy for Adolescents			
Mufson et al. (1999)			SAS-SR dating SAS-SR family SAS-SR friends SAS-SR overall
Mufson et al. (2004)			SAS-SR dating SAS-SR family SAS-SR friends SAS-SR overall
Rosselló & Bernal (1999)	PHCSCS		CBCL social (AP) FEICS CRIT FEICS EI SASCA
Family Therapy			

Brent et al. (1997)	BHS CNCEQ	FAD (AP) CBQ (AP) ACQ (AP) LW-MAT
Diamond et al. (2002)	BHS	IPPA SRFF cohesion SRFF conflict SRFF expression

Note: *Measure mentioned in text, but data not reported; ACQ, Areas of Change Questionnaire; ASCH-HC, Academic Self-Concept Scale; ATQ, Automatic Thoughts Questionnaire; BHS, Beck Hopelessness Scale; CBCL, Child Behavioral Checklist; CBQ, Conflict Behavior Questionnaire; CNCEQ, Children's Negative Cognitive Error Questionnaire; DAS, Dysfunctional Attitudes Questionnaire; FAD, Family Assessment Device; FEICS, Family Emotional Involvement and Criticism Scale; IC, Issues Checklist; IPPA, Inventory of Parent and Peer Attachment; LW-MAT, Locke-Wallace Marital-Adjustment Test; PES, Pleasant Events Schedule; PHCSCS, Piers-Harris Children's Self-Concept Scale; RSES, Rosenberg Self-Esteem Scale; SAICA, Social Adjustment Inventory for Children and Adolescents; SASCA, Social Adjustment Scale for Children and Adolescents; SAS-SR, Social Adjustment Scale – Self-Report; self-esteem, Self-esteem Inventory; SRFF, Self-Report of family Functioning.

Figure Captions

Figure 1. Effects of CBT, IPT, and family therapy on depression symptoms and potential mediating processes.



*****_Effect size confidence interval does not cross zero_