Cognitive-Behavioral Psychotherapy for Anxiety and Depressive Disorders in Children and Adolescents: An Evidence-Based Medicine Review

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ABSTRACT

Objective: To review the literature on the cognitive-behavioral treatment of children and adolescents with anxiety and depressive disorders within the conceptual framework of evidence-based medicine. **Method:** The psychiatric and psychological literature was systematically searched for controlled trials applying cognitive-behavioral treatment to pediatric anxiety and depressive disorders. **Results:** For both anxiety and depression, substantial evidence supports the efficacy of problem-specific cognitive-behavioral interventions. Comparisons with wait-list, inactive control, and active control conditions suggest medium to large effects for symptom reduction in primary outcome domains. **Conclusions:** From an evidence-based perspective, cognitive-behavioral therapy is currently the treatment of choice for anxiety and depressive disorders in children and adolescents. Future research in this area will need to focus on comparing cognitive-behavioral psychotherapy with other treatments, component analyses, and the application of exportable protocol-driven treatments to divergent settings and patient populations. *J. Am. Acad. Child Adolesc. Psychiatry,* 2004;43(8):930–959.
Key Words: outcome studies, children and adolescents with major depression and dysthymic disorder, children and adolescents with anxiety disorder, literature review.

Due in part to a productive interplay between research and clinical practice (Rutter, 1999), many clinical researchers now believe that cognitive-behavioral therapy (CBT) administered within an evidence-based, multimodal, multidisciplinary practice model is the psychotherapeutic treatment of choice for youth with internalizing disorders (Geddes et al., 1997; March and Wells, 2003). In this context, the past 10 years witnessed the emergence of diverse, sophisticated, and empirically supported CBTs covering the range of childhood-onset anxiety and depressive disorders (Bernstein and Shaw, 1997; Birmaher et al., 1996a,b). Using the tools of evidence-based medicine (EBM) (Sackett et al., 1997), this article provides a critical review of CBT for these conditions. We do not address obsessive-compulsive disorder and posttraumatic stress disorder, for which recent critical reviews are available (Cohen et al., 2000; Franklin et al., 2002; March, 1995), or bipolar disorder, for which cognitive-behavioral interventions are just now emerging (McClellan and Werry, 1997). The reader interested in a "how-to-do-it" perspective may wish to pursue recent overviews of CBT (Hibbs and Jensen, 1996; Reinecke et al., 2003) interventions for childhood-onset anxiety (Kendall et al., 1999, 2000, 2003; March and Mulle, 1998; Rapee et al., 2000; Silverman and Kurtines, 1996) and depressive disorders (Brent et al., 1997; Clarke et al., 1990).

GUIDING THEORY

Although a comprehensive review of the theoretical rationale of CBT is clearly beyond the scope of this article (for a still cogent précis, see Kendall, 1993; Ken-

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dall and Panichelli-Mindel, 1995), a short overview is heuristically valuable. Historically, behavior therapy (the BT in CBT) evolved within the theoretical framework of classical and operant conditioning, with cognitive interventions (the C in CBT) assuming a more prominent role with the increasing recognition that person–environment interactions are mediated by cognitive processes (Van Hasselt and Hersen, 1993). Looked at in the context of situational and/or cognitive processes, BT is sometimes referred to as nonmediational (emphasizing the direct influence of situations on behavior) and CT as mediational (emphasizing that thoughts and feelings underlie behavior). Hence, behavioral psychotherapists work with patients to change behaviors and thereby to reduce distressing thoughts and feelings. Cognitive therapists work to first change thoughts and feelings, with improvements in functional behavior following in turn.

Although CBT is often referred to as a unitary treatment, it is actually a diverse collection of complex and subtle interventions that must each be mastered and understood from the social learning perspective. Subsequently, a cognitive-behavioral case formulation guides the therapist in administering treatment techniques in a flexible manner for the patient presenting with any one disorder or comorbid presentation of mental disorders (for an overview of a modular approach to CBT interventions, see Curry and Reinecke [2003]). Nonetheless, despite their seeming differences, cognitive-behavioral interventions typically share five qualities: (1) adherence to the scientist–clinician model, whereby treatments are chosen based on demonstrated evidence or are applied within a case evaluation format to determine efficacy; (2) a thorough idiographic assessment (e.g., functional analysis) of target behaviors and the situational, cognitive, and behavioral factors that have established or are maintaining the symptoms of interest (for a detailed overview of how to conduct a functional analysis, see Haynes and O'Brien [1990]); (3) an emphasis on psychoeducation; (4) problem-specific treatment interventions designed to ameliorate the symptoms of concern; and (5) relapse prevention and generalization training at the end of treatment. For example, using cognitive restructuring and exposure-based interventions, CBT for anxiety disorders encourages cognitions and behaviors designed to promote habituation or extinction of inappropriate fears. Likewise, CBT for depression directly confronts maladaptive depressogenic cognitions, including helplessness, hopelessness, and hostility, and aims behaviorally to reconstitute pleasant relationships, be they intrapsychic, interpersonal, school, or spiritual. As evidence-based therapies, each is supported by a more or less robust research literature, and manuals are usually available to guide practitioners in using CBT for specific problems. Thus, CBT fits nicely into the current medical practice environment that appropriately values empirically supported, brief, problem-focused treatments.

From this vantage point, CBT represents a developmentally sound approach to pediatric mental illness. Children normally acquire social-emotional (self and interpersonal) competencies across time. The failure to do so, relative to age, gender, and culture-matched peers, may reflect capacity limitations, individual differences in the rate of skill acquisition for specific competencies, environmental factors, and/or the development of a mental illness. In CBT, the task of the mental health practitioner is to understand the presenting symptoms in the context of child-specific constraints to normal development and to devise a tailored treatment program that eliminates those constraints so that the youngster can resume a normal developmental trajectory insofar as is possible.

To the extent that symptom relief occurs, it can be assumed that improvement reflects concurrent changes (e.g., learning) in the CNS (Andreason, 1997; Hyman, 2000). Thus, the cognitive-behavioral treatment of pediatric mental illness can be thought of as partially analogous to the treatment of, for example, juvenile-onset diabetes, with the caveat that the target organ, the brain in the case of major mental illness, requires interventions of much greater complexity. Although medications are of importance—in diabetes, insulin, and in the anxiety or affective disorders, a serotonin reuptake inhibitor—the critical point is that each also involves crucial psychosocial interventions that work in part by biasing the somatic substrate of the disorder toward more normal functioning (Hyman, 2000). In diabetes, the behavioral intervention of choice is diet and exercise, and in the anxiety or affective disorders, it is cognitive-behavioral psychotherapy.

METHOD

EBM has emerged as a promising paradigm for medical practice (for a comprehensive review, see Sackett et al. [2000]) and is clini-

cally akin to the scientist–practitioner model in academic psychology (Barlow, 1993). EBM deemphasizes the more typical reliance on unsystematic clinical experience as a sufficient ground for clinical decision making. Instead, EBM stresses the examination of evidence from systematic diagnostic assessment technologies and clinical research as a tool to inform clinical practice, and it provides a heuristically valuable organizing focus for the individual clinician seeking to transition efficacy and effectiveness studies into clinical practice at the level of the individual patient (Geddes et al., 1997).

Using established EBM criteria for assessing the validity of treatment studies as guides to clinical practice (Guyatt et al., 1993, 1994, 1999), a search for relevant literature was conducted via *Medline* and *PsycINFO*, using the following text terms: anxiety, depression, cognitive therapy, and behavior therapy. Only randomized, controlled trials (RCTs) for individuals with a specific disorder were included. Additionally, to be included, articles must have met the following criteria: published in an English-language, peer-reviewed journal between 1990 and 2002; included children between the ages of 8 and 18; included an outcome measure of known clinical significance; and used an analytic strategy consistent with the study design. A follow-up assessment was preferred but not required. Excluded from consideration were articles concerning the treatment of obsessive-compulsive disorder, posttraumatic stress disorder, or bipolar disorder; included were articles concerning the treatment of specific phobias, social phobia, selective mutism, overanxious disorder, separation anxiety disorder, panic disorder, generalized anxiety disorder, major depression, and dysthymia.

The text of this article is supported by a series of tables that summarize the main findings of each study identified during the literature search. The tables are organized by type of disorder (anxiety versus depression); within each disorder, separate tables summarize findings at post-treatment and at long-term follow-up.

The information presented in each table includes study citation (studies are listed in alphabetical order by first author), research design (type, control condition, analysis sample), sample information (total number, age range, percentage of males, and ethnicity), the diagnoses targeted by the intervention, brief details about the intervention, primary dependent measures (both categorical and scalar), sample size in each treatment condition, proportion of sample responding, magnitude of the treatment effect (portrayed in terms of number needed to treat [NNT] and standardized effect size estimates), and general comments by the authors.

The NNT is a measure of the average response, presented as the probability of response in single patient units. Arithmetically, the NNT is the inverse of the absolute risk reduction (1/ARR), defined as the percentage of response in the experimental group minus the percentage of response in the control condition. In practice, NNT represents the number of patients who need to be treated with the active treatment to produce one additional positive outcome beyond that obtainable with the control or comparison condition. For example, an NNT of 10 describes the number of patients whom a clinician would need to treat with the active treatment rather than the control treatment to see one additional positive outcome. A very small NNT (that is, an NNT that approaches 1) suggests that a favorable outcome occurs in nearly every patient who receives the treatment and in relatively few patients in the comparison group. An NNT of 2 or 3 indicates that a treatment is quite effective.

Standardized effect size estimates were calculated with the assistance of ES (Shadish et al., 1999), a computer software program designed to calculate effect size estimates from published studies. ES calculates the standardized mean difference statistic, commonly referred to as Cohen's d and computed as $d = (M_t - M_c)/\mathrm{SD}$, where M_t is the mean of the treatment group, M_c is the mean of the comparison group, and SD is the pooled within-group standard deviation. All effect size estimates are reported such that positive scores indicate that the treatment group improved more than the comparison group.

TREATMENT OF ANXIETY DISORDERS

To their advantage, cognitive-behavioral therapists have a robust literature validating the effectiveness of specific psychological techniques for anxiety disorders and a steadily growing literature supporting the use of prescriptive treatment protocols for these disorders.

Types of Investigations

Twenty-one RCTs evaluating a variety of cognitive-behavioral interventions for the treatment of child and adolescent anxiety disorders were identified (Table 1). As a group, these studies are noteworthy for their methodological rigor and the systematic way in which they have advanced the understanding of childhood anxiety disorders and how best to treat this important population. With respect to methodological rigor, all studies used contrasting group designs in which active treatments were compared with either a wait-list or no-treatment control condition (Cornwall et al., 1996; Hayward et al., 2000; Kendall, 1994; Kendall et al., 1997; King et al., 1998; Shortt et al., 2001; Silverman et al., 1999a) or an attention placebo-controlled condition (Beidel et al., 2000; Last et al., 1998; Muris et al., 2002). Moreover, several studies compared more than one active treatment condition (Barrett, 1998; Barrett et al., 1996; Beidel et al., 2000; Cobham et al., 1998; Flannery-Schroeder and Kendall, 2000; Mendlowitz et al., 1999; Menzies and Clarke, 1993; Muris et al., 2001; Nauta et al., 2003; Silverman et al., 1999b; Spence et al., 2000).

Investigators in this area have also systematically evaluated a variety of clinically relevant questions: for instance, whether group CBT is more effective than individual CBT (Flannery-Schroeder and Kendall, 2000; Manassis et al., 2002; Muris et al., 2001), whether adding parental participation enhances treatment outcomes (Barrett, 1998; Barrett et al., 1996; Cobham et al., 1998; Mendlowitz et al., 1999; Nauta et al., 2003; Shortt et al., 2001; Spence et al., 2000), whether concurrent treatment of parental anxiety enhances treatment outcomes (Cobham et al., 1998), and whether two active treatment components, which are

TABLE 1

Randomized Clinical Trials of CBT for Child and Adolescent Anxiety Disorders: Effects at Post-treatment

Author(s)	Design	Sample Information	Target Diagnosis	Treatment Information	Primary Dependent Measures	Sample Size (Initial/ Completed)	Proportion Responding	Posttreatment EBM NNT Effect Size	Comments
Barrett, 1998	RCT, alternative treatment and WL control, blind assessment, completer analysis	*N* = 60 7–14 years, 53% male Ethnicity unspecified	OAD (*n* = 30) SAD (*n* = 26) SOP (*n* = 4)	12 sessions, group CBT-C 12 sessions, group family CBT-CP WL (12 weeks, then offered treatment)	FSSC-R CBCL No anxiety dx	23/19 17/15 20/16	11/19 11/15 4/16	4 2 FSSC-R GCBT = 1.58 GCBT+ = 2.53 CBCL-I (mother) GCBT = 3.37 GCBT+ = 3.98	Both treatments associated with significant improvements; GCBT+ associated with marginally better outcomes
Barrett, Dadds, & Rapee, 1996	RCT, WL control, blind assessment, completer analysis	*N* = 79 9.3 years 57% male Ethnicity unspecified	OAD (*n* = 30) SAP (*n* = 30) SOP (*n* = 19)	12 sessions, individual CBT 12 sessions, individual CBT-CP WL (12 weeks, then offered treatment)	RCMAS FSSC-R CBCL No anxiety dx	28/28 25/25 26/23	16/28 21/25 6/23	3 2 RCMAS CBT = 0.40 CBT+ = 0.94 FSSC-R CBT = 0.49 CBT+ = 0.73 CBCL-I (mother) CBT = 0.96 CBT+ = 1.19	Both active treatments showed positive benefit, CBT+ was superior on several outcomes
Beidel, Turner, & Morris, 2000	RCT; nonspecific treatment control, blind assessment, completer analysis	*N* = 67 10.5 years; 40% male, 70% white	SOP (*n* = 67)	12 individual and 12 group sessions, CBT 12 individual and 12 group sessions, Nonspecific treatment control	SPAI-C, C-GAS, ADIS-C CSR, No anxiety dx	36/30 31/20	20/30 1/20	2 SPAI-C = 0.91 C-GAS = 1.46 ADIS-C CSR = 2.04	Active treatment was associated with significant improvements across multiple domains

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TABLE 1
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Author(s)	Design	Sample Information	Target Diagnosis	Treatment Information	Primary Dependent Measures	Sample Size (Initial/ Completed)	Proportion Responding	Posttreatment EBM NNT Effect Size	Comments
Cobham, Dadds, & Spence, 1998	RCT, alternative treatment control, blind assessment, ITT analysis	*N* = 67 9.6 years 51% male Ethnicity unspecified	SAD (*n* = 8) OAD (*n* = 3) GAD (*n* = 40) SIP (*n* = 12) SOP (*n* = 3) AGP (*n* = 1)	10 sessions, child-focused group CBT (parents participated) 10 sessions plus 4 parent anxiety management sessions, group CBT+PAM (parents participated); outcomes were also crossed on parental anxiety (nonanxious parent vs. anxious parent)	RCMAS STAIC No anxiety dx (using ADIS-P CSR)	35/35 32/32 (note: 3 families in each condition completed less than 50% of the sessions)	CBT NAP = 14/17 CBT AP = 7/18 CBT+PAM NAP = 12/15 CBT+PAM AP = 13/17	(Calculations made using CBT AP as control condition) CBT NAP = 2 CBT+PAM NAP = 2 CBT+PAM AP = 3 ESs were not calculated on self-report measures due to low completion rate of the assessment instruments (*n* = 29)	Children with anxious parent(s) responded less favorably to child-focused CBT at post-treatment; the addition of PAM improved outcomes for children with anxious parent(s) but not for children with nonanxious parents
Cornwall, Spence, & Schotte, 1996	RCT, WL control, blindness unclear, completer analysis	*N* = 24 8.25 years Gender unspecified Ethnicity unspecified	SIP (darkness phobia, *n* = 24)	6 sessions, emotive imagery WL (3 months in duration)	FSSC-R RCMAS FT DFBQ	12/12 12/?	Data unavailable	Data unavailable to calculate NNT FSSC-R = 0.53 RCMAS = 0.52 DFBQ = 1.59	Active treatment associated with significant improvement in all outcomes
Flannery-Schroeder & Kendall, 2000	RCT, WL control, blind assessment, ITT and completer analysis	*N* = 45 8–14 years 46% males 89% white	GAD (*n* = 21) SAD (*n* = 11) SOP (*n* = 5)	18 sessions, individual CBT 18 sessions, group CBT WL (9 weeks, then offered treatment)	RCMAS CBCL-I No anxiety dx (using ADIS-P)	18/13 13/12 14/12	No anxiety dx (ITT) 8/18 6/13 0/14	2 2 RCMAS ICBT = 0.79 GCBT = 1.11 CBCL-I ICBT = 1.52 GCBT = 0.84	Both individual and group CBT were associated with lower rates of anxiety disorders and enhanced coping abilities; outcomes for ICBT and GCBT were comparable

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TABLE 1
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Author(s)	Design	Sample Information	Target Diagnosis	Treatment Information	Primary Dependent Measures	Sample Size (Initial/ Completed)	Proportion Responding	Posttreatment EBM NNT Effect Size	Comments
Hayward et al., 2000	RCT, no-treatment control, blind assessment, completer analysis	*N* = 35 15.8 years 100% females Ethnicity unspecified	SOP (*n* = 35)	16 sessions, group CBT No-treatment control	ADIS CSR, SPAI-C No anxiety dx	12/11 23/22	6/11 1/22	2 ADIS-C = 1.23 ADIS-P = 0.67 SPAI-C = 0.29	Active treatment was associated with significant improvement; 55% of subjects continued to meet diagnostic criteria for dx
Kendall, 1994	RCT, WL control, blindness unclear, completer analysis	*N* = 47 9–13 years 60% males 76% white	OAD (*n* = 30) SAD (*n* = 8) AVD (*n* = 9)	16 sessions, individual CBT WL (8 weeks, then offered treatment)	RCMAS FSSC-R CBCL-I No primary anxiety dx (using ADIS-P)	27/NR 20/NR (Note: 13 subjects dropped, not reported by group)	17/27 1/20	2 RCMAS = 0.87 FSSC-R = 0.38 CBCL-I = 1.22	Individual CBT was associated with lower rates of anxiety disorders and enhanced coping abilities
Kendall, Flanney-Schroeder, Panichelli-Mindel, Southam-Gerow et al., 1997	RCT, WL conrol, blindness unclear, completer analysis	*N* = 94 9–13 years 62% male 85% white	OAD (*n* = 55) SAD (*n* = 22) AVD (*n* = 17)	16 sessions, individual CBT WL (8 weeks, then offered treatment)	RCMAS STAIC No anxiety dx by ADIS-P	75/60 43/34	32/60 2/34	2 RCMAS - 0.59 STAIC-TA = 0.72 STAIC-SA = 0.40	Overall, results were very similar to earlier study of individual CBT
King et al., 1998	RCT, WL control, blindness unclear, completer analysis	*N* = 34 11.03 years 53% male Ethnicity unspecified	SR (*n* = 34)	6 sessions (over 4 weeks; plus 5 parent sessions and 1 teacher meeting), individual CBT WL (4 weeks, then offered treatment)	School attendance (% days present) FT GAF CBCL-I	17/17 17/17	No. who achieved 90% school attendance 15/17 5/17	2 FT = 1.38 GAF = 1.50 CBCL-I = 0.59	Active treatment was associated with significant improvements on all outcomes except teacher reports

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TABLE 1
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Author(s)	Design	Sample Information	Target Diagnosis	Treatment Information	Primary Dependent Measures	Sample Size (Initial/ Completed)	Proportion Responding	Posttreatment EBM NNT Effect Size	Comments
Last, Hansen, & Franco, 1998	RCT, alternative treatment control, blindness unclear, completer analysis	*N* = 56 12.04 years, 40% male 89% white	ASR (*n* = 56)	12 sessions, individual CBT 12 sessions, individual ES	School attendance GIS FSSC-R STAIC-M No anxiety dx	32/20 24/21	No. who attained 95% attendance 13/20 10/21	6 95% attendance = 0.39 Clinician GIS = 0.20 FSSC-R = 0.49 STAIC-M = 0.31 No dx = 0.39	Both treatments were equally effective in returning children to school
Manassis et al., 2002	RCT, alternative treatment control, blindness unclear, completer analysis	*N* = 78 9.98 years 54% male 85% white	GAD (*n* = 47) SAD (*n* = 20) SIP (*n* = 5) SOP (*n* = 5) PAD (*n* = 1)	12 sessions, individual CBT 12 sessions, group CBT (Note: parents participated in both treatments)	MASC CGAS	41/NR 37/NR	Categorical outcomes were not provided	NA Relative to individual CBT MASC = −0.31 CGAS = −0.64	Both treatments were associated with improvements on child and parent ratings; clinician CGAS ratings favored individual CBT; individual CBT was more effective for children reporting high rates of social anxiety
Mendlowitz et al., 1999	RCT, alternative treatment control, blindness unclear, completer analysis	*N* = 68 9.8 years 43% male Ethnicity unspecified	Children with *DSM-IV* anxiety dx (using DICA-R-P)	12 sessions, group CBT (child only) 12 sessions, group CBT-P 12 sessions, group CBT-CP WL (2 to 6 months, then offered treatment)	RCMAS CCSC GIS	23/23 21/21 18/18	Categorical outcomes were not provided	NA RCMAS CBT-C = 0.18 CBT-P = 0.18 CBT-CP = 0.35 CCSC (Active Coping) CBT-C = 0.26 CBT-P = −0.65 CBT-CP = 0.57 CCSC (Avoidant Coping) CBT-C = 0.33 CBT-P = −0.39 CBT-CP = 0.39	All three treatments were associated with significant improvements in symptoms of anxiety and depression; children in CBT (child + parent) condition reported using more adaptive coping skills than the other two treatment conditions

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TABLE 1
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Author(s)	Design	Sample Information	Target Diagnosis	Treatment Information	Primary Dependent Measures	Sample Size (Initial/ Completed)	Proportion Responding	Posttreatment EBM NNT Effect Size	Comments
Menzies & Clarke, 1993	RCT, alternative treatment control, blind assessment, completer analysis	*N* = 48 5.5 years 65% male Ethnicity unspecified	SIP (water phobia, *n* = 48)	3 sessions, IVVE 3 sessions, VE 3 sessions, IVE No-treatment control	BRS PCWP CWP OR	13/12 13/12 12/12	Categorical outcomes were not provided	NA Unable to calculate due to insufficient data	Both IVVE and IVE were equally effective and more effective than WL in reducing water phobia; IVE resulted in greater generalization to novel situations; VE showed no benefit over no-treatment control
Muris, Mayer, Bartelds, Tierney, & Bogie, 2001	RCT, alternative treatment control, blindness unclear, completer analysis	*N* = 36 9.9 years 25% male 97% white	GAD (*n* = 14) SAD (*n* = 14) SOP (*n* = 7) OCD (*n* = 1)	12 sessions, individual CBT 12 sessions, group CBT	SCARED-R STAIC	17/not reported 19/not reported	Categorical outcomes were not provided	NA Relative to individual CBT SCARED-R (total) = −0.32 STAIC (trait anxiety) = 0.14	Both treatments were associated with equal improvements in symptoms of anxiety
Muris, Meesters, & van Melick 2002	RCT, psychological PBO and no-treatment control, blindness unclear, completer analysis	*N* = 30 10.2 years 33% male 90% white	SAD (*n* = 10) GAD (*n* = 7) SOP (*n* = 3) Diagnostic status of no-treatment controls not assessed	12 sessions, group CBT 12 sessions, group ED No-treatment control	RCADS STAIC	10/10 10/10 10/10	Categorical outcomes were not provided	NA Combined active treatment relative to no-treatment control RCADS (total anxiety) CBT = 1.48 ED = −0.17 STAIC (trait anxiety) CBT = 0.83 ED = −0.46 CBT relative to ED RCADS (total anxiety) = 0.98 STAID (trait anxiety) = 1.05	CBT was superior to ED and no-treatment control; ED showed no benefit over no-treatment control

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TABLE 1
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Author(s)	Design	Sample Information	Target Diagnosis	Treatment Information	Primary Dependent Measures	Sample Size (Initial/ Completed)	Proportion Responding	Posttreatment EBM NNT Effect Size	Comments
Nauta, Scholing, Emmelkamp, & Minderaa, 2003	RCT, WL control, blind assessment, ITT analysis	*N* = 79 11.0 years 49% male Ethnicity unspecified	SAD (*n* = 26) SOP (*n* = 31) GAD (*n* = 15) PAD (*n* = 7)	12 sessions, individual CBT 12 sessions, individual CBT plus 7 sessions CPT WL (duration not specified, then offered treatment)	SCAS-c/p FSSC-R CBCL No anxiety dx (ADIS-C and P)	29/26 30/30 20/17	Combined vs. WL 32/59 2/18 CBT vs. CBT+ 20/37 23/39	Active treatment relative to WL 2 Unable to calculate due to insufficient data CBT relative to CBT+ 20 SCAS-c = −0.20 SCAS-p = −0.33 FSSC-R = −0.12	Relative to WL, active treatment showed lower scores on parent reports and more children diagnostic free; no difference between WL and active treatment on child reports; the addition of CPT showed no additional benefit across all outcomes
Shortt, Barrett, & Fox, 2001	RCT, WL control, blind assessment, completer analysis	*N* = 71 7.85 years 41% male 92% Australian	GAD (*n* = 42) SAD (*n* = 19) SOP (*n* = 10)	10 sessions (plus 2 booster sessions), group CBT WL (10 weeks, then offered treatment)	RCMAS CBCL No anxiety dx	54/48 17/16	33/48 1/16	2 RCMAS = 0.99 Mother CBCL-I = 5.08 Father CBCL-I = 1.91	Active treatment was associated with significant improvements across all outcomes
Silverman et al., 1999a	RCT, WL control, blind assessment, completer analysis	*N* = 56 9.66 years 61% males 45% white	GAD (*n* = 12) SOP (*n* = 15) OAD (*n* = 29)	12 sessions, group CBT (concurrent child and parent groups with 15 min. conjoint meeting) WL (8 to 10 weeks, then offered treatment)	RCMAS FSSC-R CBCL-I PGRS No anxiety dx (ADIS-C/P)	37/25 19/16	16/25 2/16	2 RCMAS = 0.58 FSSC-R = 0.65 CBCL-I = 1.25 PGRS = 1.78	Group CBT was associated with significant improvements across all primary outcome domainss

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TABLE 1
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Author(s)	Design	Sample Information	Target Diagnosis	Treatment Information	Primary Dependent Measures	Sample Size (Initial/ Completed)	Proportion Responding	Posttreatment EBM NNT Effect Size	Comments
Silverman et al., 1999b	RCT, alternative treatment control, blind assessment, completer analysis	*N* = 104 9.83 years 52% males 62% white	SIP (*n* = 87) SOP (*n* = 10) AGP (*n* = 7)	10 sessions, individual child and parent SC 10 sessions, individual child and parent CM 10 sessions, individual child and parent ES	RCMAS FSSC-R PGRS No anxiety dx	40/33 41/32 23/16	29/33 18/32 9/16	3 NA RCMAS SC = 0.72 CM = 0.13 FSSC-R SC = 1.07 CM = 0.18 PGRS SC = 0.47 CM = 0.40	All three treatment conditions showed comparable improvement
Spence et al., 2000	RCT, WL, blind assessment, completer analysis	*N* = 50 10.7 years 62% male Ethnicity unspecified	SOP (*n* = 50)	12 sessions, child and parent group CBT 12 sessions, child only group CBT No-treatment WL	ADIS-P CSR RCMAS No anxiety dx (ADIS-P)	17/16 19/15 14/9	14/16 9/15 1/9	1 2 ADIS-P CSR CBT-CP = 1.88 CBT = 1.01 RCMAS CBT-CP = 0.45 CBT = 0.46	Both treatments were associated with significant improvements; no significant difference between active treatments noted

Note: ADIS CSR = Anxiety Disorders Interview Schedule for Children, clinician severity rating (summary score); ADIS-C = Anxiety Disorders Interview Schedule for Children; ADIS-C CSR = Anxiety Disorders Interview Schedule for Children, clinician severity rating child based; ADIS-P = Anxiety Disorders Interview Schedule for Children, Parent Version; ADIS-P CSR = Anxiety Disorders Interview Schedule for Children, clinician severity rating parent based; AGP = agoraphobia; ASR = anxiety-based school refusal; AT control = alternative treatment control; AVD = avoidant disorder; BRS = Behaviour Rating Scale; CBCL = Child Behavior Checklist; CBCL-I = Child Behavior Checklist-Internalizing Subscale; CBT = cognitive-behavioral therapy; CBT AP = CBT with anxious parent; CBT NAP = CBT with nonanxious parent; CBT+PAM = CBT plus parental anxiety management; CBT+PAM AP = CBT plus parental anxiety management with anxious parent; CBT+PAM NAP = CBT plus parental anxiety management with nonanxious parent; CBT-C = CBT child only; CBT-CP = CBT child and parent; CBT-P = CBT parent only; CCSC = Children's Coping Strategies Checklist; CGAS = Children's Global Assessment Scale; CM = contingency-management therapy; CWP = Water Phobia Survey Schedule, child version; DFBQ = Darkness Fear Behaviour Questionnaire; DICA-R-P = Diagnostic Inventory for Children and Adolescents-Revised, Parent Version; dx = diagnosis; ED = emotional disclosure; ESs = effect size estimates; FSSC-R = Fear Survey Schedule for Children-Revised; FT = fear thermometer; GAD = generalized anxiety disorder; GAF = Global Assessment of Functioning; GCBT = group cognitive-behavioral therapy; GIS = Global Improvement Scale; ICBT = individual cognitive behavior therapy; ITT = intent to treat; IVE = in vivo exposure; IVVE = in vivo exposure plus vicarious exposure; MASC = Multidimensional Anxiety Scale for Children; NA = not available; NR = not reported; NT control = no-treatment control; OAD = overanxious disorder; OR = overall reaction to phobic situation; PAD = panic disorder with or without agoraphobia; PAM = parental anxiety management; PBO = placebo; PCWP = Water Phobia Survey Schedule, Parent Version; PGRS = parent global rating of severity; RCADS = Revised Children's Anxiety and Depression Scale; RCMAS = Revised Children's Manifest Anxiety Scales; RCT = randomized clinical trial; SAD = separation anxiety disorder; SC = self-control therapy; SCARED-R = Screen for Child Anxiety Related Emotional Disorders-Revised; SCAS-c/p = Spence Child Anxiety Scale, Child and Parent Version; SIP = simple phobia; SOP = social phobia; SPAI-C = Social Phobia and Anxiety Inventory for Children; SR = school-refusing children; STAIC = State-Trait Anxiety Inventory for Children; STAIC-M = Modified State-Trait Anxiety Inventory for Children; STAIC-SA = State-Trait Anxiety Inventory for Children state anxiety; STAIC-TA = State-Trait Anxiety Inventory for Children trait anxiety; VE = vicarious exposure; WL = wait-list control.

often combined in traditional cognitive-behavioral protocols (e.g., behavioral contingency management versus cognitive self-control), are differentially effective (Silverman et al., 1999b). Moreover, several of the studies cited were replications and extensions of existing protocols by independent researchers (Barrett, 1998; Barrett et al., 1996; Manassis et al., 2002; Mendlowitz et al., 1999; Muris et al., 2001, 2002).

Assessment Issues

Diagnosis and Symptom Profile. Valid and reliable assessment is essential to the skillful application and evaluation of cognitive-behavioral treatments (Thyer, 1991) and is a strength of the cited studies taken as a whole. All but 2 of the 21 studies cited in Table 1 (Cornwall et al., 1996; Menzies and Clarke, 1993) used semistructured clinical interviews to identify subjects as having an anxiety disorder as well as documenting diagnostic comorbidities and assessing treatment outcomes. By a significant margin (13 of 21), the most widely used semistructured clinical interview was the Anxiety Disorders Interview Schedule, Child and Parents Versions (ADIS-C/P) (Silverman, 1987; Silverman and Albano, 1996a,b; Silverman and Nelles, 1988). This interview is most commonly administered separately to children and parents, and then data are combined from both sources to derive a final "composite" diagnosis; however, several studies deviated from this standard practice and relied solely on information obtained from parents to determine diagnostic status (Shortt et al., 2001; Spence et al., 2000) and treatment outcome (Cobham et al., 1998; Flannery-Schroeder and Kendall, 2000; Kendall, 1994; Kendall et al., 1997; Shortt et al., 2001; Spence et al., 2000). In addition to providing a diagnosis, the ADIS requires the clinician to provide a clinician severity rating (CSR). The CSR is the clinician's estimate of the degree of functional impairment and distress engendered by the disorder (Albano and Silverman, 1996). Unfortunately, only two studies characterized the sample in terms of the CSR (Hayward et al., 2000; Silverman et al., 1999a). Because the CSR may predict the nature and outcome of treatment, the failure of researchers to adequately characterize the baseline characteristics of their sample along this dimension is a notable deficiency.

Demographics and Severity. Both genders are largely represented in the treated population, with only one study containing a sample that was limited to females (Hayward et al., 2000). Although the majority of studies attempted to recruit children and adolescents, the average age of subjects across all studies was approximately 9.85 years. This leaves open the question of generalizability of the research findings, as well as protocol-driven interventions, to older adolescent populations. Other demographic variables, such as ethnicity or socioeconomic status, were generally well documented. However, with the exception of two trials (Silverman et al., 1999a,b), most studies had extremely low rates of ethnic minority participation (see Pina et al. [2003] who examined the differential treatment response of Hispanic/Latino youth and European-American youth). A noted strength of the cited investigations was the clinical severity of the research sample. All studies focused on subjects who sought clinical services and whose impairment was severe enough to warrant a psychiatric diagnosis. No study included children who were simply endorsing symptoms of anxiety on a self-report measure.

Outcome Measures. To their credit, the majority of cited investigations relied on a multimethod (e.g., clinical interview, self-report measures), multiinformant (e.g., child, parent, clinician) approach to document treatment outcomes. Both scalar and dichotomous measures that sampled specific symptom domains were regularly reported. Another strength of many of the cited investigations was that outcomes were not restricted to the simple reporting of statistically significant symptom improvement or symptom change. More clinically informative outcomes were commonly reported, such as clinically significant improvement (defined as changes that return deviant subjects to within nondeviant limits [Kendall and Grove, 1988]) and posttreatment diagnostic status (defined as the percentage of children who no longer meet criteria for a current anxiety disorder). For instance, 14 of the 21 investigations reported the posttreatment diagnostic status of subjects. However, the methods used to quantify diagnostic status varied moderately from study to study, which made it difficult to compare outcomes across trials. For instance, some studies combined information obtained from separate child and parent clinical interviews to determine posttreatment diagnostic status (Barrett, 1998; Barrett et al., 1996; Beidel et al., 2000; Last et al., 1998; Nauta et al., 2003; Silverman et al., 1999a,b), whereas others relied solely on

information obtained from the parent (Cobham et al., 1998; Flannery-Schroeder and Kendall, 2000; Kendall, 1994; Kendall et al., 1997; Shortt et al., 2001; Spence et al., 2000). Moreover, some studies defined a subject as diagnosis free if criteria for his or her primary anxiety diagnosis were no longer met (Last et al., 1998), whereas others used a more restrictive definition and defined a subject as diagnosis free if criteria for both his or her primary and secondary (if present) anxiety diagnoses were no longer met (e.g., Barrett, 1998).

Moderators of Outcome. Ten of the 21 cited investigations reported results of secondary analyses that attempted to determine whether basic demographic and clinical variables moderated treatment outcome (e.g., age, sex, ethnicity, clinical severity, pretreatment diagnosis, comorbidities). The most frequent finding is that none of the variables analyzed moderate treatment outcome (for a notable exception, see Barrett et al. [1996]). However, the strength of this conclusion must be tempered because few studies were sufficiently powered to adequately address this important question.

Long-Term Follow-up. Although the follow-up period varied widely across the cited investigations (from 3 months to 6 years, with a modal length of 12 months), the general conclusion that can be reached is that CBT for anxiety disorders in children and adolescents is a durable intervention (Table 2). With few exceptions (Cobham et al., 1998), posttreatment gains were largely maintained at follow-up and showed little deterioration. Interestingly, several studies that found significant differences between two active treatments post-treatment reported that, at follow-up, the two treatments were equally effective. However, because all cited studies lacked an adequate control group during the follow-up period, competing explanations for the positive results reported cannot be dismissed.

Treatments

The behavioral treatment of fear and anxiety in children builds on early studies indicating that anxiety is readily conceptualized as a set of classically conditioned responses that can be unlearned or counterconditioned through associative pairing with anxiety-incompatible stimuli and responses. For example, in systematic desensitization (SD), anxiety-arousing stimuli are systematically and gradually paired (imaginally or in vivo) with competing stimuli such as food, praise, imagery, or cues generated from muscular relaxation. SD with children consists of three basic steps: (1) training in progressive muscle relaxation, (2) rank ordering of fearful situations from lowest to highest, and (3) hierarchical presentation of fear stimuli via imagery while the child is in a relaxed state (Eisen and Kearney, 1995). SD appears to work well with older children and adolescents. Younger children, however, often have difficulty with both obtaining vivid imagery and acquiring the incompatible muscular relaxation. Strategies such as using developmentally appropriate imagery and adjunctive use of workbooks may boost the effectiveness of these procedures with younger children.

Without encouragement, anxious children and adolescents often find it difficult to remain in the presence of anxiety-arousing stimuli for a sufficient length of time to allow habituation to occur in the natural environment. In fact, in some cases, the process of negative reinforcement maintains the anxiety response. That is, when an individual initially confronts an anxiety-provoking situation (e.g., the assignment of an oral report for the socially anxious youth), there is an increase in discomforting sensations and anxious thoughts (e.g., rapid heart rate, sweating, thoughts such as "I'll look stupid to others"). By escaping or avoiding the situation, such as through complaints of feeling ill and needing to leave class or the behavior of school avoidance/refusal, the individual feels immediate relief from the anxiety. This is the process of negative reinforcement. The escape behavior is reinforced by the relief and sets the stage for cycles of anxiety arousal followed by escape or avoidance and relief.

After the adult treatment literature, the identification of the negative reinforcement paradigm led to the development of exposure-based interventions for a wide range of pediatric anxiety disorders. Because escape and avoidance behaviors are negatively reinforced by the cessation of anxiety, exposure-based procedures require extended presentation of fear stimuli with concurrent prevention of escape and avoidance behaviors in order for the extinction of the conditioned responses to occur. Unlike systematic desensitization, stimulus presentation is not accompanied by progressive muscle relaxation. Rather, graduated imaginal and/or in vivo exposure to hierarchically presented fear stimuli is used to attenuate anxiety to phobic stimuli. Gradual exposure, with the consent of the child, is generally considered to produce less stress for the client (and therapist) and thus is often preferred over the use of more pre-

TABLE 2
Randomized Clinical Trials of CBT for Child and Adolescent Anxiety Disorders: Effects at Follow-up

Author(s)	Follow-up Citation	Follow-up Design	Sample Size	Primary Dependent Measures	Treatment Conditions	Sample Size (Initial/FU)	Proportion Responding	FU EBM NNT Effect Size	Comments
Barrett et al., 1996	In original article	12-mo FU (active treatments only)	EN = 79 FUN = 53	RCMAS, FSSC-R, CBCL, independent clinician ratings; no anxiety dx	12 sessions, individual CBT 12 sessions, individual child and parent CBT	28/27 25/23	19/27 22/23	NA NA	CBT+ had significantly more children diagnosis free, lower FSSC-R scores, and higher clinician ratings of improvement; no significant difference on CBCL; younger children and females responded better to CBT+
Barrett et al., 1996	Barrett et al., 2001	6-yr FU	EN = 79 FUN = 52	RCMAS, FSSC-R, no anxiety dx	12 sessions, individual CBT 12 sessions, individual child and parent CBT	28/31, 18/21 (includes only subjects who met dx status at pretreatment by child interview)	24/28 18/21	NA NA	12-mo treatment gains were largely maintained at 6-yr FU; contrary to authors' predictions, CBT+ was not more effective than CBT
Barrett, 1998	In original article	12-mo FU (active treatments only)	EN = 60 FUN = difficult to determine	FSSC-R, CBCL, independent clinician ratings, no anxiety dx	12 sessions, group CBT (child only) 12 sessions, group family CBT (child and parent)	Difficult to determine	GCBT = 64.5%, GCBT+ = 84.8%	NA NA	Both active treatment groups continued to show improvement; no significant difference between 2 active treatments on diagnostic status; GCBT+ group reported significantly lower FSSC-R scores and CBCL scores; GCBT+ received significantly higher clinician ratings of improvement

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TABLE 2
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Author(s)	Follow-up Citation	Follow-up Design	Sample Size	Primary Dependent Measures	Treatment Conditions	Sample Size (Initial/FU)	Proportion Responding	FU EBM NNT Effect Size	Comments
Barrett et al., 1996	In original article	6-mo FU (active treatments only)	EN = 79 FUN = 53	RCMAS, FSSC-R, CBCL, independent clinician ratings, no anxiety dx	12 sessions, individual CBT 12 sessions, individual child and parent CBT	28/28 25/25	20/28 21/25	NA NA	Both active treatment groups continued to show improvement; no significant difference between 2 active treatments on diagnostic status, RCMAS, FSSC-R, or CBCL scores; CBT+ received significantly higher clinician ratings of improvement
Beidel et al., 2000	In original article	6-mo FU	EN = 67 FUN = 22 (children in the nonspecific treatment condition were NA for FU analysis	SPAI-C, CGAS, ADIS-C CSR, no anxiety dx	12 individual and 12 group sessions, CBT 12 individual and 12 group sessions, nonspecific treatment control	36/22	19/22	NA NA	Treatment gains were maintained at 6-mo FU
Cobham et al., 1998	In original article	12-mo FU	EN = 67 FUN = 65	No anxiety dx	10 sessions, child-focused group CBT (parents participated) 10 sessions + 4 parent anxiety management sessions, group CBT=PAM (parents participated); groups were also crossed on parental anxiety NAP vs. AP	33/35 32/32	CBT NAP = 12/16 CBT AP = 10/17 CBT+PAM NAP = 12/15 CBT+PAM AP = 12/17	NA NA	Overall, treatment effects weakened by 12-mo FU; no significant main effect for anxiety condition (anxious parent vs. nonanxious parent); no significant main effect for treatment condition (CBT vs. CBT+PAM); no significant interactions between parent anxious status and treatment condition

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TABLE 2
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Cobham et al., 1998	In original article	6-mo FU	EN = 67 FUN = 66	No anxiety dx	10 sessions, child-focused group CBT (parents participated) 10 sessions + 4 parent anxiety management sessions, group CBT+PAM (parents participated); groups were also crossed on parental anxiety NAP vs. AP	34/35 32/32	CBT NAP = 14/16 CBT AP = 8/18 CBT+PAM NAP = 12/15 CBT+PAM AP = 12/17	NA NA	Children with anxious parent(s) continued to respond less favorably to child-focused CBT; overall, children with nonanxious parents responded more favorably to treatment regardless of treatment condition
Cornwall et al., 1996	In original article	3-mo FU	EN = 24 FUN = 24	FSSC-R, RCMAS, FT, DFBQ	6 sessions, emotive imagery WL (3 mo in duration)	12/12 12/12	NR	NA FSSC-R = 0.90 RCMAS = 0.79 DFBQ = 1.82	Treatment gains in the active treatment condition were maintained at 3-mo FU
Flannery-Schroeder & Kendall, 2000	In original article	3-mo FU	EN = 45 FUN = 29 (includes subjects treated after WL)	RCMAS, CBCL-I, no anxiety dx	18 sessions, individual CBT 18 sessions, group CBT WL (9 wk, then offered treatment)	18/14 18/15	Primary dx: 11/14 8/15 Any Anx dx: 7/14 8/15	NA NA	Treatment gains were maintained at 3-mo FU; no significant differences between the two active treatments on self-report and parent report measures
Hayward et al., 2000	In original article	12-mo FU	EN = 35 FUN = 28	ADIS CSR, SPAI No anxiety dx	16 sessions, group CBT No treatment control	12/10 23/18	4/10 10/18	–6 SPAI = 0.07	No significant between-group difference in rates of social phobia or SPAI mean scores at 12-mo FU; additional analyses combining social phobia and depression diagnoses produced more robust between group treatment changes
Kendall, 1994	In original article	12-mo FU	EN = 47 FUN = 38 (includes Ss treated after WL period)	RCMAS FSSC-R CBCL-I No primary anxiety dx (ADIS-P)	16 sessions, individual CBT WL (8 wk, then offered treatment)	47/38	Percent dx-free not reported	NA NA	Treatment gains were maintained at 12-mo FU on self-report and parent report measures

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TABLE 2
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Author(s)	Follow-up Citation	Follow-up Design	Sample Size	Primary Dependent Measures	Treatment Conditions	Sample Size (Initial/FU)	Proportion Responding	FU EBM NNT Effect Size	Comments
Kendall, 1994	Kendall & Southam-Gerow, 1996	2–5 yr FU	EN = 47 FUN = 36 (includes Ss treated after WL period)	RCMAS FSSC-R CBCL-I No primary anxiety dx (ADIS-C)	Individual CBT	47/36	Percent dx-free not reported	NA NA	Treatment gains were largely maintained at long-term FU on self-report and parent report measures
Kendall et al., 1997	In original article	12-mo FU	EN = 94 FUN = 85 (includes Ss treated after WL period)	RCMAS STAIC No anxiety dx by ADIS-P	16 sessions, individual CBT WL (8 wk, then offered treatment)	85/94	Percent dx free not reported	NA NA	Posttreatment reductions were maintained at 12-mo FU with the exception that CBCL-I (mother) ratings were significantly lower
King et al., 1998	In original article	3-mo FU	EN = 34 FUN = 17 (WL not assessed)	School attendance (1% days present) FT GAF CBCL-I	6 sessions (over 4 wk; plus 5 parent sessions and 1 teacher meeting), individual CBT WL (4 wk, then offered treatment)	17/17	No. who achieved 90% school attendance 14/17	NA NA	Treatment gains across all primary outcomes were maintained at 3-mo FU
Last et al., 1998	In original article	2 wk into the subsequent school year	EN = 56 FUN = 41	% reporting: (1) no difficulty returning to school in new year (2) mild difficulty (3) moderate difficulty (4) extreme difficulty	12 sessions, individual CBT 12 sessions, individual educational support	32/20 24/21	CBT vs. ES (1) 40% vs. 52% (2) 30% vs. 19% (3) 10% vs. 5% (4) 20% vs. 24%	NA NA	Roughly 30% of treatment completers in both groups reported moderate to severe difficulty returning to school the following school year
Last et al., 1998	In original article	4-wk FU	EN = 56 FUN = 29	% reporting: (1) maintained improvement (2) showed further improvement (3) relapsed (4) never improved	12 sessions, individual CBT 12 sessions, individual educational support	32/14 24/15	CBT vs. ES (1) 65% vs. 40% (2) 14% vs. 13% (3) 7% vs. 7% (4) 14% vs. 40%	4 NA	The majority of Ss continued to show improvement, with no significant between group differences at 4-wk FU
Menzies & Clarke, 1993	In original article	12-wk FU	EN = 51 FUN = 36 (WL not assessed)	BRS PCWP CWP OR	3 sessions, IVVE 3 sessions, VE 3 sessions, IVE No treatment control	13/12 13/12 13/12	NA	NA NA	Nonsignificant deterioration in treatment gains noted, IVVE group performed better than IVE group at FU

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TABLE 2
continued

Author(s)	Follow-up Citation	Follow-up Design	Sample Size	Primary Dependent Measures	Treatment Conditions	Sample Size (Initial/FU)	Proportion Responding	FU EBM NNT Effect Size	Comments
Nauta et al., 2003	In original article	3-mo FU	EN = 79 FUN = 73	SCAS-c/p FSSC-R CBCL No anxiety dx	12 sessions, individual CBT 12 sessions, individual CBT plus 7 sessions CPT WL (duration not specified, then offered treatment)	37/34 39/39	23/34 27/39	0 Relative to CBT SCAS-c = −0.31 SCAS-p = −0.24 FSSC-R = −0.24	Both active treatment groups continued to show improvement across all primary outcomes during FU period; the addition of CPT conferred no additional benefit across all outcomes
Shortt et al., 2001	In original article	12-mo FU	EN = 71 FUN = 63 (includes Ss treated after WL period)	RCMAS CBCL No anxiety dx	10 sessions (plus 2 booster sessions), group CBT WL (10 wk, then offered treatment)	47/63	32/47	NA NA	Clinician ratings were maintained at FU, RCMAS scores were significantly lower than at post-treatment
Silverman et al., 1999a	In original article	3-, 6-, 12-mo FU (results from each FU assessment period presented and analyzed together)	EN = 56 FUN = 31 (includes pooled GCBT and WL data)	RCMAS FSSC-R CBCL-I PGRS No anxiety dx	12 sessions, group CBT (concurrent child and parent groups with 15 min. conjoint meeting) WL (8 to 10 wk, then offered treatment)	3-mo FU = 41/31 6-mo FU = 41/33 12-mo FU = 41/25	3-mo FU = 24/31 6-mo FU = 26/33 12-mo FU = 19/25	NA NA	Overall pattern of results showed a large pre- to posttreatment change followed by gradual but continued improvement across all primary outcomes during FU period
Silverman et al., 1999b	In original article	3-, 6-, 12-mo FU (results from each FU assessment period presented and analyzed together)	EN = 104 FUN = 15% unavailable for FU assessments	RCMAS FSSC-R PGRS No anxiety dx	10 sessions, individual child and parent SC 10 sessions, individual child and parent CM 10 sessions, individual child and parent ES	NR by treatment group	NR	NA NA	Overall pattern of results showed a large pre- to posttreatment change followed by gradual but continued improvement across all primary outcomes during FU period
Spence, Donovan, & Brechman-Toussaint, 2000	In original article	12-mo FU	EN = 50 FUN = 36 (number of dropouts, if any, were not specified)	ADIS-P CSR RCMAS No anxiety dx (ADIS-P)	12 sessions, child and parent group CBT 12 sessions, child only group CBT No treatment WL	16/17 17/19	13/16 9/17	NA NA	Treatment gains were largely maintained at 12-mo FU across all primary outcomes; investigators modified ADIS to fit *DSM-IV* criteria; only parents were interviewed; only phone interviews conducted for post and follow-up assessments. Results for self-report and behavioral measures also reported

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TABLE 2
continued

Note: ADIS = Anxiety Disorders Interview Schedule; ADIS CSR = Anxiety Disorders Interview Schedule for Children, clinician severity rating (summary score); ADIS-C = Anxiety Disorders Interview Schedule for Children; ADIS-C CSR = Anxiety Disorders Interview Schedule for Children, clinician severity rating child based; ADIS-P = Anxiety Disorders Interview Schedule for Children, Parent Version; ADIS-P CSR = Anxiety Disorders Interview Schedule for Children, clinician severity rating parent based; BRS = Behaviour Rating Scale; CBCL = Child Behavior Checklist; CBCL-I = Child Behavior Checklist-Internalizing Subscale; CBT = cognitive-behavioral therapy; CBT AP = CBT with anxious parent; CBT NAP = CBT with nonanxious parent; CBT+PAM = CBT plus parental anxiety management; CBT+PAM AP = CBT plus parental anxiety management with anxious parent; CBT+PAM NAP = CBT plus parental anxiety management with nonanxious parent; CM = contingency-management therapy; CWP = Water Phobia Survey Schedule, Child Version; DFBQ = Darkness Fear Behaviour Questionnaire; EN = entry number; ES = education support; FSSC-R = Fear Survey Schedule for Children-Revised; FT = fear thermometer; FU = follow-up; FUN = follow-up number; GAF = Global Assessment of Functioning; GCBT = group cognitive-behavioral therapy; IVE = in vivo exposure; IVVE = in vivo exposure plus vicarious exposure; CGAS = Children's Global Assessment Scale; NA = not available; NR = not reported; OR = overall reaction to phobic situation; PCWP = Water Phobia Survey Schedule, Parent Version; PGRS = parent global rating of severity; RCMAS = Revised Children's Manifest Anxiety Scales; SC = self-control therapy; SPAI = Social Phobia and Anxiety Inventory; SPAI-C = Social Phobia and Anxiety Inventory for Children; VE = vicarious exposure; WL = wait-list control.

scriptive techniques, especially massed exposure or flooding.

Cognitive interventions, usually combined with exposure, also play a prominent role in CBT for anxious children and adolescents. For example, Kendall and colleagues developed a comprehensive cognitive-behavioral protocol for anxious youth that focuses on transmitting coping skills to children in need (Kendall, 1994; Kendall et al., 1997). Based on the premise that anxious children view the world through a "template" of threat, automatic questioning (e.g., "What if . . ."), and behavioral avoidance, treatment is focused on providing educational experiences to build a new "coping template" for the child. Therapists assist the children to reconceptualize anxiety-provoking situations as problems to be solved and situations with which to cope. A variety of cognitive-behavioral components assist the therapist and child in building the coping template: relaxation training, imagery, correcting maladaptive self-talk, problem-solving skills, and managing reinforcers. Therapists use coping modeling, role-play rehearsals, in vivo exposure, and a collaborative therapeutic relationship with the child to facilitate the treatment progress. As a rule, parents are actively involved in all facets of treatment as collaborators in the change process.

For example, when significant others are trapped in the child's anxiety symptoms, it is crucial that they stop participating in or reinforcing the child's avoidance strategies or rituals. To test the hypothesis that adding a family anxiety management component would boost treatment effectiveness, Barrett et al. (1996) developed a parallel family program to Kendall's "Coping Cat" based on behavioral family intervention strategies found effective for the treatment of externalizing disorders in youth. After the completion of each child session with the therapist, the child and parents would participate in a family anxiety management session with the therapist. The crux of the program is to empower parents and children by forming an "expert team" to overcome and master anxiety. Parents are trained in reinforcement strategies, with an emphasis on differential reinforcement and systematic ignoring of excessive complaining and anxious behavior. However, unilateral extinction strategies, such as when a parent returns the school-phobic child to school by force, have significant disadvantages relative to consensual child involvement: (1) lack of a workable strategy

for managing the child's distress, (2) disruption of the treatment relationship, (3) inability to target symptoms that are out-of-sight for parents and teachers, and (4), most important, failure to help the child internalize a more skillful strategy for coping with current and potential future anxiety symptomatology.

MAJOR DEPRESSION

At any one time, approximately 1 in 20 children and adolescents suffers from major depressive disorder, with rates of depression rising dramatically in adolescents, especially in girls. Although the economic burden of depression in youth is uncertain, the human burden is considerable, especially with teenage suicide. Hence, it is of critical importance to note that the empirical literature is more supportive for problem-specific psychotherapies, especially CBT, than for medication management of pediatric depressive disorders (Birmaher et al., 1996a; Hoberman et al., 1996). In particular, several controlled trials have demonstrated that individual or group administered cognitive-behavioral psychotherapy is an effective treatment for depressed youth (Brent et al., 1997; Lewinsohn et al., 1994), and some investigators now consider CBT to be the treatment of choice for this disorder (Reinecke et al., 1998).

Types of Investigations

Twelve articles describing a variety of cognitive-behavioral intervention packages for the treatment of child and adolescent depression were identified (Table 3). Although these depression trials are equally methodologically rigorous when compared with child and adolescent anxiety trials (e.g., contrasting group designs comparing one or more active treatments with either no treatment, wait-list, or attention placebo controls), the number of studies is significantly fewer, and the research agenda to date has been less coherent and systematic. Moreover, several of the studies with null findings likely had insufficient power to detect a between-group treatment effect due to the small sample size of each treatment condition. This is a notable deficiency and contributes to the widely held notion among practitioners that all treatments for depression are equally effective. It also makes it difficult, if not impossible, to reach strong conclusions regarding the differential efficacy of the treatments evaluated.

Two studies addressed the question of whether adding a separate treatment module for parents incrementally improves outcomes (Clarke et al., 1999; Lewinsohn et al., 1990). One study compared individual CBT to systemic behavioral family therapy (Brent et al., 1997). Another study evaluated the relevant question of whether adding CBT to usual care in a health maintenance organization is better than usual care alone (Clarke et al., 2002). Five studies evaluated the efficacy of one or more CBT interventions in designs that included either an attention placebo condition (Kahn et al., 1990; Liddle and Spence, 1990; Vostanis et al., 1996; Wood et al., 1996) or a no-treatment control (Weisz et al., 1997). One study compared individual CBT with interpersonal psychotherapy (Rossello and Bernal, 1999). One investigation evaluated the effects of maintenance CBT for depressed adolescents (Clarke et al., 1999). One study evaluated the acceptability and efficacy of a combined cognitive-behavioral family education treatment (Asarnow et al., 2002). Finally, one study evaluated the efficacy of cognitive bibliotherapy for adolescents with mild to moderate depressive symptoms (Ackerson et al., 1998). No published investigations compared components of treatments, and there were no systematic replication studies by independent investigators.

Assessment Issues

Diagnosis and Symptom Profile. Six of the 12 studies used semistructured clinical interviews to identify subjects as having *DSM* major depressive disorder or dysthymia (Brent et al., 1997; Clarke et al., 1999, 2002; Lewinsohn et al., 1990; Vostanis et al., 1996; Wood et al., 1996). The most commonly used interview was the Schedule for Affective Disorders and Schizophrenia for School-Age Children (Chambers et al., 1985; Orvaschel and Puig-Antich, 1986; Puig-Antich and Chambers, 1978). The remaining six studies either failed to mention the specific assessment procedures used to determine inclusion criteria (Rossello and Bernal, 1999) or enrolled subjects solely on the basis of mild to moderate levels of self-reported depressive symptomatology (Ackerson et al., 1998; Asarnow et al., 2002; Kahn et al., 1990; Liddle and Spence, 1990; Weisz et al., 1997). The same six investigations that used semistructured clinical interviews also assessed comorbidity but failed to analyze whether comorbidity status was related to treatment outcome. Thus, failure to systematically assess the impact of comorbidity on outcome is a critical deficiency in both the anxiety and depression literature.

TABLE 3

Randomized Clinical Trials of CBT for Child and Adolescent Depressive Disorders: Effects at Post-treatment

Author(s)	Design	Sample Information	Target Diagnosis	Treatment Information	Primary Dependent Measures	Sample Size (Initial/Completed)	Proportion Responding	Posttreatment EBM NNT Effect Size	Comments
Ackerson et al., 1998	RCT, WL control, unblinded assessment, completer analysis	*N* = 30 15.9 yr 36% male 65% white	Adolescents with mild to moderate symptoms of depression	4 wk to complete self-guided CBT bibliotherapy WL (4 wk, then offered treatment)	CDI HAM-D Normal CDI Normal HAM-D	15/12 15/10	Categorical outcomes not reported	NA CDI = 1.05 HAM-D21 = 2.57	CBT bibliotherapy superior to WL across multiple measures; parent measure of depression showed no significant between-group differences
Asarnow et al., 2002	RCT, WL control, blindness unclear, completer analysis	*N* = 23 4th to 6th graders 35% male 57% white	Children with elevated symptoms of depression	9 sessions, child + group CBT, +1 session family group CBT and psychoeducation 5 wk WL	CDI	Not reported (1 child had missing data, not reported by group)	Categorical outcomes not reported	NA CDI = 0.92	When outlier removed, CBT showed superior efficacy to WL on multiple measures (depression, negative thoughts, coping)
Brent et al., 1997	RCT, alternative treatment control, blind assessment, ITT analysis	*N* = 107 15.6 yr 24% male 83% white	*DSM-IIIR* MDD	12–16 sessions, individual CBT 12–16 sessions, SBFT 12–16 sessions, NST	BDI No mood dx and normal BDI	37/30 35/24 35/24	22/37 10/35 13/35	4 –12 BDI CBT = 0.41 SBFT = 0.07	CBT showed superior efficacy relative to SBFT and NST; no significant between-group differences were found on suicidal or functional status outcomes
Clarke et al., 2002	RCT, TAU control, blind assessment, ITT analysis	*N* = 88 15.3 yr 17% male 96% white	*DSM-IIIR* MDD or dysthymia	16 sessions, group CBT TAU	CES-D, HAM-D14 No mood dx	41/NR 47/NR (2 subjects dropped, not reported by group)	24/41 25/47	19 CES-D = 0.20 HAM-D14 = 0.10	Both treatments showed positive benefit; no significant between; group differences on any primary outcome measure
Clarke et al., 1999	RCT, WL control, blind assessment, completer analysis	*N* = 123 16.2 yr 29% male Ethnicity unspecified	*DSM-IIIR* MDD or dysthymia	16 sessions, group CBT 16 sessions, child group CBT + 8 sessions, parent group CBT (included 2 joint sessions) 8-wk WL	BDI No mood dx	45/37 42/32 36/27	24/37 22/32 13/27	3 5 BDI CBT = 0.58 CBT+ = 0.24	Both active treatment groups showed significant improvement across multiple outcomes relative to WL; however, there were no significant differences in outcomes between active treatment groups

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TABLE 3
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Author(s)	Design	Sample Information	Target Diagnosis	Treatment Information	Primary Dependent Measures	Sample Size (Initial/Completed)	Proportion Responding	Posttreatment EBM NNT Effect Size	Comments
Kahn et al., 1990	RCT, WL control, blindness unclear, completer analysis	*N* = 68 12.1 yr 49% male Ethnicity unspecified	Children with moderate to severe symptoms of depression	12 sessions, group CBT 12 sessions, individual RT 12 sessions, individual SM 10-wk WL	CDI Normal CDI	17/17 17/17 17/17 17/17	15/17 13/17 10/17 2/17	1 2 2 CDI CBT = 1.68 RT = 1.06 SM = 1.11	All treatments relative to WL showed significant decrease in symptoms of depression; very small sample sizes
Lewinsohn et al., 1990	RCT, WL control, blindness unclear, completer analysis	*N* = 69 16.2 yr 39% male Ethnicity unspecified	*DSM-III* MDD, minor depression, or intermittent depression	14 sessions, group CBT 14 sessions, child group CBT + 8 sessions, parent group CBT (included 2 joint sessions) 7 to 8-wk WL	BDI No mood dx	24/21 21/19 24/19	9/21 9/19 1/19	3 1 BDI CBT = 0.94 CBT+ = 1.48	Both active treatment groups showed significant improvement across multiple outcomes relative to WL; however, there were no significant differences in outcomes between active treatment groups
Liddle & Spence, 1990	RCT, no treatment control and attention placebo control, completer analysis	*N* = 31 9.2 yr 68% male Ethnicity unspecified	Children with mild to moderate symptoms of depression	8 sessions, group CBT 8 sessions, group APC NTC	CDI	11/11 10/10 10/10	Categorical outcomes not reported	NA CDI CBT vs. APC = 0.71 CBT vs. NTC = 0.36	All treatments associated with a significant decline in symptoms of depression; very small sample sizes
Rossello & Bernal, 1999	RCT, WL control, blindness unclear, completer analysis	*N* = 71 14.7 yr 46% male 100% Latino	*DSM-IIIR* MDD or dysthymia	12 sessions, individual CBT 12 sessions, individual IPT 12-wk WL (then offered treatment)	CDI	25/21 23/19 12/18	15/21 17/19 12/18 (based on CDI cutoff points)	10 4 CDI CBT = 0.35 IPT = 0.76	Both active treatment groups showed positive benefit relative to WL; no significant differences in outcomes between active treatment groups
Vostanis, Feehan, Grattan, & Bickerton, 1996	RCT, alternative treatment control, blindness unclear, completer analysis	*N* = 57 12.7 yr 44% male 88% white	*DSM-IIIR* MDD	9 sessions, individual CBT 9 sessions, individual NFI	MFQ-C No mood dx	29/29 28/28	25/29 21/28	9 MFQ = 0.05	Both groups showed significant improvement; although MFQ showed a trend favoring the CBT condition, no significant between-group differences were found on clinical outcomes

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TABLE 3
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Author(s)	Design	Sample Information	Target Diagnosis	Treatment Information	Primary Dependent Measures	Sample Size (Initial/Completed)	Proportion Responding	Posttreatment EBM NNT Effect Size	Comments
Weisz, Thurber, Sweeney, Proffitt, & LeGagnoux, 1997	RCT, no treatment control, blind assessment, completer analysis	*N* = 48 9.6 yr old 51% male 38% white	Children with mild to moderate symptoms of depression	8 sessions, group CBT NTC	CDI CDRS-R	16/16 32/32	8/16 5/32	3 CDI = 0.48 CDRS-R = 0.16	Children in the active treatment group reported significantly fewer symptoms of depression
Wood, Harrington, & Moore, 1996	RCT, alternative treatment control, blind assessment, ITT analysis	*N* = 53 14.2 yr 31% male Ethnicity unspecified	*DSM-IIIR* MDD	5–8 sessions individual CBT 5–8 sessions RT	MFQ-C MFQ-P No mood dx	26/24 27/24	13/24 5/24	3 MFQ-P = 0.41	CBT was associated with significantly more improvement across multiple outcomes

Note: APC = attention placebo control; BDI = Beck Depression Inventory; CBT = cognitive-behavioral therapy; CDI = Children's Depression Inventory; CDRS-R = Children's Depression Rating Scale-Revised; CES-D = Center for Epidemiologic Studies-Depression Scale; HAM-D14 = 14-Item Hamilton Depression Rating Scale; HAM-D21 = 21-Item Hamilton Depression Rating Scale; IPT = interpersonal psychotherapy; ITT = intent to treat; MDD = major depressive disorder; MFQ = Mood and Feelings Questionnaire; MFQ-C = Mood and Feelings Questionnaire, Child Version; MFQ-P = Mood and Feelings Questionnaire, Parent Version; NA = not available; NFI = nonfocused intervention; NR = not reported; NST = nondirective supportive therapy; NTC = no-treatment control; RCT = randomized clinical trial; RT = relaxation training; SBFT = systemic behavior family therapy; SM = self-modeling; TAU = treatment as usual; WL = wait-list control.

Demographics. Although both males and females are represented in the treated populations, other basic demographic variables, such as ethnicity, were generally not well documented. Only 7 of the 12 cited investigations provided the ethnic breakdown of the sample. Moreover, the majority of children who have participated in research studies to date have been overwhelmingly white, suggesting that future studies will be needed to evaluate the exportability of protocol-driven CBT treatment packages to divergent patient populations.

Outcome Measures. All the cited investigations relied on psychometrically sound measures to document treatment results and changes in specific symptom domains. One-half of the studies reported the percentage of subjects who no longer met criteria for a depressive disorder after treatment (Brent et al., 1997; Clarke et al., 1999, 2002; Lewinsohn et al., 1990; Vostanis et al., 1996; Wood et al., 1996), and several studies reported the percentage of subjects who returned to the nondeviant ranges on the primary outcome measures. Only three investigations provided quantitative measures of change in functional status (Brent et al., 1997; Clarke et al., 1999, 2002). Because little is currently known about how treatments affect academic, social, and family domains, future studies would benefit from including a more diverse range of outcomes (Compton et al., 2002).

Long-Term Follow-up. The data addressing the durability of CBT for adolescent depression are mixed (Table 4). In general, studies characterized by a relatively short follow-up period (from 1 to 9 months) report that posttreatment gains are largely maintained, with several studies showing continued improvement. However, studies with longer follow-up periods (from 9 months to 2 years) and low attrition rates at follow-up found that a sizable percentage of subjects continued to report significant depressive symptoms or a recurrence of their depressive illness (Birmaher et al., 2000; Vostanis et al., 1996, 1998; Wood et al., 1996). Factors found to predict a lack of recovery or relapse include low self-esteem (Vostanis et al., 1996, 1998), comorbidity at post-treatment (Vostanis et al., 1998), severity of depression or high level of functional impairment at baseline (Birmaher et al., 2000), the presence of subsyndromal depression (Brent et al., 2001), parental depression (Brent et al., 1998; Clarke et al., 2002), parent–child conflict (Birmaher et al., 2000), and the source of treatment referral (Birmaher et al., 2000). These studies suggest that depression in adolescence is associated with a high risk of recurrence. They also underscore the importance of developing interventions that specifically target adolescents at risk of relapse and investigate the impact of continuation treatment on long-term outcomes.

Treatments

Like other cognitive-behavioral treatment packages, CBT for depression in youths is a present-oriented, skills-based treatment that, in this case, is based on the assumption that depression is either caused or maintained by the way one perceives situations and events (e.g., cognitions about the world and self) and the presence of skill deficits (both emotional and behavioral) that prevent the patient from interacting effectively with the world. Because personality is an interactive multidirectional system of cognitions, behaviors, and emotions, depression is manifested in each of the three components of the personality. However, CBT for depression assumes that symptom change is most likely to occur through interventions that modify patterns of behavior through skills acquisition and patterns of cognition, with changes in depressed mood following in turn. Among the behavioral and cognitive skill deficits that may characterize a depressed youth are low levels of involvement in pleasant activities, poor problem-solving and assertion skills, cognitive distortions that negatively bias perceptions, negative automatic thoughts, negative views of self and future, and failure to attribute positive outcomes to internal, stable, or global causes. The role of the therapist, therefore, is to establish a collaborative working relationship with the adolescent and to help the adolescent learn new ways of behaving and thinking, which in turn reduces depressive severity and risk of relapse.

Current cognitive-behavioral treatment packages for depressed youths share two salient characteristics: (1) general and "required" skill building sessions and optional "modular" sessions for specific problems and (2) the integration of parent and family sessions with individual CBT (Treatment for Adolescents with Depression Study, 2003). Treatment is generally designed to improve the teenager's problem-solving ability when faced with a stressful situation, for example, parent–child conflict, role transitions, grief reactions, or peer problems. Therefore, the required aspects of

TABLE 4

Randomized Cllinical Trials of CBT for Child and Adolescent Depressive Disorders: Effects at Follow-up

Author(s)	Follow-up Citation	Follow-up Design	Target Diagnoses	Primary Dependent Measures	Treatment Conditions	Sample Size (Initial/FU)	Proportion Responding	Follow-up EBM NNT Effect Size	Comments
Ackerson et al., 1998	In original article	1-mo FU	Adolescents with mild to moderate symptoms of depression	CDI HAM-D21 Normal CDI Normal HAM-D21	4 wk to complete self-guided CBT bibliotherapy 4-wk WL	15/12 15/10	NA	NA	The immediate-treatment group continued to show improvement in depressive symptoms on the HAM-D; treatment gains on CDI were maintained
Brent et al., 1997	Birmaher et al., 2000	24-mo FU (multiple interviews)	*DSM-IIIR* MDD	BDI No mood dx and normal BDI	12–16 sessions, individual CBT 12–16 sessions, SBFT 12–16 sessions, NST	37/NR 35/NR 35/NR 97% of sample completed at least 3 FU interviews	Not separated by group	Insufficient data provided	Over FU period, the 3 treatment groups did not significantly differ in terms of remission, recovery, relapse, or recurrence, although descriptive data favored CBT; across groups, 39% of patients had persistent recovery from depression, 40% had intermittent depression symptoms, and 21% were persistently depressed
Clarke et al., 2002	In original article	12-mo FU	*DSM-IIIR* MDD or dysthymia	CES-D HAM-D14 No mood dx	16 sessions, group CBT TAU	41/NR 47/NR (6 subjects dropped, not reported by group)	71% 82%	Insufficient data provided	Both treatment groups continued to show maintenance of treatment gains, with no significant between-group differences on main outcomes
Clarke et al., 2002	In original article	24-mo FU	*DSM-IIIR* MDD or dysthymia	CES-D, HAM-D14 No mood dx	16 sessions, group CBT TAU	41/NR 47/NR (13 subjects dropped, not reported by group)	89% 92%	Insufficient data provided	Both treatment groups continued to show maintenance of treatment gains, with no significant between-group differences on main outcomes

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Author(s)	Follow-up Citation	Follow-up Design	Target Diagnoses	Primary Dependent Measures	Treatment Conditions	Sample Size (initial/FU)	Proportion Responding	Follow-up EBM NNT Effect Size	Comments
Clarke, Rohde, Lewinsohn, Hops, & Seeley, 1999	In original article	12- and 24-mo FU to address question of recovery from and recurrence of depression episode	*DSM-IIIAR* MDD or dysthymia	BDI No mood dx	Subjects in the 2 active treatment conditions were randomly assigned to: (1) booster sessions every 4 mo (2) assessment only sessions every 4 mo (3) assessment only sessions every 12 mo	24 16 24 (87 subjects originally randomized to acute treatment, 64 subjects randomized during follow-up phase)	NA	NA	By 12-mo FU, 100% of subjects who were still depressed at post-treatment and assigned to the booster condition had recovered vs. 50% of those subjects in the 2 assessment-only conditions; however, at 24-mo FU, rates converged with 100% of subjects in the booster condition recovered vs. 90% in the 2 assessment-only conditions By 12-mo FU, recurrence rates were 14% in the 12-mo assessment-only condition, 0% in the 4-mo assessment-only condition, and 27% in the booster condition; at 24-mo FU, recurrence rates were 23% in the 12-mo assessment-only condition, 0% in the 4-mo assessment-only condition, and 36% in the booster condition
Lewinsohn, Clarke, Hops, & Andrews, 1990	In original article	6-, 12-, 24-mo FU	*DSM-III* MDD, minor depression, or intermittent depression	BDI	14 sessions group CBT 14 sessions, child group CBT plus 8 sessions, parent group CBT (included 2 joint sessions) (WL subjects were offered treatment immediately following post-treatment)	At 24 months 24/10 21/13	NR by treatment condition	NA	Both active treatment groups showed continued improvement during FU resulting in a significant difference between posttreatment and 6-mo FU scores; improvements were maintained at the 12- and 24-mo assessments

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Author(s)	Follow-up Citation	Follow-up Design	Target Diagnoses	Primary Dependent Measures	Treatment Conditions	Sample Size (initial/FU)	Proportion Responding	Follow-up EBM NNT Effect Size	Comments
Liddle & Spence, 1990	In original article	2-mo FU	Children with mild to moderate symptoms of depression	CDI	8 sessions, group CBT 8 sessions, group APC NTC	11/11 10/10 10/10	Categorical outcomes not reported	NA CDI CBT vs. APC = 0.41 CBT vs. NTC = 0.20	All treatment groups showed continued improvement at 2-mo FU, with no significant between-group differences
Rossello & Bernal, 1999	In original article	3-mo FU	*DSM-IIIR* MDD or dysthymia	CDI	12 sessions, individual CBT 12 sessions, individual IPT 12-wk WL (then offered treatment)	25/14 23/11	NR	NA	Treatment grains were maintained at 3-mo FU; no significant between-group differences in 3-mo outcomes between the 2 active treatment groups
Vostanis, Feehan, Grattan, & Bickerton, 1996b	Vostanis, Feehan, Grattan, & Bickerton, 1996a	9-mo FU	*DSM-IIIR* MDD	MFQ-C No mood dx	9 sessions, individual CBT 9 sessions, individual NFI	29/28 28/28	20/28 21/28	−28 MFQ-C = −0.03	Treatment gains were maintained in both treatment groups at 9-mo FU; however, 27% of the sample met criteria for MDD and 45% reported significant depressive symptoms during the previous 9-mo period; low self-esteem predicted long-term outcome
Vostanis et al., 1996b	Vostanis, Feehan, & Grattan, 1998	2-yr FU	*DSM-IIIR* MDD	MFQ-C No mood dx	9 sessions, individual CBT 9 sessions, individual NFI	29/27 28/27	20/27 23/27	−9 MFQ-C = −0.36	Overall, treatment gains were maintained in both treatment groups at 2-yr FU; however, 20% of sample met criteria for MDD and 39% reported significant depressive symptoms during the previous year; low self-esteem continued to predict long-term outcome

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TABLE 4
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Author(s)	Follow-up Citation	Follow-up Design	Target Diagnoses	Primary Dependent Measures	Treatment Conditions	Sample Size (initial/FU)	Proportion Responding	Follow-up EBM NNT Effect Size	Comments
Weisz et al., 1997	In original article	9-mo FU	Children with mild to moderate symptoms of depression	CDI CDRS-R	8 sessions, group CBT NTC	60.4% of the original sample available for FU (not reported by group)	NA	NA	In general, treatment gains were maintained over the 9-mo FU; more children in the treatment group moved into the normal range on the CDI and CDRS-R
Wood et al., 1996	In original article	6-mo FU	*DSM-IIIR* MDD	MFQ-C, MFQ-P No mood dx	5–8 sessions individual CBT 5–8 sessions RT	26/21 27/22	14/21 16/22	−16.5 MFQ-P = 0.14	Posttreatment differences between CBT and RT were reduced by 6-mo FU; during FU period, RT group continued to improve across multiple outcomes

Note: APC = attention placebo control; BDI = Beck Depression Inventory; CBT = cognitive-behavioral therapy; CDI = Children's Depression Inventory; CDRS-R = Revised Children's Depression Rating Scale; CES-D = Center for Epidemiologic Studies-Depression Scale; FU = follow-up; HAM-D14 = 14-Item Hamilton Depression Rating Scale; HAM-D21 = 21-Item Hamilton Depression Rating Scale; IPT = interpersonal psychotherapy; MDD = major depressive disorder; MFQ-C = Mood and Feelings Questionnaire, Child Version; MFQ-P = Mood and Feelings Questionnaire, Parent Version; NA = not available; NFI = nonfocused intervention; NR = not reported; NST = nondirective supportive therapy; NTC = no-treatment control; RT = relaxation training; SBFT = systemic behavior family therapy; TAU = treatment as usual; WL = wait-list control.

treatment include psychoeducation about depression and its causes, goal setting with the adolescent, and general problem-solving skills. Modules, chosen jointly by the therapist and adolescent, then address the specific skill deficits of the teenager. Because parent–child conflict is both a risk factor for depression and predictive of poor treatment outcome and relapse, including a parent component in CBT is justified on an ad hoc basis. Moreover, evidence is beginning to emerge that combined child and parent treatment may be more effective than treatment directed at the teenager alone (Lewinsohn et al., 1990). In addition to teaching contingency management procedures, parents are provided with alternative, effective methods for parenting and creating a more positive family environment. Furthermore, family interactions are targeted directly to shape and reinforce effective communication and to increase pleasant activities and positive affect.

DISCUSSION

A substantial evidence base supports the efficacy of problem-specific cognitive-behavioral interventions for a variety of childhood and adolescent anxiety and depressive disorders. Unlike other psychotherapeutic techniques that have been applied to these disorders, CBT is consistent with an EBM perspective that values empirically supported problem-focused treatments. CBT presents a logical theoretical framework to guide practitioners through an idiographic assessment of specific problem domains, the delivery of problem-specific treatment interventions, and well-specified outcomes to monitor treatment progress. However, CBT is not simplistic. Helping children, adolescents, and parents make rapid and difficult behavior change over short time intervals requires considerable expertise and training.

Future research in the areas of childhood and adolescent anxiety and depressive disorders will need to focus on the following areas. First, controlled trials comparing medications, CBT, and their combination are needed to determine whether combined treatment provides an additive benefit in terms symptom reduction. Second, treatment-dismantling studies are needed to identify the relative contributions of specific CBT components to symptom reduction and treatment acceptability. Third, mediational analyses (how a treatment works) are needed to refine treatment interventions and better understand the mechanism(s) through which treatments achieve their therapeutic effect. Fourth, follow-up studies with adequate control groups will be necessary to evaluate the long-term benefit of CBT, including examining whether booster CBT sessions reduce relapse rates and whether intervening in childhood prevents the onset of adult psychiatric disorders. Finally, studies with diverse patient populations are needed to evaluate the exportability and generalizability of currently available protocol-driven treatments.

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