

Evidence-Based Psychosocial Treatments for Children and Adolescents With Disruptive Behavior

Sheila M. Eyberg, Melanie M. Nelson, and Stephen R. Boggs

Department of Clinical and Health Psychology, University of Florida

This article reviews the literature from 1996 to 2007 to update the 1998 Brestan and Eyberg report on evidence-based psychosocial treatments (EBTs) for child and adolescent disruptive behavior, including oppositional defiant disorder and conduct disorder. Studies were evaluated using criteria for EBTs developed by the task force on promotion and dissemination of psychological procedures (Chambless et al., 1998; Chambless et al., 1996). Sixteen EBTs were identified in this review, up from 12 in the earlier report, and 9 “possibly efficacious” treatments (Chambless & Hollon, 1998) were identified as well. This article describes the EBTs and their evidence base and covers research on moderators and mediators of treatment outcome, as well as the clinical representativeness and generalizability of the studies. Best practice recommendations from the current evidence base also are offered, as well as calls for future research that increases understanding of the moderators and mechanisms of change for children and adolescents with disruptive behavior disorders.

This article updates our earlier research review of evidence-based psychosocial treatments (EBTs) for children and adolescents with disruptive behavior (Brestan & Eyberg, 1998), which covered the years 1966 to 1995 and which was based on the criteria for probably efficacious and well-established treatments developed by the task force on promotion and dissemination of psychological procedures (Chambless et al., 1998; Chambless et al., 1996). As before, we emphasize that although we have attempted an exhaustive review of this literature, there may be additional efficacious treatments for disruptive behavior in children and adolescents not included. As observed by Weisz, Chu, and Polo (2004), since the time that Little Hans was treated, child psychotherapy has “mushroomed and morphed” into a vast array of treatment models and

methods that each year reach as many as 13% of U.S. children at a cost of more than \$11 billion annually. Accompanying this proliferation of treatments has been a proliferation of research on child psychosocial treatments, including an estimated 1,500 treatment outcome studies as of several years ago (Weisz et al., 2004).

This article focuses on the psychosocial treatment literature published from 1996 to 2007 but includes earlier studies of treatments identified in the Brestan and Eyberg (1998) review as evidence-based as well as the earlier studies of treatments identified in this review as having at least one well-conducted supportive study. We describe our methods for identifying the well-conducted studies in this literature and list those well-conducted studies (both supportive and nonsupportive) that comprise the evidence base for the EBTs identified in this review. We include treatments categorized as both well-established and probably efficacious; we also list treatments identified as possibly efficacious (Chambless & Hollon, 1998). We also cover research on moderators and mediators of treatment outcome, as well as the clinical representativeness and generalizability of the studies. We conclude with best practice recommendations drawn from the current state of the literature on EBTs, and we offer directions for future

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Correspondence should be addressed to Sheila M. Eyberg, Department of Clinical and Health Psychology, University of Florida, Gainesville, FL 32610. E-mail: eyberg@phhp.ufl.edu

study to improve treatments for children and adolescents with disruptive behavior.

PROCEDURE

Identifying Well-Conducted Treatment Outcome Studies

This review was conducted in four stages. In the first stage we identified citations to relevant, peer-reviewed treatment studies from a variety of sources. In the second stage, we reviewed the abstracts of all cited studies to identify those requiring full-text review. In the third stage, we reviewed the articles for the presence or absence of elements required of well-conducted studies included in this review. In the final stage, we examined all well-conducted treatment outcome studies to identify the treatments with empirical support sufficient for classification as well-established, probably efficacious, or possibly efficacious.

The first stage began with Medline and PsycINFO searches of peer-reviewed journals published since January 1996, using the following search terms: *treatment, therapy, behavior problems, oppositional defiant disorder, conduct disorder, aggression, disruptive behavior disorders, and child behavior disorders*. Next, we reviewed tables of contents of the following journals during the same time period: *Behavior Modification, Behaviour Research and Therapy, Behavior Therapy, Child and Family Behavior Therapy, Child Development, Cognitive Therapy and Research, Journal of Clinical Psychology, Journal of Abnormal Child Psychology, Development and Psychopathology, Journal of Applied Behavior Analysis, Journal of Child Psychology and Psychiatry, Journal of Clinical Child and Adolescent Psychology, Journal of Consulting and Clinical Psychology, Journal of Counseling Psychology, Journal of the American Academy of Child and Adolescent Psychiatry, and Prevention Science*. We also examined edited texts on child treatment for citations relevant to child disruptive behavior (e.g., Barrett & Ollendick, 2004; Kazdin & Weisz, 2003; Mash & Barkley, 1998; Weisz, 2004) to take advantage of the extensive literature reviews conducted by the authors. Finally, we searched specifically for studies of treatments included in the original review (Brestan & Eyberg, 1998).

From these initial searches, we reviewed abstracts of all identified studies to screen out those not requiring further review based on study design or target behaviors/problems. We obtained the full-text article of all studies that had not been excluded during abstract review and recorded key study elements, including demographic information (age, race/ethnicity, sex) and aspects of study design (e.g., prospective design) needed to designate a study as “well conducted.” After

identifying the well-conducted studies in this updated literature search (1996–2007), we then searched backward to identify any earlier well-conducted studies of the treatments identified in this search, to provide the full evidence base of potential EBTs for this review.

DEFINING WELL-CONDUCTED STUDIES OF DISRUPTIVE BEHAVIOR

The task force criteria (Chambless et al., 1998; Chambless et al., 1996) for well-established and probably efficacious treatments specify that studies providing the evidence base for these classifications must be “good” studies. In this review, we use the term *well-conducted* for these studies, defined in the same way as in our first review (Brestan & Eyberg, 1998, p. 181). Well-conducted group-design studies include prospective study design, clear inclusion/exclusion criteria for the sample in question, appropriate control or comparison conditions, random assignment to conditions, reliable measures of disruptive behavior, clearly specified sample characteristics (child sex, age, race/ethnicity, and targeted behavior problems), and clearly described statistical procedures. Well-conducted studies must also document a clearly defined treatment protocol or manual for the target intervention and provide assurance of treatment fidelity.

Random Assignment

Random assignment means that each participant in the study has an equal chance to be assigned to a study condition. Studies were required to assign the “units of analysis” randomly to target treatment and comparison conditions. In most studies we reviewed, the unit of analysis was the individual child or adolescent, although if a study used an aggregated classroom score as the unit of analysis, for example, and randomly assigned classrooms to treatment and comparison conditions, the study would have met the criterion of random assignment. Similarly, participants could have been blocked on some characteristic and randomly assigned to conditions from each block. However, studies could assign participants to conditions neither by randomly assigning blocks of time (e.g., days, months, years) in which participants were referred or selected for treatment nor by alternating group assignment or other nonrandom procedures.

Clearly Identified Sample

Basic participant characteristics were required to identify the youth for whom the results of the study would apply, including age, sex, race/ethnicity, and diagnosis

or targeted disruptive behavior. Studies in which child sex and/or race/ethnicity were not reported were not excluded on that basis alone if the study had been conducted before 1990, because the reporting of these demographic variables was not standard or required practice until about 15 years ago, and such a requirement would disadvantage otherwise well-conducted treatment studies published before that time. Studies not reporting the mean and standard deviation of child age were also not excluded from this review if the children's age range or school grade-level range were reported.

Target of Treatment

Disruptive behavior was defined broadly, based on the symptoms of oppositional defiant disorder (ODD) and conduct disorder (CD) as specified in the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed. *DSM-IV*; American Psychiatric Association, 1994), such as noncompliance, aggression, disruptive classroom behavior, or delinquent behavior. Only studies targeting child or adolescent disruptive behavior as the primary disorder were considered in this review; thus, interventions designed to reduce disruptive behaviors associated with autism or attention-deficit/hyperactivity disorder (ADHD), for example, were not included. (These disorders are reviewed separately in this special issue.) In addition, treatments designed specifically for an isolated conduct problem such as firesetting, truancy, sexual offending, or alcohol/substance use were not included, because treatments for each of these individual problems are supported by separate bodies of literature.

Definition of Treatment

Treatment was defined as a specific procedure or set of procedures with therapeutic intent. Different versions of a treatment, such as group versus individual treatment format, were evaluated as separate treatments. Similarly, when significant enhancements were added to a treatment, when two treatments were combined, or when treatment components were combined into distinctly different treatment packages, such as the different levels of Triple P, these different versions were examined as separate treatments as well.

Preventive interventions were included only if the youth were selected for inclusion based on the presence of significant levels of disruptive behavior that were targeted for change during the active treatment period and compared at treatment completion to the behaviors of youth in the comparison condition. All interventions for childhood disruptive behavior have the secondary goal of preventing continuation and worsening of disruptive behavior as youth progress toward adulthood.

However, interventions designed with the primary goal of preventing future disruptive behaviors were not the subject of this review.

EVALUATION OF TREATMENTS

After the well-conducted studies were identified, the next step was to evaluate the study outcomes—that is, whether studies found the treatment “superior to” the relevant comparison condition. Because all of the well-conducted studies used reliable and valid measures of disruptive behavior, we considered a study supportive of the target treatment if it found the treatment superior to the relevant comparison condition on at least 50% of the disruptive behavior measures.

Table 1 provides basic information about the well-conducted studies (both supportive and nonsupportive) that served as the evidence base for treatments identified as EBTs in this review, including descriptions of each study sample, therapists, relevant comparison conditions, and measures. This table also shows the proportion of disruptive behavior measures in each study demonstrating significant group differences ($p < .05$) favoring the target treatment, and the proportion showing posttreatment between-group effect sizes of at least 0.20, indicating at least a small effect (Cohen, 1988). Effect size data are included to permit consideration of the meaningfulness of statistically nonsignificant group differences when the number of participants completing the target treatment was small. However, only statistically significant findings were considered as evidence of support for a target treatment, consistent with our earlier review (Brestan & Eyberg, 1998).

THE EBTs AND THEIR SUPPORT

Table 2 lists treatments meeting criteria for well-established (WE) or probably efficacious (PE) as well as the studies that provided the supportive evidence. The columns identify task force criteria by number and letter. For example, the first requirement for a well-established treatment is that it be supported by at least two good between-group experiments demonstrating either (WE1a) superiority to pill or placebo or another treatment or (WE1b) equivalency to an already-established treatment in studies with adequate statistical power (see Silverman & Hinshaw, 2008).

Changes in the EBT List Since the 1998 Review

Brestan and Eyberg (1998) identified 12 treatments for child or adolescent disruptive behavior meeting criteria for probably efficacious or well-established treatment.

TABLE 1
Well-Conducted Studies (Supportive and Nonsupportive) Comprising the

<i>Target Treatment</i>	<i>Study Authors</i>	<i>Nathan & Gorman Level</i>	<i>Sample Type</i>	<i>Child Race</i>	<i>Child Sex (% Male)</i>	<i>Child Age</i>
Anger Control Training	Lochman, Coie, Underwood, & Terry (1993)	2	Children with disruptive behavior who are socially rejected	100% AA	52	4th grade (Age NA)
Anger Control Training	Robinson, Smith, & Miller (2002)	2	Children with disruptive behavior	41% C 54% AA 5% H	100	11–15 years (Mean NA)
Group Assertive Training (Counselor Led)	Huey & Rank (1984)	2	Youth with aggressive behavior	100% AA	100	8th and 9th grade (Age NA)
Group Assertive Training (Peer Led)	Huey & Rank (1984)	2	Youth with aggressive behavior	100% AA	100	8th and 9th grade (Age NA)
Helping the Noncompliant Child	Peed, Roberts, & Forehand (1977)	2	Children with disruptive behavior	NA	75	3–7 years (Mean = 5)
Helping the Noncompliant Child	Wells & Egan (1988)	2	Children with disruptive behavior	NA	NA	3–8 years (Mean NA)
Incredible Years Parent Training	Webster-Stratton & Hammond (1997)	1	Children with disruptive behavior disorders	85% C	81	4–8 years (Mean = 5.3)
Incredible Years Parent Training	Webster-Stratton, Reid, & Hammond (2004)	1	Children with disruptive behavior disorders	79% C	90	4–8 years (Mean = 5.8)
Incredible Years Child Training	Webster-Stratton & Hammond (1997)	1	Children with disruptive behavior disorders	85% C	74	4–8 years (Mean = 6.0)
Incredible Years Child Training	Webster-Stratton, Reid, & Hammond (2001)	1	Children with disruptive behavior disorders	88% C	82	4–8 years (Mean = 6.0)
Incredible Years Child Training	Webster-Stratton, Reid, & Hammond (2004)	1	Children with disruptive behavior disorders	79% C	93	4–8 years (Mean = 6.1)
Multidimensional Treatment Foster Care	Chamberlain & Reid (1998)	1	Youth with histories of chronic delinquency	85% C 6% AA 6% H 3% Nat A	100	12–17 years (Mean = 14.9)
Multidimensional Treatment Foster Care	Leve, Chamberlain, & Reid (2005)	1	Youth with histories of chronic delinquency	74% C 2% AA 9% H 1% Asian 2% Mixed heritage 12% Nat A	0	13–17 years (Mean NA)

Evidence Base for the Evidence-Based Psychosocial Treatments of Disruptive Behavior

<i>Number of Target Treatment Completers</i>	<i>Therapists</i>	<i>Comparison Conditions</i>	<i>Types of Disruptive Behavior Measures</i>	<i>Significant Group Differences Favoring Target Treatment^a</i>	<i>Effect Sizes Greater than 0.20 Favoring Target Treatment^b</i>
9	Graduate students in psychology; doctoral-level psychologist	No treatment control	PE, T	1/2	NA
22	Teachers	No treatment control	S, T	4/5	4/5
12	Professional counselors	Discussion group (counselor led)	T	1/1	NA
		Discussion group (peer led)	T	1/1	NA
		No treatment control	T	1/1	NA
12	Peer counselors	Discussion group (counselor led)	T	1/1	NA
		Discussion group (peer led)	T	0/1	NA
		No treatment control	T	1/1	NA
6	Graduate students	Waitlist control	P, O	2/5	NA
9	Clinical psychology interns	Systems family therapy	O	1/1	1/1
26	MA or PhD in mental health field	Waitlist control	O, P, T	8/11	10/11
31	MA or PhD in mental health field	Waitlist control	O, P, T	3/3	3/3
27	MA or PhD in mental health field	Waitlist control	O, P, T	7/11	9/11
49	MA or PhD in mental health field; BA in psychology or education	Waitlist control	O + P + T composite	1/1	1/1
30	MA or PhD in mental health field	Waitlist control	O, P, T	2/3	3/3
27	Trained foster parents and professional case managers	Usual group home care	R, S	4/4	4/4
37	Trained foster parents and professional case managers	Usual group home care	P, R, S	2/4	3/4

(Continued)

TABLE 1
Continued

<i>Target Treatment</i>	<i>Study Authors</i>	<i>Nathan & Gorman Level</i>	<i>Sample Type</i>	<i>Child Race</i>	<i>Child Sex (% Male)</i>	<i>Child Age</i>
Multisystemic Therapy	Henggeler, Melton, & Smith (1992)	1	Youth at risk for incarceration due to criminal offenses	42% C 56% AA 2% H	77	$M = 15.2$ years
Multisystemic Therapy	Scherer, Brondino, Henggeler, Melton, & Hanley (1994)	2	Youth with disruptive behavior who committed criminal offenses	22% C 78% AA	82	11–17 years (Mean = 15.1)
Multisystemic Therapy	Borduin et al. (1995)	1	Youth with disruptive behavior who committed criminal offenses	70% C 30% AA	68	12–17 years ($M = 14.8$)
Multisystemic Therapy	Henggeler, Melton, Brondino, Scherer, & Hanley (1997)	1	Youth with disruptive behavior who committed criminal offenses	19% C 81% AA	82	11–17 years ($M = 15.2$)
Multisystemic Therapy	Henggeler, Pickrel, & Brondino (1999)	1	Youth with disruptive behavior on probation	47% C 50% AA 1% H 1% Asian 1% NA	79	12–17 years ($M = 15.8$)
Parent-Child Interaction Therapy	Schuhmann, Foote, Eyberg, Boggs, & Algina (1998)	1	Children with disruptive behavior	77% C 14% AA 9% Other	81	3–6 years ($M = 4.9$)
Parent-Child Interaction Therapy	Nixon, Sweeney, Erickson, & Touyz (2003)	1	Children with disruptive behavior	94% C 2% Australian Koori 2% Australian Chinese 2% Australian Indian	70	3–5 years ($M = 3.9$)
Parent Management Training Oregon	Bernal, Klinnert, & Schultz (1980)	1	Children with disruptive behavior	NA	86	5–12 years ($M = 8.4$)
Parent Management Training Oregon	Christensen, Johnson, Phillips, & Glasgow (1980)	1	Children with disruptive behavior	NA	78	4–12 years ($M = 6.8$)
Parent Management Training Oregon	Patterson, Chamberlain, & Reid (1982)	2	Children with disruptive behavior	NA	60	3–10 years ($M = 6.8$)
Parent Management Training Oregon	Hughes & Wilson (1988)	2	Youth with disruptive behavior	NA	81	6–15 years ($M = 12.1$)

<i>Number of Target Treatment Completers</i>	<i>Therapists</i>	<i>Comparison Conditions</i>	<i>Types of Disruptive Behavior Measures</i>	<i>Significant Group Differences Favoring Target Treatment^a</i>	<i>Effect Sizes Greater than 0.20 Favoring Target Treatment^b</i>
33	Master's-level mental health professionals	Usual community services	P, R, S	4/5	4/5
23	MA-level mental health professionals	Usual community services	P, S	1/3	2/2 1-NA
70	Graduate students in clinical psychology	Alternative community treatments	P, R, T	3/4	4/4
75	MA-level mental health professionals in social work or pastoral counseling	Usual community services	P, R, S	1/7	1/7
57	MA-and BA-level mental health counselors	Usual community services	R, S	0/2	0/2
22	Graduate students in clinical psychology	Waitlist control	O, P	5/6	4/4 2-NA
17	Master's-level clinical psychologist; graduate student in clinical psychology	Waitlist control	O, P	4/7	7/7
12	Graduate students in clinical or counseling psychology	Waitlist control	O, P	3/4	NA
		Client-centered treatment	O, P	3/4	NA
17	Graduate students in clinical or counseling psychology; one Ph.D. in clinical psychology	Bibliotherapy	O, P	1/4	NA
10	Master's-level therapists	Alternative community treatments	O, P	1/2	1/1 1-NA
8	Psychologists, social workers	Communication skills training	P	0/3	2/3
		Waitlist control	P	1/3	3/3

(Continued)

TABLE 1
Continued

<i>Target Treatment</i>	<i>Study Authors</i>	<i>Nathan & Gorman Level</i>	<i>Sample Type</i>	<i>Child Race</i>	<i>Child Sex (% Male)</i>	<i>Child Age</i>
Problem-Solving Skills Training	Kazdin, Esveltd-Dawson, French, & Unis (1987b)	2	Children hospitalized for treatment of antisocial behavior	77% C 23% AA	80	7–13 years (<i>M</i> = 10.9)
Problem-Solving Skills Training	Kazdin, Bass, Siegel, & Thomas (1989)	2	Children referred for treatment of antisocial behavior	54% C 46% AA	78	7–13 years (<i>M</i> = 11.0)
Problem-Solving Skills Training	Kazdin, Siegel, & Bass (1992)	2	Children with aggressive and antisocial behavior	69% C 31% AA	77	7–13 years (<i>M</i> = 10.3)
Problem-Solving Skills Training + Practice	Kazdin, Bass, Siegel, & Thomas (1989)	2	Children referred for antisocial behavior	56% C 46% AA	78	7–13 years (<i>M</i> = 11.0)
Problem-Solving Skills Training + Parent Management Training	Kazdin, Esveltd-Dawson, French, & Unis (1987a)	2	Children hospitalized for treatment of antisocial behavior	75% C 25% AA	77	7–12 years (<i>M</i> = 10.1)
Rational-Emotive Mental Health Program	Block (1978)	1	Youth with disruptive behavior	All AA and H (% NA)	48	10th and 11th grade (Age NA)
Triple P (Enhanced)	Sanders, Markie-Dadds, Tully, & Bor (2000)	1	Children with disruptive behavior	“Predominantly Caucasian”	67	3–4 years (<i>M</i> = 3.4)
Triple P (Enhanced)	Bor, Sanders, & Markie-Dadds (2002)	1	Children with disruptive behavior	“Mostly Caucasian”	73	3–4 years (<i>M</i> = 3.3)
Triple P (Standard)	Sanders, Markie-Dadds, Tully, & Bor (2000)	1	Children with disruptive behavior	“Predominantly Caucasian”	68	3–4 years (<i>M</i> = 3.5)
Triple P (Standard)	Bor, Sanders, & Markie-Dadds (2002)	1	Children with disruptive behavior	“Mostly Caucasian”	57	3–4 years (<i>M</i> = 3.3)

Note: Treatment studies that included comparisons of one treatment to a component of itself were not included in this table. AA = African report; R = Official records; S = Self report; T = Teacher report.

^aThis column indicates the number of disruptive behavior measures in the study that showed a statistically significant ($p < .05$) between-group that the EBT showed significantly better outcomes on 2 of these measures than the control condition.

^bThis column refers to the effect sizes of between-group differences favoring the EBT obtained on the measures of disruptive behavior examined subtracting the post-treatment mean of the EBT condition from the post-treatment mean of the control/comparison condition and dividing that of disruptive behavior in the study and that the effect sizes for differences was 0.20 or greater in favor of the EBT on 3 of the measures.

<i>Number of Target Treatment Completers</i>	<i>Therapists</i>	<i>Comparison Conditions</i>	<i>Types of Disruptive Behavior Measures</i>	<i>Significant Group Differences Favoring Target Treatment^a</i>	<i>Effect Sizes Greater than 0.20 Favoring Target Treatment^b</i>
17	Clinicians with postgraduate coursework and 1–2 years direct care experience	Relationship therapy	P, T	2/2	2/2
		Contact control	P, T	2/2	2/2
34	Master's degree in mental health field	Relationship therapy	P, S, T	3/6	4/6
25	Master's degree in mental health field	Parent management training	P, S, T	2/7	5/7
32	Master's degree in mental health field	Relationship therapy	P, S, T	6/6	6/6
20	Clinicians who had completed postgraduate coursework and 1–2 years direct care experience	Contact placebo control	P, T	2/2	2/2
16	Master's-level therapists	Human relations training	T, R	2/2	2/2
		No treatment control	T, R	2/2	2/2
58	Graduate students, psychologists, psychiatrists	Waitlist control	O, P	5/5	5/5
15	Graduate students and psychologists	Waitlist control	O, P	3/4	4/4
65	Graduate students, psychologists, psychiatrists	Waitlist control	O, P	5/5	5/5
21	Graduate students and psychologists	Waitlist control	O, P	3/4	3/4

American; C = Caucasian; H = Hispanic; Nat A = Native American; O = Direct observation; P = Parent or caregiver report; PE = Peer difference favoring the target treatment. For example, an entry of 2/3 would indicate that the study included 3 measures of disruptive behavior and in the study. Effect sizes were those reported by the investigator in the published study or were calculated from data presented in the study by number by the pooled standard deviation of the post-treatment scores; an entry of 3/4 in this column would indicate that there were 4 measures

TABLE 2
Task Force Classification Criteria Met by the Evidence-Based Treatments of Disruptive Behavior

	WE Ia	WE Ib	WE II	WE III	WE IV	WE V	PE I	PE II	PE III
	Two good between-group experiments demonstrating superiority to pill or placebo or another treatment	Two good between-group design experiments demonstrating equivalency to an already established treatment in experiments with adequate sample sizes	Large series of single-case design studies (≥ 9) that used good experimental design and compare treatment to another treatment	Experiments conducted with treatment manuals	Sample characteristics clearly specified	Effects demonstrated by at least 2 different investigators or investigating teams	Two good between-group experiments showing the treatment is superior to a waiting-list control group	One or more experiments meeting Well Established Treatment criteria Ia or IB, III, and IV but not V	Small series of single-case design experiments (≥ 3) otherwise meeting Well Established Treatment criteria II, III, and IV
Treatment									
Anger Control Training (PE)	No	No	No	Yes	Yes	Yes	Yes (2 studies) Lochman, Coie, Underwood, & Terry (1993); Robinson, Smith, & Miller (2002)	No	No
Group Assertiveness Training (Counselor Led) (PE)	No	No	No	Yes	Yes	No	No	Yes (1 study) Huey & Rank (1984)	No
Group Assertiveness Training (Peer Led) (PE)	No	No	No	Yes	Yes	No	No	Yes (1 study) Huey & Rank (1984)	No
Helping the Noncompliant Child (PE)	No	No	No	Yes	Yes	No	No	Yes (1 study) Wells & Egan (1988)	No
Incredible Years Parent Training (PE)	No	No	No	Yes	Yes	No	Yes (2 studies) Webster-Stratton & Hammond (1997); Webster-Stratton, Reid, & Hammond (2004)	No	No
Incredible Years Child Training (PE)	No	No	No	Yes	Yes	No	Yes (3 studies) Webster-Stratton & Hammond (1997); Webster-Stratton, Reid, & Hammond (2001, 2004)	No	No
Multidimensional Treatment Foster Care (PE)	No	No	No	Yes	Yes	No	No	Yes (2 studies) Chamberlain & Reid (1998); Leve, Chamberlain, & Reid (2005)	No

Multisystemic Therapy (PE)	No	No	No	Yes	Yes	No	No	Yes (2 studies) Borduin et al. (1995); Henggeler, Melton, & Smith (1992)	No
Parent-Child Interaction Therapy (PE)	No	No	No	Yes	Yes	Yes	Yes (2 studies) Nixon, Sweeney, Erickson, & Touyz (2003); Schulmann, Foote, Eyberg, Boggs, & Algina (1998)	No	No
Parent Management Training Oregon Model (WE)	Yes (2 studies) Bernal, Klennert, & Schultz (1980); Patterson, Chamberlain, & Reid (1982)	No	No	Yes	Yes	Yes	No	No	No
Problem-Solving Skills Training (PE)	Yes	No	No	Yes	Yes	No	No	Yes (2 studies) Kazdin, Esveltd-Dawson, French, & Unis (1987b); Kazdin, Bass, Siegel, & Thomas, (1989)	No
Problem-Solving Skills Training + Practice (PE)	No	No	No	Yes	Yes	No	No	Yes (1 study) Kazdin, Bass, Siegel, & Thomas (1989)	No
Problem-Solving Skills Training + Parent Management Training (PE)	Yes	No	No	Yes	Yes	No	No	Yes (1 study) Kazdin, Esveltd-Dawson, French, & Unis (1987a)	No
Rational-Emotive Mental Health Program (PE)	No	No	No	Yes	Yes	No	No	Yes (1 study) (Block, 1978)	No
Triple P (Positive Parenting Program) Enhanced (PE)	No	No	No	Yes	Yes	No	Yes (2 studies) Bor, Sanders, & Markie-Dadds (2002); Sanders, Markie-Dadds, Tully, & Bor (2000)	No	No
Triple P Standard Individual Treatment (PE)	No	No	No	Yes	Yes	No	Yes (2 studies) Bor, Sanders, & Markie-Dadds (2002); Sanders, Markie-Dadds, Tully, & Bor (2000)	No	No

Note: WE = well-established treatment; PE = probably efficacious treatment.

In this update, we identified 16 EBTs, of which 15 met criteria for probably efficacious treatments and one of which met criteria for a well-established treatment (shown in Table 2). As in the original review, no treatment was identified as evidence based by evidence from single-subject design studies. Because of a recording error in the earlier review, one treatment previously classified as well established was reclassified in this review as probably efficacious,¹ and three treatments previously classified as probably efficacious did not meet PE criteria in this review.² Seven treatments previously classified as probably efficacious maintained this classification. In addition, 6 new treatments met PE criteria in this review, and 1 previously identified treatment with two versions shown to be superior to attention placebo conditions has now been reclassified as 2 separate probably efficacious treatments. We briefly describe these 16 evidence-based treatments.

EBT TREATMENT PROTOCOLS

Anger Control Training (Lochman, Barry, & Pardini, 2003)

Anger Control Training is a cognitive-behavioral intervention for elementary school age children with disruptive behavior. Typically, children meet once per week for 40 to 50 min during the school day in separate groups of approximately 6 children. In group sessions, children create specific goals and take part in exercises based on the social information-processing model of anger control (Crick & Dodge, 1994; Dodge, 1986). Within the group, children discuss vignettes of social encounters with peers and the social cues and possible motives of individuals in the vignettes. Children learn to use problem solving for dealing with anger-provoking social situations, and they practice appropriate social responses and self-statements in response to different problem situations, first by behavioral rehearsal of the situations with feedback for correct responses. Later in treatment, the group provides

¹Because of an error in recording the direction of group differences for the Spaccarelli, Cotler, and Penman (1992) study, IY Parent Training was incorrectly classified as a supporting study by an independent investigatory team.

²Treatments meeting criteria for probably efficacious treatments in the first but not second review were Group Anger Control Training (Feindler, Marriott, & Iwata, 1984), Delinquency Prevention Program (Vitaro & Tremblay, 1994), and Self-Administered Treatment Plus Signal Seat (Hamilton & MacQuiddy, 1984). One study of Group Anger Control Training (Schlichter & Horan, 1981) showed statistically significant group differences on only 2 of 5 measures of disruptive behavior. The Delinquency Prevention Program studies did not select participants for clinically significant problem behaviors before study inclusion. Self-Administered Treatment Plus Signal Seat was compared only to waitlist control and an earlier version of itself.

children practice in situations designed to arouse their anger and provides support for their use of their new anger control strategies. Children also learn strategies to increase their awareness of feelings. In the two well-conducted studies identified for this review, treatment length was between 26 and 30 sessions in one investigation (Lochman, Coie, Underwood, & Terry, 1993) and 15 sessions in the other study (Robinson, Smith, & Miller, 2002). Both studies found the Anger Control Training superior to no-treatment control conditions in reducing disruptive behavior. Because these studies, by different research teams, were compared to no-treatment control conditions rather than alternative treatment or placebo control conditions, this evidence-based treatment meets criteria for a probably efficacious treatment (see Tables 1 and 2).

Group Assertive Training (Huey & Rank, 1984)

Based on the verbal response model of assertiveness (Winship & Kelley, 1976), with adaptations for cultural differences incorporated from the recommendations of Cheek (1976), two versions of this brief school-based treatment for aggressive classroom behavior among black adolescents (eighth and ninth graders) have been found superior to both professional- and peer-led discussion groups and no-treatment controls. The group treatments both involve 8 hr of assertive training, with treatment groups of 6 adolescents meeting twice a week for 4 weeks.

The two treatments, Counselor-Led Assertive Training and Peer-Led Assertive Training, are identical except for the qualifications of the group leaders. In both treatments, group leaders receive the same training program that they later provide to the adolescents in treatment, and in both treatments, group leaders are instructed to adhere strictly to structured training outlines in leading the groups. One well-conducted study found both treatments superior to counselor-led discussion groups as well as no-treatment controls (Huey & Rank, 1984). Both evidence-based treatments meet criteria as probably efficacious treatments for disruptive classroom behaviors of black adolescents because, although they have only one supportive study, both of the target treatments were compared to an alternative treatment in that study (see Tables 1 and 2).

Helping the Noncompliant Child (HNC; Forehand & McMahon, 1981³)

This treatment for preschool and early school-age children (ages 3–8 years) with noncompliant behavior is

³A revision of the Forehand and McMahon (1981) treatment manual for HNC was published by McMahon and Forehand in 2003.

administered to families individually as a secondary prevention program. The parent and child are generally seen together for 10 weekly sessions (60–90 min each) with a therapist. Parents are instructed in skills aimed at disrupting the coercive cycle of parent-child interaction, which include increasing positive feedback to the child for appropriate behaviors, ignoring minor negative behaviors, giving children clear directions, and providing praise or time-out following child compliance and noncompliance, respectively. Parents learn skills through modeling, role-plays, and in vivo training in the clinic or home and progress as each skill is mastered. One well-conducted study found HNC superior to systemic family therapy in reducing child noncompliance in the clinic and at home (Wells & Egan, 1988; see Table 1), providing evidence that HNC meets criteria for a probably efficacious treatment for 3- to 8-year-olds with disruptive behavior.

Incredible Years (IY; Webster-Stratton & Reid, 2003)

IY is a series of treatment programs designed to reduce children's aggression and behavior problems and increase social competence at home and at school. There are three distinct treatment programs—one for parents, one for children, and one for teachers. The three programs have been tested for efficacy individually and in all possible combinations. Both the IY Parent Training Program and the IY Child Training Program have been found probably efficacious, and several combination packages have met criteria for possibly efficacious treatments (see Table 3).

Incredible Years Parent Training (IY-PT). This is the original program in the series, a 13-session (2 hr per session) group parent training program in which parents of 2- to 10-year-old children diagnosed with disruptive behavior meet with a therapist in groups of 8 to 12 parents. During treatment, parents view 250 videotape vignettes, each about 1 to 2 min in length, that

demonstrate social learning and child development principles and serve as the stimulus for focused discussions and problem solving. The program begins with a focus on positive parent-child interaction in which parents learn child-directed interactive play skills, followed by a focus on effective discipline techniques including monitoring, ignoring, commands, logical consequences, and time-out. Parents are also taught how to teach problem-solving skills to their children. Two well-conducted studies have found IY-PT superior to waitlist control groups in reducing preschoolers' (M age = 5) disruptive behavior, thus meeting criteria for a probably efficacious treatment (see Table 1).

Incredible Years Child Training (IY-CT). IY-CT is a 22-week videotape-based program for 3- to 8-year-olds who meet with a therapist in small groups of 6 children for 2 hr each week. The program includes more than 100 video vignettes of real-life conflict situations at home and school that model child problem-solving and social skills. After viewing the vignettes, children discuss feelings, generate ideas for more effective responses, and role-play alternative scenarios. IY-CT is typically administered in conjunction with the IY-PT program, although three studies have found it superior to waitlist or no-treatment control groups on its own in reducing child disruptive behavior (see Table 1). This treatment meets criteria as a probably efficacious treatment for children (M age = 6 years) with disruptive behavior.

Multidimensional Treatment Foster Care (MTFC; Chamberlain & Smith, 2003)

MTFC is a community-based program, originally developed as an alternative to institutional-, residential-, and group-care placements for youth with severe and chronic delinquent behavior. Youth are placed one per foster home for 6 to 9 months and given intensive support and treatment in the foster home setting. The foster parents receive a 20-hr preservice training conducted by experienced foster parents and learn to

TABLE 3
Possibly Efficacious Treatments for Disruptive Behavior

<i>Treatment</i>	<i>Citation for Efficacy Evidence</i>
First Step to Success Program	Walker et al. (1998)
Group Anger Control Training	Feindler, Marriott, & Iwata (1984)
IY Parent Training + Child Training	Webster-Stratton & Hammond (1997)
IY Parent Training + Teacher Training	Webster-Stratton, Reid, & Hammond (2004)
IY Parent Training + Teacher Training + Child Training	Webster-Stratton, Reid, & Hammond (2004)
IY Teacher Training + Child Training	Webster-Stratton, Reid, & Hammond (2004)
Reaching Educators, Children, and Parents	Weiss, Harris, Catron, & Han (2003)
Self-Administered Treatment Plus Signal Seat	Hamilton & MacQuiddy (1984)
Triple P Standard Group Treatment	Leung, Sanders, Leung, Mak, & Lau (2003)

Note: IY = Incredible Years.

implement a daily token reinforcement system that involves frequent positive reinforcement and clear and consistent limits. Foster parents give the youth points daily for expected behaviors (e.g., getting up on time, attending school) and remove points for negative behaviors. Youth may exchange the points for privileges. For minor problem behaviors, foster parents also use brief privilege removal or small work chores, and for extreme problems they may use a short stay in detention. During treatment, the foster parents report point levels daily by telephone to program supervisors and meet weekly with supervisors for support and supervision.

Youth in MTFC meet at least weekly with individual therapists who provide support and advocacy and work with the youth on problem-solving skills, anger expression, social skills development, and educational or vocational planning. They also meet once or twice a week (2 to 6 hr per week) with behavioral support specialists trained in applied behavior analysis who focus on teaching and reinforcing prosocial behaviors during intensive one-on-one interactions in the community (e.g., restaurants, sports teams). Finally, youth have regular appointments with a consulting psychiatrist for medication management.

At the same time youth are in MTFC treatment, the biological parents (or other after-care resource) receive intensive parent management training. This training is designed to assist in the reintegration of youth back into their homes and communities after treatment. Two well-conducted studies have found MTFC superior to usual group home care for adolescents with histories of chronic delinquency (see Table 1), meeting criteria for probably efficacious treatment.

Multisystemic Therapy (MST; Henggeler & Lee, 2003)

MST is an intervention approach for treating adolescents with serious antisocial and delinquent behavior that combines treatments and procedures as needed to provide an intensive family and community-based intervention designed for the individual family, with the goal of promoting responsible behavior and preventing the need for out-of-home placement. The treatments include cognitive-behavioral approaches, behavior therapies, parent training, pragmatic family therapies, and pharmacological interventions that have a reasonable evidence base (Henggeler & Lee, 2003). MST is provided in the family's natural environment (e.g., home, school) with a typical length of 3 to 5 months. Families are usually in contact with the MST therapist more than once per week (in person or by phone), and therapists are always available to assist families.

Because there is considerable flexibility in the design and delivery of treatments within MST, MST is

operationalized through adherence to nine core principles that guide treatment planning. These principles involve the following: (a) assessing how identified problems are maintained by the family's current social environment; (b) emphasizing the positive aspects of family systems during treatment contacts; (c) focusing interventions on increasing responsible behavior and decreasing irresponsible behavior; (d) orienting interventions toward current, specific problems that can be easily tracked by family members; (e) designing interventions to target interaction sequences both within and across the systems that maintain target problems; (f) fostering developmentally appropriate competencies of youth within such systems as school, work environments, and peer groups; (g) designing intensive interventions that require continuing effort by the youth and family on a daily or weekly basis; (h) evaluating intervention plans and requiring treatment team accountability for positive outcomes; and (i) promoting generalization across time by teaching caregivers the skills to address problems across multiple contexts.

Two well-conducted studies with adolescents who committed criminal offenses found MST superior to control conditions, one showing superiority to usual community services and one showing superiority to alternative community treatments (see Table 1). Both studies were conducted by the same investigatory team. Therefore, this evidence-based approach to treatment meets criteria for a probably efficacious treatment for adolescents with disruptive behavior.

Parent-Child Interaction Therapy (PCIT; Brinkmeyer & Eyberg, 2003)

PCIT is a parenting skills training program for young children (ages 2–7 years) with disruptive behavior disorders that targets change in parent-child interaction patterns. Families meet for weekly 1-hr sessions for an average of 12 to 16 sessions, during which parents learn two basic interaction patterns. In the child-directed interaction phase of treatment they learn specific positive attention skills (emphasizing behavioral descriptions, reflections, and labeled praises) and active ignoring skills, which they use in applying differential social attention to positive and negative child behaviors during a play situation. The emphasis in this phase of treatment is on increasing positive parenting and warmth in the parent-child interaction as the foundation for discipline skills that are introduced in the second phase, the parent-directed interaction phase of treatment. In this second phase, and within the child-directed context, parents learn and practice giving clear instructions to their child when needed and following through with praise or time-out during in vivo discipline situations. Therapists coach the parents as they interact with

their child during the treatment sessions, teaching them to apply the skills calmly and consistently in the clinic until they achieve competency and are ready to use the procedures on their own. Parent-directed interaction homework assignments proceed gradually from brief practice sessions during play to application at just those times when it is necessary for the child to obey.

In two well-conducted studies, PCIT has been found superior to waitlist control conditions in reducing disruptive behavior in young children (see Table 1). Although the studies were conducted by independent research teams, neither study compared the target treatment to an alternative treatment or placebo treatment condition. This evidence-based treatment therefore meets criteria as a probably efficacious treatment for 3- to 6-year-olds with disruptive behavior.

Parent Management Training Oregon Model (PMTO; Patterson, Reid, Jones, & Conger, 1975)

PMTO is a behavioral parent training program that focuses on teaching parents basic behavioral principles for modifying child behavior, encouraging parents to monitor child behaviors, and assisting parents in developing and implementing behavior modification programs to improve targeted child behavior problems. In the well-conducted studies supportive of PMTO, therapists met individually with the parents of children between ages 3 and 12 years. Length of time in treatment typically varies according to the needs of the families and involves weekly treatment sessions and telephone contacts with parents. Patterson, Chamberlain, and Reid (1982) reported an average of 17 hr of therapist time to treat families participating in their treatment program. Bernal, Klinnert, and Schultz (1980) reported 10 one-hour sessions for each family plus twice-weekly telephone contacts. Two well-conducted studies have found PMTO superior to alternative treatment in reducing disruptive behavior (see Table 1). These two studies (Bernal et al., 1980; Patterson et al., 1982), conducted by independent research teams, provide evidence for designating PMTO a well-established treatment for children with disruptive behavior.

Positive Parenting Program (Triple P; Sanders, 1999)

Triple P is a multilevel system of treatment, with five levels of intensity designed to match child and family needs based on problem severity. Level 1 (Universal Triple P) is a universal prevention program that distributes parenting information to the public via sources such as television and newspaper. Level 2 (Selected Triple P) is a brief, 1- or 2-session intervention delivered by primary health care providers for parents with

concerns about one or two mild behavior problems. Level 3 (Primary Care Triple P) is a slightly more involved 4-session intervention, also delivered by primary health care providers, in which parents learn parenting skills to manage moderately difficult child behavior problems. Level 4 (Standard Triple P) is a parent training program for disruptive behavior that is delivered in up to 12 sessions by mental health providers in both group and individual formats as well as a self-directed format. Level 5 (Enhanced Triple P) is a behavioral family intervention delivered by mental health providers that targets family stressors such as parent depression or marital problems as well as disruptive child behavior. Both Standard Triple P Individual Treatment and Enhanced Triple P meet criteria for probably efficacious treatments and are described next.

Triple P Standard Individual Treatment. In individual Standard Triple P, parents are taught 17 core parenting skills (e.g., talking with children, physical affection, attention, setting limits, planned ignoring) designed to increase positive child behaviors and decrease negative child behaviors. Standard Triple P also includes planned activities training to increase generalization of treatment effects. Two well-conducted studies have found Triple P Standard Individual Treatment superior to wait-list control conditions in reducing disruptive behavior in preschool-age children (see Table 1).

Triple P Enhanced Treatment. Enhanced Triple P is an intensive, individually tailored program (up to eleven 60- to 90-min sessions) for families with child behavior problems and family dysfunction. Program modules include home visits to enhance parenting skills, partner support skills, and mood management/stress coping skills. In two well-conducted studies by the same investigative team, Enhanced Triple P has been found superior to waitlist control conditions in reducing the disruptive behavior of 3- and 4-year-olds in dysfunctional families. Because these two studies were not conducted by independent investigatory teams and did not compare the target treatment to an alternative or placebo treatment, this evidence-based treatment meets criteria as a probably efficacious treatment for young children.

Problem-Solving Skills Training (PSST; Kazdin, 2003)

PSST is a behavioral treatment designed for children ages 7 to 13 years with disruptive behavior. Treatment usually consists of 20 to 25 sessions (40–50 min each) conducted with the child, with occasional parent contact. In PSST, children are taught problem-solving strategies and encouraged to generalize these strategies

to real-life problems. Skills include identifying the problem, generating solutions, weighing pros and cons of each possible solution, making a decision, and evaluating the outcome. Therapists use in-session practice, modeling, role-playing, corrective feedback, social reinforcement, and token response cost to develop the problem-solving skills gradually, beginning with academic tasks and games and moving to more complex interpersonal situations through role-play. One research team found PSST superior to relationship therapy in two studies (Kazdin, Bass, Siegel, & Thomas, 1989; Kazdin, Esveltd-Dawson, French, & Unis, 1987b) and superior to contact controls (Kazdin et al., 1987b). This evidence-based treatment for school-age children with disruptive behavior meets criteria for a probably efficacious treatment (see Table 1).

PSST + Practice (Kazdin et al., 1989). This treatment adds to PSST an in vivo practice component in which children participate in therapeutically planned activities outside the session. These activities, called “supersolvers,” are homework assignments in which the child is assigned to practice the problem-solving steps learned in treatment during interactions with parents, siblings, teachers, or peers. The therapist and parent gradually decrease the amount of assistance they give the child in accomplishing these homework tasks, and they reward the child for successful task completion, with greater rewards for more complex supersolvers. One study has demonstrated the superiority of PSST + Practice to relationship therapy in decreasing child disruptive behavior, providing evidence for this combined intervention as a probably efficacious treatment.

PSST + Parent Management Training (PSST + PMT; Kazdin, Esveltd-Dawson, French, & Unis, 1987a; Kazdin, Siegel, & Bass, 1992). This treatment adds to PSST the PMTO treatment described earlier (Patterson et al., 1975). In PSST + PMT, Both the PSST component and the PMT component of this combined treatment are provided individually to children and parents rather than in group format, and the child and parent components occur concurrently. In the PMT component, parents meet for 13 to 16 individual parent-training sessions of approximately 1 1/2 to 2 hr each. The content of PSST and PMT is not overlapping, but parents and children are informed of what the other is learning. Thus, parents learn about the problem-solving steps and are encouraged to praise their child’s use of the skills. Similarly, children are informed about what their parents are learning and attend selected PMT sessions that involve negotiating and contracting reinforcement contingencies. One well-conducted study found PSST + PMT superior to a contact placebo

control condition for 7- to 12-year-old children hospitalized for antisocial behavior. This evidence-based combination treatment meets criteria for a probably efficacious treatment (see Table 1).

Rational-Emotive Mental Health Program (REMH; Block, 1978)

This is a cognitive-behavioral school-based program for high-risk 11th and 12th graders with disruptive school behavior. The students meet for daily 45-min small-group sessions for 12 consecutive weeks. Adapted from rational-emotive education methods (Knaus, 1974), the group focus is on cognitive restructuring through the practice of adjustive rational appraisal, activity exercises, group-directed discussion, and psychological homework. Group leaders are highly active and directive in presenting themes for each session and use role-play exercises extensively to help students internalize and apply the concepts presented. Emphasis is placed on teaching self-examination through self-questioning techniques. In one well-conducted study, REMH was found superior to human relations training in decreasing classroom disruptive behavior and class cutting. This evidence-based treatment meets criteria for a probably efficacious treatment (see Table 1).

POSSIBLY EFFICACIOUS TREATMENTS

In this review, we also list several “possibly efficacious” treatments. This treatment designation was created by Chambless and Hollon (1998) to identify treatments that have been evaluated in a single well-conducted randomized controlled trial with power sufficient to detect moderate differences and found statistically significantly superior to a no-treatment or waitlist control condition in the absence of conflicting evidence. Treatments labeled as possibly efficacious do not possess the same level of evidence as the well-established or probably efficacious treatments described previously and require additional research to determine their therapeutic value. These possibly efficacious treatments for children and adolescents with disruptive behavior disorders are listed in Table 3.

CURRENT STATE OF THE LITERATURE

Nathan and Gorman (2002) described a method for rating the empirical sophistication of treatment outcome research, ranging from Type 1 studies associated with well-designed and executed randomized controlled trials to Type 6 studies associated with nonempirical articles, such as opinion papers, essays, and case studies. Because studies providing the evidence base for EBTs must be

well conducted (Chambless et al., 1998; Chambless et al., 1996), the studies included in this review went through a rather demanding selection procedure, as described earlier, and all of these studies fall into either the Type 1 or Type 2 classification. Type 1 studies are highly rigorous, with Type 2 denoting studies with good research design but missing some aspects of the Type 1 study requirement (Nathan & Gorman, 2002). Two distinctions between Type 1 and Type 2 studies of treatments for disruptive behavior relevant in this review were the presence of (a) adequate sample size to minimize the probability that sampling error influenced results, and (b) state of the art observational or official records data (e.g., arrest records) to assess outcome. Table 1 shows the Nathan and Gorman classifications for the studies comprising the evidence base for the EBTs identified in this review.

The 28 well-conducted studies in the EBT evidence base varied substantially in sample size, with target treatment completers ranging from 6 in one study of HNC to 75 in one study of MST (see Table 1). There was a tendency for more recent studies to include larger samples. The studies reviewed also included a variety of methods to measure disruptive behavior, including self-report, parent report, teacher report, public records, and observed behavior. Parent report was used in 22 studies, whereas teacher report was used in just 13 studies. Commonly used parent-report measures included the Child Behavior Checklist (Achenbach, 1991a; Achenbach & Rescorla, 2001), the Eyberg Child Behavior Inventory (Eyberg & Pincus, 1999), and the Revised Behavior Problem Checklist (Quay & Peterson, 1987). Teacher-report measures most often used in the disruptive behavior outcome research were the Teacher Report Form (Achenbach, 1991b) and the Conners Teacher Rating Scale (Conners, Sitarenios, Parker, & Epstein, 1998). Official records, such as arrest records or out-of-home placements, were used in 7 studies, and youth self-report instruments were used in 9 studies, both measurement methods used primarily in studies of treatments for adolescents. Behavioral observation measures of disruptive behavior, using coding systems such as the Dyadic Parent-Child Interaction Coding System (Eyberg, Nelson, Duke, & Boggs, 2004) and the Family Observation System (Sanders, Waugh, Tully, & Hynes, 1996), were included in 13 studies, primarily investigations of treatments for younger children. Twenty-six studies included more than one method of measuring disruptive behavior outcome, with 10 studies including at least three. Increasing recognition of the importance of multiple perspectives in evaluating outcome is evident in the disruptive behavior treatment evidence base (Table 1).

The importance of demonstrating treatment durability is increasingly recognized as well. Most of the

EBTs identified in this review have demonstrated maintenance of treatment gains for at least 1 year after treatment completion (e.g., Boggs et al., 2004; Bor, Sanders, & Markie-Dadds, 2002; Chamberlain, Fisher, & Moore, 2002; Forehand & Long, 1988; Henggeler, Melton, & Smith, 1992; Horne & Van Dyke, 1983; Kazdin et al., 1989; Kazdin et al., 1987a, 1987b; Lochman, 1992; Reid, Webster-Stratton, & Hammond, 2003; Webster-Stratton, 1984). In addition, 4-month maintenance was reported for REMH (Block, 1978). We were unable to locate follow-up data for the Peer-Led and Counselor-Led Group Assertiveness Training programs. Unfortunately, because many of the EBT studies have used nontherapeutic waitlist control conditions, which cannot ethically be left untreated long enough to serve also as follow-up controls, many of the EBT follow-up study designs have necessarily been less rigorously controlled.

One good alternative strategy to randomized controlled follow-up designs, used by Forehand and Long (1988) to study long-term follow-up of children treated for disruptive behavior in HNC, was to compare the treatment completers at follow-up to a nonreferred sample of community youth of similar age. These researchers found that the treated children at follow-up were comparable to their untreated "normal" peers. Another strategy, used by Boggs et al. (2004), compared the long-term outcomes of PCIT completers to those of study dropouts and demonstrated consistently better long-term outcomes for the treatment completers. Despite problems with randomized controlled follow-up studies of the EBTs for children and adolescents with disruptive behavior, continued assessment of disruptive behavior over time after treatment is important to assure the lasting effects of EBTs.

Medication Treatments for ODD and CD

In contrast to the relatively advanced state of the psychosocial treatment literature for disruptive child behaviors, evaluations of medication treatments for ODD and CD have been less common. Although we have not evaluated medication treatments in this review, medications are used in clinical practice for treating disruptive behavior. Medication studies typically target the symptom of aggression rather than other disruptive behaviors. The practice parameters set forth by the American Academy of Child and Adolescent Psychiatry (AACAP) indicate that medication alone will be insufficient for managing and treating conduct disorder but may be a part of treatment, primarily for comorbid disorders and target symptoms (Steiner, 1997). More recently, the Stanford/Howard/AACAP Workgroup on Juvenile Impulsivity and Aggression (Connor et al., 2006) have suggested that aggressive behaviors of

children and adolescents with ODD or CD should not be treated with medication unless psychosocial approaches have failed. They emphasized the importance of identifying an underlying disorder that is medication-responsive, such as bipolar disorder or ADHD, and stated that even when aggression co-occurs with a medication-responsive disorder, the medication should be adjunctive to psychosocial interventions (Connor et al., 2006).

The few well-controlled medication studies targeting child or adolescent aggression have found the atypical antipsychotic drug risperidone effective for reducing aggressive behaviors in youth with CD (Findling et al., 2000), with below-average IQ (Aman et al., 2002; Buitelaar, van der Gaag, Cohen-Kettenis, & Melman, 2001), and with autism (McCracken et al., 2002). Stimulant medications and alpha agonists used in treating ADHD have been found effective in reducing aggression associated with ADHD and possibly also CD (Klein et al., 1997; see also Hinshaw, 1991), and the mood stabilizing drugs lithium and divalproex sodium have been found effective in reducing aggression in children and adolescents with CD (Donovan et al., 2000; Malone, Delaney, Luebbert, Carter, & Campbell, 2000). In general, medications tend to produce highly variable treatment response among youth with disruptive behavior disorders.

PREDICTORS, MODERATORS, AND MEDIATORS OF TREATMENT EFFECTS

Despite the rapid growth of child and adolescent EBTs for disruptive behavior, there is little understanding of the variables that predict, influence, or account for the changes in behavior resulting from these interventions. For example, McMahon, Wells, and Kotler (2006) reviewed a large number of studies examining hypothesized predictors, moderators, and mediators of outcomes of disruptive behavior treatments, including studies examining child variables (e.g., initial problem severity, comorbidity, age, gender, race/ethnicity), family variables (e.g., parenting behavior, marital functioning, family composition, economic status), and treatment variables (e.g., engagement process, parental resistance, therapist characteristics, therapist training). Most of the studies in their review examined predictors of treatment outcome rather than moderators and/or mediators of change. Across all studies, identified predictors of treatment response have been highly inconsistent. For example, high pretreatment severity of disruptive behavior has been associated with poorer outcomes in some studies (e.g., Patterson & Forgatch, 1995) but not in other studies of even very similar treatments (e.g., Fleischman, 1981). Similarly, the

association of ethnicity to outcomes has been inconsistent across studies (Kazdin, Mazurick, & Bass, 1993; Reid, Webster-Stratton, & Beauchaine, 2001).

Methodologically sound studies of candidate moderators and mediators of treatment outcome may be helpful in sorting out some of the inconsistencies in the current evidence base of treatments for disruptive behavior. Most of the EBT studies of disruptive behavior have assessed the variables likely to either moderate or mediate child and adolescent behavior change, such as family demographic variables and parenting skills, but few studies have examined these variables in formal statistical tests (see Weersing & Weisz, 2002).

Eddy and Chamberlain (2000) were among the first investigators to examine formally the hypothesized mediators of an EBT for youth disruptive behavior. Using a subset of 53 adolescents from the Chamberlain and Reid (1998) study of MTFC, they applied structural equation modeling to examine caregivers' management skills and youth deviant peer association as candidate mediators of treatment effects and found these two variables largely explained the observed decrease in antisocial behavior after treatment. In a recent large-scale effort, Beauchaine, Webster-Stratton, and Reid (2005) combined data from six randomized controlled trials of the IY treatments (including 514 children between ages 3 and 9) to examine for predictors, moderators, and mediators of treatment effects for children with ODD or CD. Using latent growth curve analyses, these investigators studied a range of child, family, and treatment variables to determine influences on treatment response. Results suggested moderating effects for marital adjustment, maternal depression, paternal substance abuse, and child comorbid anxiety/depression. Harsh parenting practices both mediated and predicted treatment success.

Clearly there are multiple and interacting influences on the outcome of treatments for disruptive behavior. Much more study is needed to understand the circumstances under which treatments work and the ways in which treatments produce desired change. Until there is better understanding of these influences, it may be difficult to translate the EBTs effectively into widespread practice.

REPRESENTATIVENESS AND GENERALIZABILITY

The 28 well-conducted studies listed in Table 1 were designed to evaluate the efficacy of treatment programs for children and adolescents with disruptive behavior. The generalizability of the effects of these treatments to clinical settings other than those in which the treatment was evaluated originally is influenced by the

representativeness of the samples of youth and the therapists selected for these studies.

Table 1 provides information on distributions of gender and minority status of children and adolescents in the study samples. Averaging across studies, 31% of participants were female, with only 3 studies exclusively male and 1 exclusively female. Seventeen of the 28 studies reported including African American youth in their samples, but only 7 studies reported including Hispanic youth. Across all EBT studies, we estimate that approximately 45% of study participants were African American and approximately 4% were Hispanic, with negligible representation of other minority groups. These data suggest that representation of female and African American children and adolescents may be adequate among current EBTs for disruptive behavior disorders, but representation of Hispanic and perhaps other minority group youth is not. The rapidly growing Hispanic population in the United States suggests that studies of EBT applications to this group are a high priority. It will be important to overcome language barriers both in assessment methodology and in treatment delivery to understand whether current EBTs are sufficiently robust with these populations or require cultural adaptations for success.

Characteristics of the therapists providing treatment to children and adolescents in the efficacy studies may also influence generalizability. Table 1 shows that most (60%) of the EBT studies employed professional mental health counselors, and 14% employed teachers, foster parents, or peer counselors to implement treatment. Only 26% used graduate student trainees as treatment providers. The representation of community providers in these outcome studies is high, suggesting that EBTs for disruptive behavior can be implemented successfully by therapists in typical community settings.

BEST PRACTICE RECOMMENDATIONS

Despite extensive treatment research on disruptive behavior since the initial review, still no single intervention emerges as “best.” However, of the six parent training programs identified as evidence based, all but one were designed primarily for very young children (ages 2–5). Also, of the seven child training programs identified as EBTs, all but one were designed for older, elementary to high school age youth. Thus, our review provides support for both parent-training and child-training EBTs for youth with disruptive behavior. Based on the preponderance of evidence to date, however, we recommend that clinicians consider parent training as the first line approach for young children and reserve direct child-training approaches for older youth who presumably

have greater capacity to benefit from the cognitive-behavioral approaches of child training programs.

For older children, in addition to the distinct parent and child training programs, our review identified two evidence-based multicomponent treatment approaches (MST and MTFC), both designed primarily for adolescents with severely delinquent behavior, which include both parent- and child-training components, involve multiple agents of change (e.g., parents, foster parents, teachers, behavior specialists, physicians), and acknowledge a greater number of adjunctive treatments beyond psychosocial interventions. Some studies have suggested that adjunctive treatments result in superior outcomes with young children as they do for youth at older ages (e.g., Spaccarelli et al., 1992; Webster-Stratton, Reid, & Hammond, 2004), although for some treatments additional components in multiple service settings may decrease treatment effectiveness (e.g., Chaffin et al., 2004), at least when delivered in an uncontrolled or individualized wrap-around way.

In all three age groupings (preschool age, 3–5 years; school age, 6–11 years; and adolescents, 12–18 years), the clinicians in the EBT studies included both graduate students and mental health counselors. In the adolescent grouping, the range of direct treatment providers was even broader, including teachers, foster parents, and peers as well as mental health professionals. In all age groupings, there are also both individual and group treatments identified as evidence based. These results suggest a range of treatment modalities that may be efficacious for particular children with disruptive behavior disorders.

Current treatment planning relies primarily on clinical assessment before treatment selection. The pretreatment assessment is essential for gathering information needed for disposition or treatment planning, including developmental, medical, academic, social, and family history; parameters of the target problems and current contingencies; comorbid disorders; strengths within the child, family, school, and larger community; and potential barriers to treatment. It is also important to understand the family's expectations for treatment and to clarify misperceptions and treatment demands. The initial assessment not only lays the groundwork for implementing an appropriate EBT but also identifies collateral treatments that may be indicated, such as medication or academic remediation.

Once an EBT is selected, it is important to maintain treatment integrity by following treatment manual guidelines. It is also important to understand the function of ongoing assessment in tailoring the EBTs to the needs of the individual child, family, and setting. In parent training, for example, therapists need to assess both the parent's learning and the child's response and to pace the steps of treatment accordingly. Therapists

also must match their applications of the treatment to family cultural preferences, parent personality styles, child developmental levels, and other individual differences. The extent to which EBTs can be successfully implemented while allowing accommodation to individual needs requires much more study.

FUTURE DIRECTIONS

Study replication is a critically important direction for future research. Successful replication of treatment studies from one laboratory to another is rare in the child and adolescent treatment literature in general, and among the EBTs identified in this review, only 3 of 16 treatments met this criterion, required for well-established treatments. Independent replication is important for testing a treatment's generalizability and transportability. An alternative method of demonstrating treatment replicability is to examine treatment effects outside the laboratory, in settings such as mental health clinics. Future efforts at treatment replication in new populations or by community-based providers may be a more productive use of limited funding resources and another credible way of identifying treatments as well established.

Comparison of a treatment to alternative treatments is another useful direction for future research. This specific criterion was met by only 8 of the 16 EBTs in our review. Particularly in comparison with community "treatments as usual," this research design provides a strong test of treatment efficacy because powerful variables such as therapist and patient expectancy effects can be controlled, and it provides important demonstration of the value of EBTs for both consumers and policymakers.

Although the number of evidence-based treatments for children and adolescents with disruptive behavior has increased substantially, we still have very little evidence-based understanding of how or why these treatments produce change. Potentially critical mechanisms of change that have received very little attention in the child and adolescent treatment literature are therapist-patient interaction variables, such as measures of alliance, communication sequences, or similarity. Efforts in this direction will be important in future treatment research.

CONCLUSIONS

This review identified 16 evidence-based psychosocial treatments for child and adolescent disruptive behavior according to criteria set forth by the task force on promotion and dissemination of psychological procedures (Chambless et al., 1998; Chambless et al., 1996), with

1 meeting the criteria for well-established treatment and 15 meeting probably efficacious treatment criteria. One conclusion we make from conducting this review is the remarkable increase in number of peer-reviewed treatment studies on disruptive behavior during the past decade. However, the number of randomized controlled trials with samples sufficient to ensure widely generalizable results and permit strong tests of moderation and mechanisms of change has been relatively limited. We are optimistic that the increased efforts in treatment outcome research for children and adolescents with disruptive behavior disorders will make it more possible to address the challenge raised in our 1998 review to move beyond the question, "Does treatment work?" to address the questions "For whom does this treatment work?" "How does this treatment work?" "When is this treatment not enough?" and "Is this treatment cost effective?"

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