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Identifying and Developing Empirically Supported Child and Adolescent Treatments

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Child and adolescent therapy outcome research findings attest to the efficacy of a variety of treatments. This article illustrates promising treatments for selected internalizing (anxiety and depression), externalizing (oppositional, and antisocial behavior), and other (obesity and autism) conditions, and for other aims (preparation for medical and dental procedures). Studies in these areas illustrate worthwhile characteristics that can help inform the search for empirically supported treatments. These characteristics include randomized controlled trials, well-described and replicable treatments, tests with clinical samples, tests of clinical significance, broad-based outcome assessment including measures of real-world functioning, and others. Continued research progress will depend on greater attention to magnitude and maintenance of therapeutic change, long-term follow-up, moderators and mediators of change, and development and testing of treatment in conditions relevant to clinical practice.

In child and adolescent therapy, diverse treatments exist for a wide range of clinically significant problems and disorders.[1] Many of these treatments have been carefully tested and constitute a literature that now encompasses several hundred controlled outcome studies (Durlak, Wells, Cotten, & Johnson, 1995). Meta-analyses have attested to the efficacy of many of the treatments and have been consistent in concluding that therapy is effective and more effective than the mere passage of time (see Weisz, Donenberg, Han, & Weiss, 1995; Weisz, Weiss, Han, Granger, & Morton, 1995). There has been a keen interest in moving to more specific conclusions about treatment by identifying concretely those techniques that have support on their behalf for specific clinical problems. The terms *validated, empirically supported,* and *evidence based* have been used to delineate these interventions, beginning with therapies for adults (see Chambless et al., 1996; Task Force on Promotion and Dissemination of Psychological Procedures, 1995) but extending to treatments for children and adolescents as well (Bennett Johnson, 1996; Roth & Fonagy, 1996). The focus of this article is on identifying promising treatment approaches. We begin by highlighting distinctive features of child and adolescent treatment and the findings of current research on treatment outcomes. Then we illustrate several promising treatments that have received empirical support with children and adolescents, noting features of the studies that warrant close attention. Finally, we highlight key issues to advance further development of efficacious and effective treatments.

Characteristics of Therapy With Children and Adolescents

Investigation and application of therapy with children and adolescents raise special challenges that affect case identification, delivery of treatment, and evaluation. First, many emotional and behavioral problems that are treated in therapy (e.g., aggression, hyperactivity, and anxiety) are often evident in less extreme forms at different points in early development. For most youth, these behaviors attenuate greatly as part of normal development and do not portend dysfunction. When the symptoms are extreme, form part of a larger constellation of behaviors, and do not attenuate with maturation, they may signal dysfunction. Yet, individual variation is sufficiently great to make judgment of deviance difficult. In some cases, the significance of a behavior may depend on when it occurs in development rather than on the severity or topography of the behavior itself (e.g., enuresis at 4 years of age vs. 8 years of age). Whether and when to intervene raise special challenges because many of the seemingly problematic behaviors may represent short-lived problems or perturbations in development rather than signs of lasting clini-

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[1] Throughout this article, we use the term *children* to encompass both children and adolescents except in instances in which we need to distinguish these developmental periods. Also, we use the term *therapy* to refer broadly to psychosocial interventions representing diverse approaches to treatment, including traditional psychotherapy, behavioral and cognitive therapies, and family therapies. Here, too, distinctions are made as needed.

cal impairment. Of course, even problems that would remit spontaneously over time if untreated may be appropriate candidates for treatment because their immediate impact is so aversive. Bed-wetting, for example, is often resolved over time without treatment, but effective treatments are available (see Walker, Kenning, & Faust-Campanile, 1989), and their use may cut short what can otherwise be prolonged periods of stress for children and families.

Second, identifying cases in need of treatment is more complex with children than with adults because youths rarely refer themselves for treatment or identify themselves as experiencing stress, symptoms, or problems. Problems most commonly referred for treatment are externalizing or disruptive behaviors (e.g., aggression and hyperactivity; Kazdin, Bass, Ayers, & Rodgers, 1990) that are disturbing to parents or teachers, who initiate the treatment process. Internalizing or emotional problems (e.g., depression, anxiety, and withdrawal) are more likely to be overlooked by those who refer children to treatment. Although children can report on their symptoms, particularly their internalizing symptoms, they may not see the symptoms as a "problem" or as requiring treatment. The challenge to the researcher and clinician is to engage the child in treatment and to work toward a change that the child may well identify as unnecessary, unimportant, and irrelevant to his or her life.

Third, the dependence of children on adults makes them particularly vulnerable to multiple influences over which they have little control. Parent mental health and marital and family functioning, level of stress and life events, living circumstances, culture and ethnicity, and socioeconomic disadvantage are a few of the factors that influence the nature and severity of child impairment, the degree of therapeutic change among those who complete treatment, and the extent to which changes are maintained at follow-up (e.g., Dadds & McHugh, 1992; Dumas & Wahler, 1983; Kazdin, 1995a; Tharp, 1991; Webster-Stratton, 1985; Weisz & Weiss, 1991). Providing treatment to the child is often only a part of the intervention; significant efforts are often made to alter the many aspects of the contexts and functioning of others with whom the child interacts (e.g., Dadds, Schwartz, & Sanders, 1987; Henggeler, Schoenwald, & Pickrel, 1995; Szapocznik et al., 1989). As a general rule, child and adolescent therapy is often de facto "family-context" therapy, independently of the conceptual view that underlies treatment.

Fourth, in the prototypic image of therapy, a client is seen individually in treatment sessions by a clinician. Yet, in child therapy, parents, teachers, siblings, and peers alone and in various combinations often play an ancillary, supplementary, supportive, or even primary role in administering treatment (e.g., Foster & Robin, 1989; Lewinsohn, Clarke, Hops, & Andrews, 1990; Miller & Prinz, 1990; Patterson, 1982). Challenges come from working with those agents who may be involved in delivering aspects of treatment and changing their behavior. Because parents in particular are often key agents, issues that may impair their functioning (e.g., major depression, substance abuse, and family violence) may need to be addressed in the treatment program intended to improve the child.

Fifth, several special methodological challenges emerge in the treatment of children and adolescents. Measures often involve subtle questions about the onset, duration, and intensity of emotional and behavioral problems. Whether young children (e.g., 6 or 7 years of age or younger) can report on these characteristics is not well established. In addition, in most studies, multiple informants (parents, teachers, and children) are used to evaluate emotional and behavioral problems of the child. Relations among reports by different informants tend to be low (Achenbach, McConaughy, & Howell, 1987; Kazdin, 1994b). This means that using standardized assessments to identify cases that are extreme and warrant intervention, to identify correlates of dysfunction, and to evaluate treatment outcome can yield different conclusions based on the source of information (e.g., Kazdin, 1989; Offord et al., 1996). There is no agreed-on "gold standard" to serve as a criterion to evaluate the data from different informants. The different perspectives have their own correlates, so each may have validity evidence in its behalf.

Parents are usually the primary source of information about child dysfunction, because they are readily available as informants, are knowledgeable about the child's behavior across time and situations, and usually play a central role in the referral of children for treatment. Parent perceptions of child adjustment and functioning are moderately correlated with parental psychopathology (especially anxiety and depression), marital discord, stressors, and social support outside of the home (see Kazdin, 1994b). Thus, the meaning and utility of parent reports, on which most treatment outcome studies rely, raise critical issues for evaluating therapy research.

Finally, a challenge for interpretation of research is the heterogeneity of samples that are often combined. Youth within a given study may vary by sex, age, developmental status (e.g., cognitive or pubertal level), and culture and ethnicity, all of which may affect the onset, course, and pattern of clinical dysfunction, clinical referral, participation in treatment, and clinical outcome (e.g., Kazdin, Stolar, & Marciano, 1995; Maddahian, Newcomb, & Bentler, 1988; Weisz & Weersing, in press). One area in which samples are quite heterogeneous is the presence of other disorders or patterns of symptoms associated with the problems leading to referral or inclusion in a treatment trial. The presence of two or more disorders, referred to as *comorbidity,* can predict responsiveness of children to treatment (Hughes et al., 1990; Kazdin & Crowley, 1997) and influence long-term course (Harrington, Fudge, Rutter, Pickles, & Hill, 1991). A challenge for research is not only to identify effective treatments but also to consider potential moderators.

Summary Evaluations of Treatment Research

Notwithstanding the preceding discussion, advances have been made in therapy research and in core areas that underlie that research. Assessment methods, delineation of disorders, and descriptions of patterns of onset and long-term course have provided many of the tools required for developing effective treatment. After years of neglect, child therapy has become a focus of considerable research, particularly in the past two decades.

Several meta-analyses have reviewed the child and adolescent therapy outcome literature (Casey & Berman, 1985; Kazdin, Bass, et al., 1990; Weisz, Weiss, Alicke, & Klotz, 1987; Weisz,

Weiss, et al., 1995).[2] As an illustration, in the most recent broad-based meta-analysis, Weisz, Weiss, et al. (1995) surveyed 150 studies published between 1967 and 1993, including children 2–18 years of age. The mean effect size (ES; Cohen's *d*) of 0.71 indicated that, after treatment, the average treated youngster was less symptomatic on the various outcome measures than 76% of no-treatment control group children. The overall pattern across the four broad-based meta-analyses just cited points to substantial positive effects, falling within the "medium" to "large" range by conventional criteria derived from Cohen (1988) and comparable to the magnitude of treatment effects seen in predominantly adult therapy meta-analyses (e.g., Shapiro & Shapiro, 1982; Smith, Glass, & Miller, 1980).

Complementing the broad-based analyses are additional meta-analyses that focus on more specific types of treatment, clinical problem domains, or treatments in relation to specific problems. For example, meta-analyses focused specifically on cognitive–behavioral therapy (CBT) have found positive effects across a range of target problems (Durlak, Fuhrman, & Lampman, 1991), including impulsivity (Baer & Nietzel, 1991). Similarly, the impact of treatment involving self-statements (Dush, Hirt, & Schroeder, 1989), family therapy (Hazelrigg, Cooper, & Borduin, 1987; Shadish et al., 1993), preparation of children for medical and dental procedures (Saile, Burgmeier, & Schmidt, 1988), and psychotherapeutic interventions administered in school settings (Prout & DeMartino, 1986) has been supported as well. Overall, several treatments applied to an array of emotional and behavioral problems have shown beneficial effects.

Of course, like any technique, meta-analysis has limitations. The yield from a meta-analysis necessarily reflects limitations of the constituent studies. For example, mean ES in the child treatment literature reflects a limited range of methods, because there are many more studies of behavioral (including cognitive–behavioral) than nonbehavioral treatments. Also, meta-analyses thus far have omitted studies using single-case experimental designs. Another limitation of meta-analysis is the inevitable confounding among independent variables (e.g., certain target problems tend to be treated with certain treatment methods). More broadly, every meta-analysis requires scores of decisions (e.g., how inclusive to be across studies varying in methodological rigor, which outcome measures to accept, whether to use raw ES or adjust for sample size), any of which may influence the obtained ES values and group means (e.g., Matt, 1989; Weiss & Weisz, 1990). Because no two investigative teams make all of these decisions in exactly the same manner, conclusions of different meta-analyses may vary in part because of differences in meta-analytic method, not just because of substantive differences in study findings. This being the case, convergent findings across different meta-analyses are of special interest.

As we and others have elaborated elsewhere, child treatment outcome studies are limited in a number of ways (Durlak et al., 1995; Kazdin, 1995c; Kazdin, Bass, et al., 1990; Weisz et al., 1987; Weisz, Weiss, & Donenberg, 1992). The majority of therapy studies focus on nonreferred cases, provide relatively brief treatments conducted in a group format, evaluate treatment almost exclusively in relation to symptom reduction without assessing impairment or adaptive functioning (e.g., academic performance and peer relations), do not evaluate the clinical significance of symptom changes, and do not conduct follow-up. Also, the techniques commonly used in clinical practice (e.g., psychodynamic, eclectic, and family-based approaches) are rarely studied in research (Kazdin, Siegel, & Bass, 1990; Koocher & Pedulla, 1977). In general, research has produced extensive information on treatments that are not very much like those used in practice (Weisz, Weiss, & Donenberg, 1992).

Overall, the conditions under which therapy research is conducted tend to be special and relatively narrow. There are many exceptions, and we highlight a number of them here. Even without the exceptions, the broader literature ought not to be dismissed. For example, most studies are conducted with nonreferred youths whose impairment and level of dysfunction may not meet criteria for psychiatric diagnosis. Yet, there is no special magic derived from conferring a diagnosis on a child in terms of need for treatment. Indeed, as more is learned about disorders, it is also learned that individuals who fall below diagnostic criteria or who no longer meet criteria they previously met (e.g., for depression or conduct disorder) often suffer significant impairment and have poor prognoses (e.g., Gotlib, Lewinsohn, & Seeley, 1995; Offord et al., 1992). Developing effective interventions for individuals with varying degrees of discomfort and impairment is inherently valuable, and a case can be made for intervening early, before problems escalate in severity. However, when the literature is cited as showing that therapy is effective, the qualifiers of this conclusion are often inadvertently lost. There is, in fact, a large literature of outcome studies, but the characteristics of the studies, treatments, cases, and assessments make this literature somewhat removed from what is done, who is seen, and what is needed in clinical practice (Weisz, in press-a).

Empirically Supported Treatments: Some Promising Examples

Conclusions from meta-analyses and our critical evaluation of the research in general fail to recognize that there are oases within the body of research that are exemplary in the ways the studies have been conducted and in the conclusions that can be reached. In this section, we illustrate some of the promising child treatments found in the empirical literature. Our search

[2] Meta-analysis is a useful way of summarizing findings across multiple outcome studies. It has a number of advantages relative to narrative review and "box-score" approaches, not the least of which is the use of a common effect size metric that is more meaningful and less sensitive to sample size than statistical significance. For a conventional group-design study, the effect size for any outcome measure is the difference between posttreatment means for treatment and comparison groups divided by the outcome measure standard deviation. In meta-analyses, effect size values are averaged across studies, with comparisons frequently made between theoretically or practically important subsets of studies (e.g., treatment method A vs. B or treated problem A vs. B; see, e.g., Weiss & Weisz, 1995). The results of such comparisons can suggest promising hypotheses about direct causes, mediators, and moderators of treatment outcomes. Thus, meta-analyses can be useful both descriptively, in summarizing the knowledge base and trends therein, and heuristically, in generating questions and predictions for further study.

involved references and reference trails from major reviews and meta-analyses (Baer & Nietzel, 1991; Casey & Berman, 1985; Durlak et al., 1991, 1995; Dush et al., 1989; Hazelrigg et al., 1987; Kazdin, Bass, et al., 1990; Prout & DeMartino, 1986; Roth & Fonagy, 1996; Smith et al., 1980; Tramontana, 1980; Weisz et al., 1987; Weisz, Weiss, et al., 1995) supplemented by our own reading and tracking of recent research. Our search revealed substantially more meritorious programs than space limitations permit us to review here. Accordingly, our objective in this article is to illustrate a few promising lines of research rather than to exhaustively review problem areas or treatment techniques.

Chambless and Hollon (1998) have identified several criteria for discerning whether treatments should be considered *efficacious* (i.e., established) or *possibly efficacious* (i.e., promising but in need of replication.). They propose that a treatment, to be considered efficacious, must have been shown to be more effective than no treatment, a placebo, or an alternate treatment across multiple trials conducted by different investigative teams. Treatments that meet these criteria, except for replication or independent replication, are designated as possibly efficacious in the Chambless–Hollon framework. In principle, these criteria appear useful for a number of purposes.

In practice, developmental variations may complicate use of the criteria with child and adolescent treatments (see Weisz & Hawley, in press). Diverse differences (e.g., in language skills and cognition) among different age groups indicate that treatments with similar general features must differ in numerous specific details when applied in different developmental periods, thus creating a classification dilemma. For example, suppose that research team *A* successfully treats 8–10-year-old depressed children with a child version of CBT and research team *B* successfully treats depressed adolescents with a thematically similar but linguistically richer and conceptually more complex variant of CBT. Is the result one efficacious treatment, supported by two independent teams, or two possibly efficacious treatments, each supported by one team? Reasoning of the former type would suggest that most of the treatments we review subsequently are candidates for the efficacious category. But more conservative reasoning of the latter type would place most of the treatments reviewed here in the possibly efficacious category, with perhaps only three (CBT for child anxiety, cognitive problem-solving skills training [PSST], and parent management training [PMT]) designated as efficacious. Indeed, very conservative standards would rule out all of these treatments, because the field lacks true replication in which different research teams use exactly the same manual.

Chambless and Hollon (1998) have suggested additional criteria by which treatments and treatment studies may be evaluated, and we find much to agree with in their suggestions. As they do, we see particular merit in (a) group-design studies involving random assignment (or well-controlled single-case or within-group studies); (b) well-documented and thus replicable treatment procedures (e.g., as detailed in a manual); (c) evidence of uniform therapist training and of therapist adherence to planned procedures; (d) tests involving clinical samples, or at least youngsters who would have been treatment candidates independently of the outcome study; (e) multimethod outcome assessment; (f) tests of the clinical significance of outcomes; (g) tests of treatment effects on real-world, functional outcomes in addition to symptoms; and (h) assessment of long-term outcomes well beyond treatment termination. Some of the examples that we cite subsequently demonstrate the potential value of these features, although not every study is strong on each front; we note other innovations and strengths of particular research programs in pertinent cases.

Our view is that a classification of the degree of support for a given treatment may be quite valuable. The criteria for judging how well established a treatment is and the terminology for delineating points along the continuum continue to evolve (e.g., Chambless & Hollon, 1998; Roth & Fonagy, 1996; Task Force on Promotion and Dissemination of Psychological Procedures, 1995). We see development and evolution of the criteria as reflecting the complexity of evaluating research, variations in how treatment can be applied, and the fact that many key criteria (e.g., the extent to which treatment has been replicated) are multidimensional (e.g., across investigators, clinical problems, and age groups). Accordingly, our emphasis is on identifying treatments that have been carefully studied and on presenting examples that illustrate particular features that we believe are worthy of emulation.[3]

We provide illustrations of promising treatments from externalizing and internalizing problem domains. Internalizing problems, also referred to as problems of overcontrol, are so grouped because their key characteristics reflect internal or inward-directed experience. Prominent examples include withdrawal, anxiety, and depression. Externalizing problems, also referred to as problems of undercontrol, are grouped together because their key characteristics reflect an impact on the environment and on others. Prominent examples include overactivity, oppositional and aggressive behavior, and delinquency.[4] Internalizing and externalizing behaviors encompass the primary focus of therapy research and clinical practice. However, there is a vast

[3] We have elected to highlight what we consider to be research with exemplary features rather than enter into a review of all treatments that might be classified as "validated" (efficacious or possibly efficacious). A comprehensive review of all treatments that might meet these classifications and all treatments within the problem domains we consider cannot be provided here. Also, attempts to classify a treatment into one category or another raise issues about criteria and cutoff points that can take us afield from our goal of illustrating promising treatments. We note in passing that there are several reviews completed or in progress at the time of this writing in which specific criteria for identifying validated, empirically supported, or evidence-based treatments are invoked and applied to individual problem areas and treatments for children and adolescents (e.g., Eyberg, 1996; Kaslow, 1996; Mash & Barkley, in press; Nathan & Gorman, 1998; Ollendick, 1996; Roth & Fonagy, 1996; Weisz, 1997).

[4] The distinction between internalizing and externalizing problems has been supported by research including factor- and cluster-analytic studies of children and adolescents (e.g., Achenbach, McConaughy, & Howell, 1997). Although the distinction can be defended, the problems and disorders from these different domains often go together (e.g., depression and conduct disorder). This indicates that youths referred and treated for one disorder (or set of problems) or a disorder of one type (e.g., internalizing) may meet criteria for other disorders as well.

"other" domain in therapy research in which treatment is applied to pervasive and chronic conditions (e.g., autism), learning and developmental problems (e.g., reading disorders and enuresis), eating-related problems (e.g., obesity, anorexia, and bulimia), and a range of health psychology applications (e.g., adherence to medical regimens and stress management to enhance coping with painful procedures).

Illustrations of Treatments for Internalizing Problems

In the internalizing category, a number of treatments have been developed for problems related to anxiety and depression. We focus here on two illustrative interventions, noting particular strengths of each and describing concerns and challenges as well.

Cognitive–behavioral therapy for child anxiety. Anxiety disorders are the most common class of psychiatric disorders among children and adolescents (see Albano, Chorpita, & Barlow, 1996; Bernstein & Borchardt, 1991). Although certain fears and anxieties may be both normative and transient in particular developmental periods, the levels in some youngsters exceed developmental expectations and significantly undermine functioning at home, at school, and with peers. A multi-component view of etiology that includes biological, cognitive, and behavioral components is generally accepted. Anxious children, like anxious adults, are thought to show biological vulnerability in the form of hypersensitivity to stress and challenge, along with a diffuse stress response possibly involving multiple neurobiological systems (see, e.g., Albano et al., 1996). The biological stress response is linked to anxiety-elevating cognitions or "self-talk" (e.g., "I know I'll screw up" or "Other kids will think I'm a dork") and to behavioral avoidance of the stressors. The avoidance produces its own reward in the form of reduced subjective distress and reduced arousal, and thus it tends to sustain itself over time. In this model, as a result, dysfunctional anxiety becomes a self-perpetuating cycle of elevated biological response to stress, debilitating cognitions, and avoidance of stressful circumstances.

To disrupt this maladaptive cycle, treatment researchers have developed a family of techniques involving CBT for child anxiety. The specific combination of techniques used varies somewhat from one investigator to another (see, e.g., Albano & Barlow, 1996; Kendall, 1994; Ollendick, 1996; Silverman & Kurtines, 1996), but there are common features involving education and behavioral exposure. As part of the educational component, children learn about the biological arousal associated with anxious feelings, and they may identify their own distinctive pattern (e.g., tight feeling in stomach, dry mouth, or flushed face). They may also learn specific skills, such as relaxation, to use in managing their arousal. Another common educational focus involves identifying, testing, and modifying negative cognitions. Finally, a key element of all CBT for child anxiety approaches is exposure. Therapists work with children, and sometimes with their family members, to set up encounters with anxiety-arousing events and situations, typically low grade at first but often progressing to highly anxiety arousing (e.g., speaking in front of a group). Frequently, exposure encounters—sometimes called "show that I can" tasks (see Kendall et al., 1992)—take place in treatment sessions via imagination and role-play, whereas others are carried out by the child in vivo. To maximize learning and change, CBT for child anxiety typically uses both in-session exercises and homework, peer or therapist modeling, and rewards for effort and success. The structure of current CBT for child anxiety owes much to earlier work on modification of child cognitions (e.g., Meichenbaum, 1977), reciprocal inhibition and systematic desensitization (e.g., Wolpe, 1958), and exposure linked with modeling (e.g., Bandura & Menlove, 1968).

Evidence on the effects of CBT for child anxiety is quite encouraging. Randomized, controlled clinical trials have shown beneficial effects at immediate posttreatment, with good maintenance of gains in treated youth over 1-year follow-up periods (Barrett, Dadds, & Rapee, 1996; Kendall, 1994; Kendall et al., 1997) and, in one case, a 3-year follow-up (Kendall & Southam-Gerow, 1996). Positive effects have been found on self-report, parent-report, and teacher-report anxiety measures; on anxiety diagnoses; on anxiety observational measures; and even on measures of depressive symptoms. A recent variation adding family management training to the basic child-focused CBT for child anxiety program showed unusually positive effects (Barrett et al., 1996), especially among girls and younger children (those 7–10 years of age).

The CBT findings for child anxiety are exemplary in several ways. First, the studies have focused on cases serious enough to warrant formal diagnosis, based on standardized assessment procedures, and cases involving comorbid conditions have been included. Second, the studies have included assessment of clinical significance, and striking reductions have been shown in the percentage of treated youth who qualify for anxiety diagnoses (as compared with much more modest reductions in wait-listed youth). Third, the studies have tracked treated youth over longer posttreatment follow-up periods than most studies and have shown that gains made by treated youth hold up well. Fourth, recent analyses (Treadwell & Kendall, 1996) suggest that reductions in children's anxious self-talk do indeed mediate change in anxiety associated with the treatment. And, finally, very similar forms of CBT for child anxiety have been supported in research by independent teams from the United States (e.g., Kendall, 1994) and Australia (Barrett et al., 1996). It could certainly be argued that CBT for child anxiety warrants designation as an efficacious treatment consistent with the Chambless–Hollon (1998) requirement, but this would depend on whether the 16-session Kendall program and the 12-session Barrett et al. program are judged to constitute the same treatment. An interesting feature of the Philadelphia-based program is that the university-based clinic in which it is administered by Kendall and colleagues now generates all of its referrals from the community without recruitment or advertising (P. C. Kendall, personal communication, February 20, 1997). This illustrates the possibility of increasing ecological validity in treatment samples while retaining the precision and control of manualized intervention and clinical trials.[5]

[5] In an interesting variation on this theme, Barrett et al. (1996) recruited some of their CBT for child anxiety study patients from community centers and mental health professionals.

Despite the positive evidence, researchers studying CBT for child anxiety face significant challenges for the future. Because some evidence suggests substantial levels of spontaneous remission of childhood fears and anxiety (see Bernstein, Borchardt, & Perwien, 1996), the significance of treatment effects would be better understood if untreated youth had wait-list periods longer than the 8–12-week periods that are now typical. Another challenge will be to "unpack" the CBT for child anxiety package, seeking ways of matching treatment components to characteristics of treated youth. At present, CBT for child anxiety tends to be provided as a uniform bundle of techniques applied across all youth within a treatment condition. Future research may reveal more efficient ways of fitting children to components; as an example, guided exposure alone may be sufficient for some youngsters. Certainly, the strong empirical base now established for CBT for child anxiety provides an excellent launching pad for such new ventures.

Coping skills training for child depression. The other major internalizing condition, depression, has received less attention in child treatment research than has anxiety. This is true, in part, because several early theoretical perspectives raised doubts about whether children could experience "true" depression. Over the past two decades, research has demonstrated that depression can be reliably identified and has a predictable set of concurrent correlates and clinical course (Kazdin & Marciano, in press). Theoretical models relevant to child depression have proliferated (see Hammen & Rudolph, 1996), with biological, environmental, and family systems differentially emphasized, but child treatment research has been most heavily influenced by cognitive and behavioral models. Among the cognitive features noted in the models are schemas from Beck's "cognitive triad" (i.e., perceptions of the self as inadequate, the world as unfair, and the future as hopeless; see Beck, Rush, Shaw, & Emery, 1979) and aspects of the "depressive attributional style" described by Abramson, Seligman, and Teasdale (1978; i.e., ascription of negative outcomes to internal, stable, and global causes and ascription of positive outcomes to external, transient, and specific causes; see also Gladstone & Kaslow, 1995). Behavioral models have focused in part on deficits in coping skills, particularly in interpersonal relationships and social problem solving, but also in such basics as the not-so-simple task of selecting affect-enhancing activities in the course of daily living. In part, then, depressed youngsters are seen as subject to schemas and cognitive distortions that cast everyday experience in an unduly negative light and as lacking important skills needed to generate supportive social relationships and to regulate emotion through daily activity.

Among the interventions developed for child depression, the most common and perhaps the best supported empirically are those involving coping skills training (CST) focused on deficits such as those noted earlier. Although the CST interventions differ from one another in specific features, with programs for adolescents only (e.g., Lewinsohn et al., 1990) necessarily differing from those for middle school children (Kahn, Kehle, Jenson, & Clark, 1990) and children in elementary school (Stark, Reynolds, & Kaslow, 1987; Weisz, Thurber, Sweeney, Proffitt, & LeGagnoux, 1997), there are important commonalities. Among the most important common features are (a) efforts to identify and modify depressogenic schemas and attributional biases; (b) skills training to enhance social interactions (e.g., how to start a conversation or make a friend), social problem solving (e.g., how to resolve conflict without alienating others), and other competencies relevant to self-esteem (e.g., setting performance goals and reaching them); (c) progressive relaxation training to reduce the tension that can undermine enjoyment; and (d) structured experience in selecting and engaging in mood-enhancing activities to increase rates of positive reinforcement. So, like CBT for child anxiety, CST includes efforts to examine and restructure cognitions as well as requirements for experience in the real world. Both treatments also involve peer or therapist modeling and in-session role-plays, together with structured homework assignments.

Outcome studies thus far have shown beneficial effects of CST (for reviews, see Kahn et al., 1990; Kazdin & Marciano, in press; Lewinsohn, Clarke, Rohde, Hops, & Seeley, 1996; Stark, Swearer, Kurowski, Sommer, & Bowen, 1996; Weisz, Rudolph, Granger, & Sweeney, 1992), with stronger evidence in studies of adolescents than in studies with middle school and preadolescent groups (see Weisz, Rudolph, Granger, & Sweeney, 1992). At a minimum, the research supports designation of CST as possibly efficacious in the Chambless–Hollon (1998) system.

Research with adolescents has involved young people who meet diagnostic criteria for depression; has included follow-ups at 6 months, 1 year, and 2 years posttreatment; and has shown increased reductions in the percentage of treated youth who meet diagnostic criteria for depression (relative to no-treatment youths) at subsequent follow-up assessments. One program has stimulated development of a successful depression prevention program for high school youth (see Clarke et al., 1995). Research on the adolescent program has also gone beyond tests of overall treatment effects, seeking to identify characteristics of those youth who profit most from the intervention; common predictors found across two adolescent clinical trials—lower initial level of depression, greater frequency and enjoyment of positive activities, and more endorsement of rational thoughts—bear attention in future research.

Concerns and questions about CST are stimulated in part by thoughtful research for which the treatment researchers deserve credit but in which the outcomes have been rather unexpected. For example, the researchers' assessment of hypothesized mediators of change certainly deserves emulation by other researchers. Although formal tests of mediation (see Baron & Kenny, 1986) remain to be done, none of the most intuitively appealing mediators tested thus far—anxiety reduction, increase in pleasant activities, and reduced depressotypic cognitions—have been found to be related to outcome. This raises questions about the kinds of change that may actually underlie reductions in depression. Two other puzzling findings (discussed in Lewinsohn et al., 1996) should be noted: (a) Adding a parent training component to basic CST for adolescents alone has not enhanced outcomes, and (b) adding periodic booster sessions over the 2 years following treatment has not been found to enhance long-term effects, perhaps in part because recovery rates are so high with the basic treatment program alone. Finally, some studies have failed to show that CST interventions outperform simpler treatments. For example, Reynolds and Coats (1986) found that

both a CST-type treatment and a relaxation-training-only treatment both outperformed a wait-list condition but were about equally effective in reducing adolescent depression. Thus, it appears that CST is a promising intervention, with supportive evidence particularly strong among depressed adolescents; however, intriguing questions about mediators of its effects and about its differential effectiveness relative to alternative, simpler treatments await further investigation.

Illustrations of Treatments for Externalizing Problems

In the externalizing category, treatments have focused on conduct problems such as oppositional behavior, attention deficits and hyperactivity, aggressive and antisocial behavior, and delinquency. Our illustrations focus on aggressive and antisocial behavior and delinquency, for which a few promising treatments have been identified.

Cognitive problem-solving skills training for oppositional and aggressive children. Cognitive processes refer to a broad class of constructs that pertain to how an individual perceives, codes, and experiences the world. Youths who engage in externalizing behaviors, particularly aggression, show distortions and deficiencies in such processes as generating alternative solutions to interpersonal problems (e.g., different ways of handling social situations), identifying the means to obtain particular ends (e.g., making friends) or consequences of their actions (e.g., what could happen after a particular behavior), making attributions to others of the motivation of their actions (e.g., attributions of hostile intent), perceiving how others feel, and anticipating the effects of their actions (see Crick & Dodge, 1994; Shirk, 1988; Spivack & Shure, 1982). Deficits and distortion among these processes relate to teacher ratings of disruptive behavior, peer evaluations, and direct assessment of overt behavior (e.g., Lochman & Dodge, 1994; Rubin, Bream, & Rose-Krasnor, 1991).

Problem-solving skills training (PSST) develops interpersonal cognitive problem-solving skills. Although many variations of PSST have been applied to children with conduct problems, several characteristics usually are shared. First, the emphasis is on how children approach situations (i.e., the thought processes in which they engage to guide responses to interpersonal situations); the children are taught to engage in a step-by-step approach to solve interpersonal problems. Second, behaviors that are selected (solutions) in response to the interpersonal situations are important as well. Prosocial behaviors are fostered through modeling and direct reinforcement as part of the problem-solving process. Third, treatment uses structured tasks involving games, academic activities, and stories. Over the course of treatment, cognitive problem-solving skills are increasingly applied to real-life situations. Fourth, therapists usually play an active role in treatment. They model the cognitive processes by making verbal self-statements, apply the sequence of statements to particular problems, provide cues to prompt use of the skills, and deliver feedback and praise to develop correct use of the skills. Finally, treatment usually combines several different procedures, including modeling and practice, role-playing, and reinforcement and mild punishment (loss of points or tokens). These procedures are deployed in systematic ways to develop increasingly complex response repertoires.

Several outcome studies have been completed with impulsive, aggressive, and conduct-disordered children and adolescents (for reviews, see Baer & Nietzel, 1991; Durlak et al., 1991). Cognitively based treatments have significantly reduced aggressive and antisocial behavior at home, at school, and in the community, and these gains have been evident up to 1 year later. Many early studies in the field (e.g., 1970s–1980s) focused on impulsive children and nonclinic samples; more recent studies have shown treatment effects with clinically referred youths, including both inpatient and outpatient cases (see Kazdin, 1993; Kendall, Reber, McLeer, Epps, & Ronan, 1990; Pepler & Rubin, 1991). Some evidence suggests that older children (11–13 years old) profit more from treatment than younger children (5–7 years old; Durlak et al., 1991) and that youths who have comorbid diagnoses, academic delays and dysfunction, and lower reading achievement and who come from families with high levels of impairment (parent psychopathology, stress, and family dysfunction) respond less well to treatment than youths with less dysfunction in these domains (Kazdin, 1995a; Kazdin & Crowley, 1997).

There are features of PSST that make it an extremely promising approach. Perhaps most important, several controlled outcome studies with clinic samples have shown that cognitively based treatment leads to therapeutic change. Second, basic research continues to elaborate the relation of maladaptive cognitive processes among children and adolescents and conduct problems that serve as underpinnings of treatment (Crick & Dodge, 1994; Shirk, 1988). Third, and on a more practical level, many versions of treatment are available in manual form (e.g., Feindler & Ecton, 1986; Finch, Nelson, & Ott, 1993; Shure, 1992). Consequently, the treatment can be evaluated in research and explored further in clinical practice.

Fundamental questions about treatment remain. The role of cognitive processes in clinical dysfunction and treatment warrants further evaluation. Evidence is not entirely clear showing that a specific pattern of cognitive processes characterizes youths with conduct problems rather than adjustment problems more generally. Also, although evidence has shown that cognitive processes change with treatment, evidence has not established that change in these processes mediates improvements in treatment. This indicates that the mediators of therapeutic change have yet to be established. Characteristics of children and their families and parameters of treatment that may influence outcome have not been carefully explored. Clearly, central questions about treatment and its effects remain to be resolved. Even so, PSST is highly promising because treatment effects have been replicated in several controlled studies.

Parent management training for oppositional and aggressive children. PMT refers to procedures in which parents are trained to alter their child's behavior in the home. The development of PMT can be traced to two traditions, including direct efforts to develop parenting practices to improve child rearing and developments in the application of operant conditioning. The PMT literature is vast, because the procedures can be used with a large number of problem domains (e.g., child compliance, tantrums, enuresis, tics, eating disorders, hyperactivity, and adherence to medical regimens) and populations (e.g., children of preschool age through adolescence and youths with

diagnoses of autism, mental retardation, learning disability, conduct disorder, attention-deficit/hyperactivity disorder, and others; e.g., Graziano & Diament, 1992; Schaefer & Briesmeister, 1989). We highlight applications with oppositional and aggressive children, the area of greatest attention.

PMT is based on the general view that conduct problems are inadvertently developed and sustained in the home by maladaptive parent–child interactions (e.g., directly attending to disruptive and deviant behavior, frequently and ineffectively using commands and harsh punishment, and failing to attend to appropriate behavior; Patterson, 1982; Patterson, Reid, & Dishion, 1992). PMT alters the pattern of interchanges between parent and child so that prosocial, rather than coercive, behavior is directly reinforced and supported within the family. Several common characteristics can be identified among variations of PMT. Treatment is conducted primarily with the parents, who implement several procedures at home. The parents meet with a therapist who teaches them to use specific procedures to alter interactions with their child, to promote prosocial behavior, and to decrease deviant behavior. Parents are trained to identify, define, and observe problem behaviors in new ways. Careful specification of the problem is essential for the delivery of reinforcing or punishing consequences and for evaluation of whether the program is achieving the desired goals. The treatment sessions provide concrete opportunities for parents to see how the techniques are implemented, to practice and refine use of the techniques (e.g., through extensive role-playing), and to review the behavior-change programs used at home. Parent-managed reinforcement programs for child deportment and performance at school, completion of homework, and playground activities are routinely included, with the assistance of teachers as available.

PMT is one of the best-researched therapy techniques for the treatment of oppositional and aggressive youths (see Graziano & Diament, 1992; Kazdin, 1997b; Miller & Prinz, 1990; Patterson, Dishion, & Chamberlain, 1993; Serketich & Dumas, 1996). Although scores of researchers have contributed, several research programs (e.g., Eyberg at the University of Florida, Forehand at the University of Georgia, Patterson at the Oregon Social Learning Research Center, and Webster-Stratton at the University of Washington) made special inroads in developing the treatment, assessing factors that contribute to change, evaluating follow-up, and replicating treatment effects across multiple samples (see Eyberg & Boggs, 1989; McMahon & Wells, 1989; Patterson et al., 1993; Webster-Stratton, 1996).

Treatment effects have been evident in clinically significant improvements on a wide range of measures, including parent and teacher reports of deviant behavior, direct observation of behavior at home and at school, and institutional (e.g., school and police) records. In many cases, the changes have placed conduct problem behaviors within the range of nonclinic "normative" levels of functioning at home and at school. Therapeutic gains are evident 1–3 years after treatment, although gains in one program have been maintained 10–14 years later (Long, Forehand, Wierson, & Morgan, 1994). The impact of PMT is relatively broad and includes improvements in child domains that have not been focused on directly as part of training, improvements in siblings who are at risk for severe antisocial behavior, and reductions in maternal psychopathology, particularly depression (Kazdin, 1995b).

The outcome evidence makes PMT one of the most promising treatments. The evidence is bolstered by related lines of work. First, the study of family interaction processes that contribute to aggressive behavior in the home and evidence that changing these processes alters child behavior provide a strong empirical base for treatment. Second, the procedures and practices used in PMT (e.g., various forms of reinforcement and punishment practices) have been widely and effectively applied outside the context of externalizing problems, as noted previously. Third, a great deal is known about the procedures and parameters that influence the reinforcement and punishment practices that form the core of PMT (Kazdin, 1994a). Consequently, very concrete recommendations can be provided to change behavior and to alter programs when behavior change has not occurred. There are a number of variations of PMT. Extensions of PMT to the community (i.e., rather than in clinic-based settings) have brought the intervention to those persons least likely to come to or remain in treatment. Community applications provided in small groups and in neighborhoods where the families reside are highly cost-effective when provided in small parent groups (e.g., Cunningham, Bremner, & Boyle, 1995; Thompson, Ruma, Schuchmann, & Burke, 1996). Other variations consist of combining PMT with other techniques. The combination of PMT and cognitively based PSST has been shown to be more effective than PMT alone (Kazdin, Siegel, & Bass, 1992; Webster-Stratton, 1996), although this has not been extensively tested. Parents of aggressive and oppositional children often experience significant stressors and conflict. Addressing these stressors during treatment in addition to providing PMT has reduced treatment dropout, improved clinical outcomes of the children, and increased positive communication and collaboration between the parents (e.g., Dadds et al., 1987; Prinz & Miller, 1994; Webster-Stratton, 1994).

A major advantage of PMT is the availability of treatment manuals and training materials for parents and therapists (e.g., Forehand & McMahon, 1981; Forgatch & Patterson, 1989; Patterson & Forgatch, 1987; Sanders & Dadds, 1993). Videotaped materials are available to present PMT to parents of young children with conduct problems and these materials can be self-administered in individual or group format and supplemented with discussions (see Webster-Stratton, 1996). Controlled studies have shown that video-based treatment leads to clinically significant changes at posttreatment and follow-up (e.g., Webster-Stratton, 1994; Webster-Stratton, Hollinsworth, & Kolpacoff, 1989). The potential for extension of PMT with readily available and empirically tested videotapes represents a unique feature in child treatment.

Several limitations of PMT can be identified as well. First, PMT makes several demands on parents, such as mastering educational materials that convey major principles underlying the program, systematically observing deviant child behavior and implementing specific procedures at home, attending weekly sessions, and responding to frequent telephone contacts made by the therapist. Interestingly, several procedures that constitute PMT (e.g., shaping behavior through reinforcement) provide guidelines for developing parent behavior in the sessions and at

home. Second, perhaps the greatest limitation or obstacle in using PMT is that there are few training opportunities for professionals to learn the approach. PMT requires mastery of social learning principles and multiple procedures that derive from them (e.g., Kazdin, 1994a). For example, administration of reinforcement by the parent in the home (to alter child behavior) and by the therapist in the session (to change parent behavior) requires more than passing familiarity with the principle and the parametric variations that dictate its effectiveness (e.g., need to administer reinforcement contingently, immediately, frequently and to use varied and high-quality reinforcers, along with prompting and shaping). The requisite skills in administering these features within the treatment sessions can be readily trained, but they are not trivial.

PMT has been applied primarily to parents of preadolescents. Treatment has been effective with delinquent adolescents (Bank, Marlowe, Reid, Patterson, & Weinrott, 1991) and younger adolescents with conduct problems who have not yet been referred for treatment (Dishion & Andrews, 1995). Although some evidence suggests that adolescents respond less well to PMT than do children (Dishion & Patterson, 1992), this effect seems to be accounted for by severity of symptoms (Ruma, Burke, & Thompson, 1996). Adolescents referred for treatment tend to be more severely and chronically impaired than preadolescents; once severity is controlled, age does not influence outcome. Yet, in light of limited applications with adolescents, the strength of conclusions about the efficacy of PMT applies mainly to preadolescent youths. On balance, PMT is one of the most promising treatment modalities, no other intervention for conduct problems having been investigated as thoroughly.

Multisystemic therapy for antisocial behavior among adolescents. Multisystemic therapy (MST) is a family-systems-based approach for the treatment of antisocial behavior among adolescents (Henggeler & Borduin, 1990). Family approaches maintain that children's clinical problems emerge within the context of the family. MST expands on that view by considering the family as one, albeit a very important, system. The adolescent is embedded in multiple systems, including the family (immediate and extended family members), peers, school, and neighborhood. For example, within the context of the family, a tacit alliance between one parent and child may contribute to disagreement and conflict over discipline. Treatment may be required to address the alliance and sources of conflict in an effort to alter child behavior. Also, youth functioning at school may involve limited and poor peer relations; treatment may address these areas as well. Finally, the systems approach focuses on the individual's own behavior insofar as it affects others. Individual treatment of the child or parents may be included. The conceptual view focusing on multiple systems and their impact on the individual serves as a basis for selecting multiple and quite different treatment procedures. Thus, MST can be viewed as a package of interventions used on an "as-needed" basis and directed toward individual, family, and system issues.

Several therapy techniques (e.g., joining, reframing, enactment, paradox, and assigning specific tasks) are used to identify problems, increase communication, build cohesion, and alter how family members interact. The goals of treatment are to help the parents develop the adolescent's behaviors, to overcome marital difficulties that impede the parents' ability to function as parents, to eliminate negative interactions between parent and adolescent, and to develop or build cohesion and emotional warmth among family members. MST draws on many other techniques as needed to address problems at the individual, family, and extrafamily levels. As prominent examples, PSST, PMT, and marital therapy are used to alter the response repertoire of the adolescent, parent–child interactions at home, and marital communication, respectively. In some cases, treatment consists of helping the parents address a significant domain through practical advice and guidance (e.g., involving the adolescent in prosocial peer activities at school and restricting specific activities with a deviant peer group). Although MST includes distinct techniques of other approaches, it is not a mere amalgamation of them. The focus of treatment is on interrelated systems and how they affect each other. Domains may be addressed in treatment (e.g., parent unemployment) because they raise issues for one or more systems (e.g., parent stress or alcohol consumption) and affect how the child is functioning (e.g., marital conflict or child discipline practices).

Several outcome studies have evaluated MST, primarily with delinquent youths with arrest and incarceration histories that include violent crime (e.g., manslaughter or aggravated assault with intent to kill). Results have shown MST to be superior to other procedures, including "usual services" provided to youths (e.g., probation and court-ordered activities that are monitored, such as school attendance), individual counseling, and community-based eclectic treatment (e.g., Borduin et al., 1995; Henggeler, Melton, & Smith, 1992; Henggeler et al., 1986), in reducing delinquency and emotional and behavioral problems and in improving family functioning. Follow-up studies up to 2, 4, and 5 years later with separate samples have shown that MST youths have lower arrest rates than youths who receive other services (see Henggeler, 1994).

Research has also shown that treatment affects critical processes proposed to contribute to deviant behavior (Mann, Borduin, Henggeler, & Blaske, 1990). Specifically, parents and teenage youths show a reduction in coalitions (e.g., less verbal activity, conflict, and hostility) and increases in support, and the parents show increases in verbal communication and decreases in conflict. Moreover, decreases in adolescent symptoms are positively correlated with increases in supportiveness and decreases in conflict between the mother and father. This work provides an important link between theoretical underpinnings of treatment and outcome effects.

The evidence in behalf of MST has several strengths. The focus on youths who are severely impaired (delinquent adolescents with a history of arrest) provides a strong test of treatment. Treatment effects have been replicated across youths with different types of problems (e.g., sexual offenses and drug use) and with parents who engage in physical abuse or neglect (e.g., Borduin, Henggeler, Blaske, & Stein, 1990; Brunk, Henggeler, & Whelan, 1987). Follow-up data have been provided that are much more extensive (up to 5 years later) than what is available for most treatments. Also, the outcome measures have included socially important indexes of effectiveness (e.g., arrest records and reinstitutionalization). Another strength is the conceptual-

ization of conduct problems at multiple levels, namely, as dysfunction in relation to the individual, family, and extrafamilial systems and the transactions among these systems. In fact, youths with conduct problems experience dysfunction at multiple levels, including individual repertoires, family interactions, and extrafamilial systems (e.g., peers, schools, and employment among later adolescents). MST begins with the view that many different domains are likely to be relevant; they need to be evaluated and then addressed as needed in treatment.

Several questions or challenges of the approach are noteworthy. First, precisely what techniques are or are not included in the approach need to be made explicit. Second, the decision-making process regarding what treatments to use in a given case is not clear. The guidelines available for the therapist are somewhat general (e.g., focus on developing positive sequences of behaviors between systems, such as parent and adolescent; see Henggeler, 1994). Providing interventions as needed is very difficult without a consistent way to assess what is needed, given inherent limits of decision making and perception, even among trained professionals. Third, the administration of MST is demanding in light of the need to provide several different interventions in a high-quality fashion. Individual treatments (e.g., PSST and PMT) alone are difficult to provide; multiple combinations invite problems related to providing treatments of high quality, strength, and integrity.

In relation to identifying empirically validated treatments, MST is unique insofar as providing multiple replications across problems, therapists, and settings (Henggeler et al., 1995). This shows that the treatment and methods of decision making can be extended and that treatment effects are reliable. The replications have been conducted by the same team of researchers. Replications by others not involved with the original development of the program represent the next logical step. On balance, MST is quite promising given the quality of evidence and consistency of the outcomes.

Illustrations of Treatments for Other Problems and Other Purposes

We turn now to treatments for child conditions not neatly classifiable into the internalizing or externalizing categories. This section includes sample treatments for somatic concerns and for autism, as well as an intervention to prepare children for pediatric medical and dental procedures.

Family-based treatment for child obesity. Obese children are at risk for significant physical and emotional problems (e.g., cardiovascular difficulties and depression), and the risks increase greatly if obesity persists into adulthood. One model of child obesity that stresses learning processes and parental influence has stimulated development of a behaviorally oriented treatment emphasizing parent involvement. This "traffic light" program involves categorizing foods into three groups based on caloric density: red (e.g., fried chicken), yellow (e.g., bagels), and green (e.g., asparagus). The program prescribes daily intake levels of the red, yellow, and green groups, and parents support the regimen by (a) modeling appropriate eating, (b) arranging a supportive environment (e.g., removing "red" foods from the home), and (c) rewarding their children. Children also learn social skills to cope with situations that threaten weight control, such as peer pressure to eat french fries. A series of studies has shown program benefits in the form of child weight loss (averaging 17% across studies), parent weight loss, and even blood pressure and cholesterol level changes (e.g., Epstein, 1985; Epstein, McCurley, Wing, & Valoski, 1990). Replication of this program by other investigative teams would help move the treatment toward the efficacious category in the Chambless–Hollon (1998) system.

This program of research is of special illustrative interest for several reasons. For one, it addresses a significant health problem via the systematic application of psychological principles and the active involvement of family members. For another, the researchers maintain contact with the study participants over long periods of time and present unusually long-term follow-up data (up to 5 years). The target problem in the studies is clearly defined (i.e., a generally accepted definition of overweight is weight more than 20% above average for age, gender, and height) and thus permits a reasonable consensus standard for clinical significance of treatment effects. The evidence shows clinically significant effects. For example, Epstein, Wing, Koeske, & Valoski (1987) reported that, at 5-year follow-up, 33% of children in the standard (parent and child) treatment group fell below the overweight cutoff, as opposed to 4.5% of no-treatment control group children. As for the study participants, although they are recruited (e.g., from advertisements and physicians' offices), all meet the standard definition of overweight in addition to satisfying standard criteria for excess body fat. Thus, they are "clinically" overweight, but many might not have sought or received treatment independently of the research program. Given the focus of this intervention program, the emphasis on weight change as the primary outcome index is understandable, and the authors' inclusion of other health-related measures (e.g., blood pressure and lipid levels) is commendable. In addition, there could be real value in assessing whether social (e.g., improved peer interaction and acceptance) or mental health (e.g., reduced depressive symptoms) benefits accompany program-related improvements in weight management.

Intensive, home-based behavior modification for autism. Certainly, the most debilitating condition we address in this review is autism. The home-based behavior modification program developed by Lovaas (1987) and colleagues has generated both great hope and intense debate. Mixed findings from early work with autistic youngsters (e.g., Lovaas, Koegel, Simmons, & Long, 1973) suggested the potential value of starting treatment at an early age, heavily involving parents, and maximizing time spent in treatment. Working from these early inferences and from the view that the extreme symptoms of autism are, in part, skill deficits that can be addressed via operant procedures, Lovaas and his associates designed a manualized program intended for use in children's everyday environments (home, school, and community). Separate treatment procedures address an array of behavioral deficits and problems. For example, self-stimulation and aggressive behavior are treated with a combination of ignoring, time-out, teaching of alternative behaviors, and (as a last resort) aversive consequences (e.g., a loud "No!"). The program is designed to be taught to parents,

who work with therapists as part of the treatment team, and children typically receive 40 hr per week of intervention. In Lovaas's (1987) investigation, treated children showed much higher IQ scores and much higher rates of regular class placement in school than did control group children, effects that were maintained up to a mean of 5 (range: 0–12) years after treatment (McEachin, Smith, & Lovaas, 1993).

In an intriguing complement to traditional outcome designs, Sheinkopf and Siegel (in press) recently identified 11 youngsters who had been treated by behaviorally oriented practitioners in the San Francisco area explicitly using the Lovaas treatment program. These 11 young people were closely matched, case for case, to diagnosed children from the community who had received conventional school-based and one-on-one interventions not related to Lovaas's program. At posttreatment, the behaviorally treated youngsters showed higher IQ and mental age (MA) scores and lower *DSM III–R* (American Psychiatric Association, 1987) symptom severity scores than at pretreatment.

The research on this treatment approach has some intriguing features, a few of which are noted here. First, the emphasis by Lovaas and colleagues on such a real-world outcome measure as placement and survival in regular school classes, although it generated controversy (see Lovaas, Smith, & McEachin, 1989; Schopler, Short, & Mesibov, 1989), represents what we believe to be a commendable movement beyond the singular focus on symptom change that characterizes many outcome studies (although symptom change measures are quite important as well). Second, the Sheinkopf–Siegel (in press) study illustrates a fascinating leap into outcome research that involves real clinical practice, with the Lovaas-guided treatment done by practicing clinicians and comparisons made with alternative, representative, conventional treatments in the community. In current discussions of treatment trials, *efficacy* and *effectiveness* are used to note points on a continuum that address well-controlled laboratory conditions and clinical-practice conditions, respectively (e.g., Hoagwood & Hibbs, 1995). The Lovaas and Sheinkopf–Siegel studies nicely illustrate different parts of this continuum.

The Sheinkopf–Siegel study illustrates that valuable research can be done outside the confines of a laboratory. It also illustrates the fact that constraints of real life may limit how experimentally pristine one may be in research with severe conditions possibly requiring intensive treatment. To illustrate, the Sheinkopf–Siegel (in press) study was not prospective, because it involved identification of patients for whom treatment had already been completed. Moreover, neither these researchers nor Lovaas (1987) could arrange for true random assignment of children to conditions; both limitations were understandable under the circumstances, and both were addressed by the investigators. These circumstances provide a reminder that the real issue in outcome research is not so much whether all the shibboleths of experimental method are employed as whether appropriate steps are taken to protect the validity of the study and to preserve the interpretability of its findings. In relation to establishing efficacious treatments according to the Chambless–Hollon (1998) criteria, clearly further work is needed on this intervention, including controlled outcome studies replicated across investigative teams. At the same time, we note the treatment here as an important advance because controlled trials with autism that demonstrate short- and long-term outcomes on measures of functioning (e.g., progress in school) are rare and difficult to mount.

Video modeling preparation for pediatric medical and dental procedures. A notable benefit of interaction among the health-related disciplines is the development of psychological procedures to prepare children for stressful medical and dental procedures (see Jay, Elliott, Katz, & Siegel, 1987; Melamed, Dearborn, & Hermecz, 1983; Melamed, Yurcheson, Fleece, Hutcherson, & Hawes, 1978; Peterson, 1989). Of particular interest in some of this work has been the use of coping models, children who are shown to be anxious initially but who overcome the anxiety (as opposed to mastery models, who never display anxiety; see Meichenbaum, 1971). For example, one 16-min film, *Ethan Has an Operation* (Melamed & Siegel, 1975), shows 15 scenes illustrating a 7-year-old's experience in a hernia operation, including hospital admission, blood test, exposure to hospital equipment, operation procedures, movement to the recovery room, and discharge. Ethan narrates various scenes, exhibiting some anxiety and apprehension but overcoming his initial fears and completing each procedure in a nonanxious manner. Other approaches (e.g., narrated slide show presentations) have also been used to convey information about upcoming procedures and to promote modeling of anxiety control and appropriate behavior. Video and slide modeling methods have been effective in preparing children for stressors ranging from routine dental procedures to tonsillectomies and surgery for hernias. Treatment benefits have been shown across an array of outcome measures, including posthospital child behavior problems and preoperative and postoperative anxiety, as measured by self-report questionnaires, behavioral observation, and the palmar sweat index (see, e.g., Melamed & Siegel, 1975). Clear replication of effects by different researchers using the same procedures would help establish the program as efficacious in the Chambless–Hollon (1998) system.

Two features of this pediatric work warrant close attention here. First, the program illustrates the need to develop interventions tailored to the character of the settings in which they will be used. The brevity and efficiency of these modeling approaches are well suited to the time constraints of medical and dental settings, and packaging the treatments in video and slide formats maximizes the likelihood that they can be replicated faithfully by helping professionals in other hospitals and dental offices far from the laboratory where the intervention was developed. Another worthwhile feature of this line of work is its emphasis on testing varied methods of treatment delivery and probing for moderators of treatment outcome. To illustrate, one study (Melamed et al., 1983) indicated that preparatory information about surgery helped reduce anxiety in children 8 years of age and older but led to increased medical concerns in children less than 8 years of age. In fact, younger children who had had at least one previous surgery experience seemed to be helped most by viewing a distracting film unrelated to surgery. Such findings provide a reminder that overall mean benefits associated with diverse groups may mask critically important subgroup differences in response.

Issues and Limitations of Current Treatments

We have illustrated outcome studies that derive from randomized controlled clinical trials. In most of our illustrations, treatment effects have been replicated, sometimes by independent investigators (e.g., CBT for child anxiety and PMT) or by the same investigators on several occasions (e.g., CST and MST). It is worth noting that we have been able to illustrate only some of the promising lines of evidence. Compendiums and reviews of child and adolescent therapy (e.g., Hibbs & Jensen, 1996; Kratochwill & Morris, in press; Mash & Barkley, in press) examine additional treatments that are promising. Beyond this, we note that there are empirically oriented clinicians who regularly apply tested methods to individual clients in their practice and report outcome data on a case-by-case basis (e.g., Tarnowski, Rosen, McGrath, & Drabman, 1987; Wurtele, King, & Drabman, 1984) but whose work is not reflected in reviews and meta-analyses. As the field is moving toward empirically supported treatments, there are a number of issues we wish to raise that pertain to even the most promising treatments (see also Durlak et al., 1995; Kazdin, 1997a; Peterson & Bell-Dolan, 1995; Weisz, 1997).

First, the magnitude of therapeutic change is an issue in need of much greater attention. Relatively few studies have invoked one of the many measures of clinical significance (see Jacobson, 1988) that are available.[6] Empirically supported treatments can be delineated by showing superior effects to no treatment or to other treatments. Yet, without information about the clinical significance of change, the real importance of this relative superiority may be difficult to evaluate. Moreover, it is important to include measures that assess the impact of change—even "clinically significant" change—on the child's everyday functioning in "real-world" contexts.

Second, maintenance of change is in need of attention as well. Many of the problems referred clinically, including those encompassed by our illustrations of promising treatments (e.g., depression and conduct disorder), can be lifelong. Outcome evaluation at the end of treatment is informative, and evidence that changes are maintained with a brief follow-up period is quite promising. Much longer follow-up evaluations are needed than those currently available, and there is a need for increased attention to the direction of change in treatment and control groups over the follow-up periods to clarify interpretation. Convergence of treatment and control groups across follow-up may have a different meaning, for example, if it reflects improvement by the control group up to the level of a stable treatment group mean or if it reflects deterioration in the treatment group. Of course, as noted earlier, conclusions about the efficacy of treatment and the relative efficacy of different treatments can vary greatly depending on when the assessments are conducted (e.g., Kolvin et al., 1981; Meyers, Graves, Whelan, & Barclay, 1996; Newman, Kenardy, Herman, & Taylor, 1997). Thus, even if two techniques are equally effective immediately after treatment, the course of change during follow-up may differ considerably. It may be unrealistic to demand long-term follow-up from all treatment trials. Instead, data can be collected on two or a few occasions after treatment (e.g., spanning months) to identify the function or course of change once treatment has terminated. The trajectory provided by these data points does not necessarily convey the long-term impact but provides excellent information about durability of treatment.

Third, further work is needed in identifying those individuals, circumstances, and other factors on which effective treatment depends. The literature continues to be dominated by a search for main effects of treatment (Durlak et al., 1995) without consideration of the many moderators (Kiesler, 1971) on which treatment effects are likely to depend. In our examples, we noted promising directions of research that examined moderators of treatment (e.g., Lewinsohn et al., 1996). Explicit efforts to identify what treatments work for whom show clearly how severe the deficits are in therapy research in this regard (see Roth & Fonagy, 1996).

Fourth, many youths referred clinically have comorbid disorders, as we noted earlier. Outcome effects and long-term prognosis are affected by the presence of other disorders and also vary depending on precisely what those disorders are (e.g., Harrington et al., 1991; Kazdin & Crowley, 1997). Comorbidity is a potential moderator of treatments for which evidence has begun to emerge and will need to be considered further in clinical trials of treatment.

Fifth, outcome studies frequently illustrate that a treatment program has had beneficial effects but rarely identify the "effective ingredients" associated with the effects identified. For both practical and theoretical reasons, much more needs to be known about the mediators of change. At a practical level, a knowledge of which processes underlie treatment effects and which do not can facilitate efforts to keep treatments streamlined and cost-effective. At a theoretical level, tests of potential mediators can help in evaluating the validity of treatment models. Findings such as those of Durlak et al. (1991) suggesting that behavior change in studies of CBT for children may often be unrelated to cognitive changes indicate that there may be a good deal yet to be learned about mediators of change.

Sixth, in the search for empirically supported treatments, it may be worthwhile to delineate those treatments that may not work or may not work very well. There is evidence, not well integrated or reviewed, in which some forms of therapy have been shown to produce no change or deleterious effects (see Feldman, Caplinger, & Wodarski, 1983; Lundman, 1984; O'Donnell, 1992; Weisz, Walter, Weiss, Fernandez, & Mikow, 1990; Weisz & Weiss, 1989). The absence of differences between two treatments or between treatment and control condi-

[6] Although we advocate use of measures of clinical significance, we hasten to note that such measures must be interpreted cautiously (see Kazdin, 1998). Clinically significant changes are defined by researchers and hence do not automatically mean that the change makes a difference in the everyday life of the child or adolescent. There are few data available to show that clinically significant change, as operationally defined by available measures, translates to or is associated with veridical changes in the lives of clients. For example, return of behavior to normative levels on a rating scale is certainly noteworthy, but it is not necessarily associated with normative functioning or functioning that is noticed or makes a differences to others. In only a few instances have persons with whom the clients interact or the clients themselves been asked to report whether the gains in treatment made a genuine difference in their everyday functioning.

tions obviously raises problems because interpretation of support for the null hypothesis is hazardous. Yet, occasionally randomized controlled trials show that an intervention produces effects that lead treated patients to be worse than control patients. Informing clinical practice will require not only drawing on promising (empirically supported) treatments but also identifying other treatments whose use may bear some risk.

Finally, although we have selected treatment examples with an eye toward feasibility in clinical practice, we remain concerned that many of the treatments supported in the empirical literature may need to evolve considerably before they can fit smoothly into practice settings. The ways in which many of the empirically supported treatments for children have been tested thus far involve clientele, settings, therapists, or treatment conditions that differ in important ways from modal clinical practice (see Kazdin, Bass, et al., 1990; Weisz & Weiss, 1993). For example, those treatment programs that have been tested thus far only with analog cases may need modification to work well with more seriously disturbed youth; a recent analysis of the clinical trials literature (Weisz, Donenberg, et al., 1995) indicated that the mean ES was markedly lower for studies involving clinical cases than for studies involving recruited youth who might not otherwise have been treated. Moreover, the exclusionary criteria frequently applied in clinical trials may not be acceptable in clinical cases, and this may require changes in manualized procedures to address the problems in treatment that have previously been avoided via exclusion from treatment. Although numerous adjustments may be needed to optimize the fit with clinical practice conditions, empirically supported treatments, even in their current state, may be preferable to practice procedures that lack supporting evidence. Even under the challenging circumstances faced by clinics and practitioners, the best source of information to guide treatment selection is arguably the empirical literature.

Conclusions

There have been remarkable advances in child and adolescent therapy research. These advances are punctuated by surveys showing that the methodology of research along many of the dimensions we have identified is, in fact, improving (Durlak et al., 1995), despite the remarkable difficulties of conducting treatment outcome studies with children and adolescents (Peterson & Bell-Dolan, 1995). The research base is already extensive. Although many treatments have not been investigated, a number have been studied and shown in meta-analyses to be effective in several domains of application.

Currently, there are efforts to identify empirically supported treatments, that is, interventions meeting several criteria related to number and type of controlled trials, scope and type of outcome evaluation (e.g., clinical significance of effects), replication across sites and investigative teams, and others. With such considerations in mind, we have highlighted promising treatments for anxiety; depression; oppositional, aggressive, and antisocial behavior; and a select set of other problems and objectives (treatment of obesity and autism and preparation for medical and dental procedures). In each case, we have identified treatments that are fairly well developed and that have achieved marked and enduring changes, at least up to the follow-up periods noted.

There is likely to be continued discussion and development of the criteria for identifying validated treatments. The complexity of establishing the criteria and applying them stems from the many different characteristics that vary across studies and the fact that some of the characteristics are a matter of degree. These issues need not detract from key points and from the underlying impetus leading to the delineation of validated treatments. There is a need to identify and to develop validated treatments and to foster their application in clinical settings. The fact is that the vast majority of the well over 200 treatments in use with children and adolescents have not been investigated (Kazdin, 1988). Thus, as a general principle, there would probably be widespread agreement that applying treatments with some evidence in their behalf is to be preferred, even if all of the criteria are not met for a fairly well-established (e.g., possibly efficacious) or very well-established (e.g., efficacious) treatment. Although it may be worth drawing distinctions between possibly efficacious and efficacious treatments, certainly the sharper contrast is between those treatments that have no evidence on their behalf and those that do. Our review was intended to highlight studies with exemplary evidence on their behalf, but the sharper distinction is important to bear in mind as well in making decisions for what treatments to apply to whom in clinical work.

Many directions have been outlined to improve treatment research further, including examining new models of treatment evaluation, expanding assessment to address a broader set of domains, and asking more analytic questions about how therapy works, for whom it works, and what can be done to augment the change process (Kazdin, 1988, 1997a; Weisz, in press-a, in press-b). The need to improve and expand the ways in which child and adolescent therapy are developed and evaluated ought not gainsay the achievements made to date. There are promising treatments currently available. This article has illustrated specific interventions that have advanced considerably and characteristics of research that we believe should be emulated in future studies.

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