CHILD DEVELOPMENT PERSPECTIVES

Building Evidence-Based Interventions for the Youth, Providers, and Contexts of Real-World Mental-Health Care

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ABSTRACT—***Efforts to identify empirically supported treatments (ESTs) for youth's mental health problems are valuable, but the descriptor* empirically supported *does not guarantee that a treatment will work well in everyday clinical use. The voltage drop often seen when ESTs move from efficacy studies to clinical practice contexts may reflect limited exposure to real-world conditions during development and testing. One result may be interventions that are focused more narrowly and are more linear than the clinical practice they are designed to enhance. In this article, we suggest three strategies for building and refining ESTs that are robust for real-world application: (a) designing interventions to fit the contexts of youth treatment, (b) structuring interventions that can be tailored to fit individual youth characteristics, and (c) building programs for nontraditional intervention contexts. In addition, we describe how to develop interventions that are ready for practical implementation: the deployment-focused model.***

KEYWORDS—*youth psychotherapy; treatment research; dissemination; children and adolescents*

Efforts to help children and adolescents are as old as parenthood. However, professional help in the form of psychotherapy for youth is only about a century old, and credible research on the effects of therapy is even more recent (1). In the 1950s, discouraging assessments of the effectiveness of therapy with youth and adults (2–4) prompted researchers to develop new treatments, document their contents more carefully, test them more rigorously, and move incrementally toward treatments that could be shown to be effective. As part of the scientific advance, task forces and review groups were created to review the evidence and report on which treatments met criteria for various levels of empirical support. For example, a Society of Clinical Psychology task force identified interventions with sufficient evidence to be considered "well-established," "probably efficacious," "possibly efficacious," or "experimental" (5, p. 689). The U.S. Substance Abuse and Mental Health Services Administration sponsors a classification program, together with a database of empirically supported treatments (ESTs; the National Registry of Evidence-Based Programs and Practices), which lists more than 200 ESTs for youth. Despite the large number of interventions identified by these groups, most youth who are referred for treatment receive interventions that have never been tested.

In this article, we describe the gap between clinical practice and the ESTs that have been designed to improve this practice. We discuss the nature of this gap, some factors that may have contributed to its existence, and strategies for building more robust and practice-ready interventions for youth's mental health problems.

ESTS VERSUS USUAL CARE: META-ANALYTIC FINDINGS

The research-to-practice gap is not a new phenomenon in health sciences generally or youth psychotherapy in particular. Addressing the gap is a primary objective of the dissemination and implementation era in clinical psychological science (6). Of course, implementing ESTs will make a difference only if the ESTs are more effective than the treatments the youth would otherwise receive in typical clinical care. Two meta-analyses have investigated whether this precondition exists, by pooling

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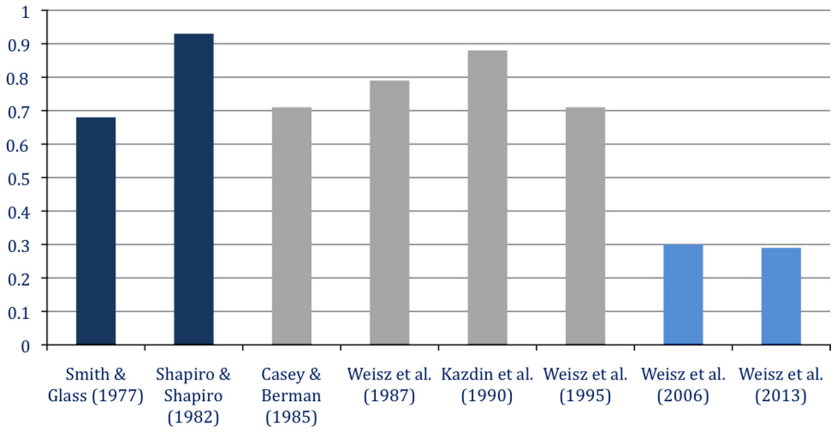

Figure 1. **Mean effect sizes in two widely cited broad-based meta-analyses of adult psychotherapy trials (two dark bars on left), broad-based meta-analyses of youth psychotherapy trials (four bars in middle), and two meta-analyses of youth psychotherapy trials comparing empirically supported treatments to usual clinical care (two bars on right).**
Source: **Weisz et al. (7, 8). Reprinted with permission, John R. Weisz.**

randomized trials that compared outcomes of ESTs versus usual clinical care (7, 8). The results have been disappointing: The mean effect of ESTs has been much more modest when the ESTs were compared with usual care than when they were compared with other control groups consisting mainly of wait list, no-treatment, or experimenter-constructed conditions (see Figure 1). Evidently, treatments that look strong under the conditions typically created for outcome research may not fare as well when tested in the real-world settings where they were designed to be used, with the clinically referred youth they were designed to help, and against the usual clinical care they were designed to improve upon.

WHY SOME ESTS FACE DIFFICULTIES IN IMPLEMENTATION

What can account for this apparent voltage drop as ESTs are moved to clinical conditions and pitted against usual care? One problem may be that most of the studies used to establish efficacy of treatment have been conducted outside the context of clinical practice, with therapists who were not practitioners, and with youth who were not referred for treatment through regular community pathways (6, 8, 9). In fact, the studies were often structured to avoid or control complicating factors often present in practice that might introduce experimental "noise" and make it more difficult to detect treatment effects. The emphasis on maximizing internal validity is understandable and admirable from an experimental design perspective. However, this emphasis may have deprived researchers of opportunities to develop interventions that fit well, and work well, within the less controlled context of clinical care—a context we have labeled the mental health ecosystem (10).

This ecosystem includes diverse characteristics of youth, families, therapists, treatment settings, and the broader context, all of which may influence the delivery and impact of therapy (see Table 1). These factors—the very noise researchers have often attempted to quiet or control when evaluating psychotherapies for youth—are omnipresent in clinical practice. In contrast to the ESTs that have often been developed and tested under carefully controlled conditions, usual clinical care, by its very nature, has generally been developed and refined by practicing clinicians treating a broad array of clinically referred youth in clinical care settings, so usual care interventions have often had to confront and cope with the very ecosystem factors that research-derived ESTs may have been more likely to avoid. So perhaps we should not be surprised to find that ESTs do not dramatically outperform usual care when the two are compared directly in more clinically representative contexts.

Another aspect of the care and precision of EST research has been its emphasis on developing separate treatments for each disorder or problem (or homogeneous clusters—e.g., multiple depressive disorders), often with treatment designed to follow a standard, linear sequence of session contents. This aspect, too, may have been a bit of a double-edged sword. On the one hand, precision and fidelity might be enhanced by focusing a concentrated dose of treatment on one specific condition, and funding priorities over the years have favored this approach. On the other hand, the resulting treatment protocols may not be so robust in relation to referred youth who present with many disorders and problems, whose priority problems may shift from week to week, and whose course of treatment may zig and zag nonlinearly. Learning one EST for one disorder or cluster of symptoms may not give the practitioner the variety of clinical tools and the flexibility needed to treat the diverse collection of youth who appear for treatment in everyday clinical care settings.

NEW STRATEGIES FOR COPING

Many ESTs are more narrowly focused, and more linear in design, than the clinical practice they are designed to enhance.

Table 1
Components and Characteristics of the Youth Mental Health Ecosystem that Can Impact the Use of Evidence-Based Psychotherapies

Participants	Characteristics
Clinically referred youth	Comorbidity and co-occurring problems, high rates of externalizing problems, frequent crises and shifts in most pressing needs during treatment
Families and caregivers	Relatively low-income, high stress, caregiver and sibling psychopathology, complex family systems and single parenthood, ethno-cultural diversity, seeking help for youth problems of daily functioning and not diagnoses
Practitioners	Differing theoretical orientations and educational backgrounds with limited exposure to Evidence Based Practices (EBPs); large caseloads; diverse caseload with broad array of problems; minimal to no time for treatment preparation, supervision, and additional training; fee for service or salaried with high productivity requirements
Provider organizations	Extreme financial pressures resulting in staff layoffs, shrinkage in the percent of salaried employees and increases in the percent of fee-for-service employees, escalating productivity requirements, significant staff turnover, minimal incentives and potential financial risk for investment in EBP trainings
Network of Youth Service Systems (i.e., primary care, juvenile justice, schools, child welfare)	Rules, regulations, and procedures of the systems make it difficult to work together; systems may work against each other based on tradition and policies; difficult to implement EBPs across various systems
Policy context	Reimbursement is based largely on categories of care provided and amount of time provided, not on the nature of the intervention or whether it is supported by scientific evidence; no real policy or fiscal incentives to using EBPs; changes in political leadership affect mental health care system

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In general, ESTs benefit the young people who receive them, but the level of benefit is modest, particularly when the ESTs are compared to usual care in clinical care settings. And most young people who need mental health care are unlikely to receive any tested intervention. Here, we highlight three strategies for addressing these limits. These include designing and tailoring youth interventions to more closely fit clinical practice, youth's characteristics, and nonclinical contexts.

Strategy 1: Tailoring Youth Therapies to Fit Clinical Practice

Many effective strategies can address the mismatch between many ESTs and the nature of treatment in clinical practice. Child System and Treatment Enhancement Projects (Child STEPs) is one such approach, developed in collaboration with the Research Network on Youth Mental Health (11). Child STEPs was designed to complement the single-disorder, linear focus of many ESTs. It includes a modular treatment protocol that is transdiagnostic—that is, designed to be used with many different psychiatric disorders and psychological problems (i.e., Modular Approach to Therapy for Children [MATCH] with Anxiety, Depression, Trauma, or Conduct Problems; 12), and a clinical feedback system that uses weekly assessments to monitor youth's problems and response to treatment with frequent feedback to therapists to guide their decisions throughout treatment.

The MATCH protocol covers a range of problems by integrating components of many single-disorder treatments within a modular framework. The clinical feedback system helps therapists cope with the nonlinear nature of youth treatment, alerting therapists of shifts in the youth's problem profile during treatment. MATCH includes 33 modules, describing treatment components that are frequently included in cognitive behavioral therapy (CBT) for depression, CBT for anxiety (including posttraumatic stress), and behavioral parent training for disruptive behavior. Flowcharts guide clinical decisions (e.g., which modules to use when, when and how to shift treatment focus from one problem area to another). By incorporating treatment components that address many domains of psychopathology in one manual and flowcharts to guide clinical decisions while staying true to the evidence base, MATCH is designed to address broad practitioner case loads, comorbidity of symptoms, and flux in treatment needs during care.

In a randomized effectiveness trial, Child STEPs was more effective than usual care and also more effective than standard single-disorder treatments (i.e., preexisting, linearly designed manuals for CBT for depression, CBT for anxiety, and behavioral parent training for conduct problems) on many outcome measures (13). MATCH continued to outperform usual care 2 years later (14), suggesting that a modular, transdiagnostic treatment protocol that incorporates core elements of existing ESTs may offer one way to adapt ESTs to more optimally fit real-world clinical practice.

Strategy 2: Tailoring Therapies to Fit Youth's Characteristics

Tailoring interventions to fit clinical practice can alleviate barriers to implementation that are related to practice settings and clinicians' caseloads, but challenges remain around the complex

clinical presentations of children seeking treatment in the public sector. In our meta-analysis, ESTs did not outperform usual care among clinically referred youth exclusively (d = 0.17) and youth who met criteria for a formal diagnosis (d = 0.09; 8). The challenge of tailoring ESTs to fit such youth and the fluidity required to treat them may have been addressed in part by developing more flexible and transdiagnostic treatment approaches, such as the Child STEPs model described previously. Despite initial research supporting this model with clinically referred youth (nearly all meeting criteria for a formal diagnosis), Child STEPs does not address the full array of individual characteristics and risk factors for which effective youth interventions are needed.

Thus, one objective might be to identify child characteristics that account for variations in children's responses to treatment interventions. As one example, poor emotion regulation has been identified as a transdiagnostic risk factor for developing emotional and behavioral disorders in childhood (15, 16) and more recently, interventions have been developed and adapted specifically to encompass deficits in managing emotions (17, 18). In one such study, researchers examined the impact of reporting emotions—for a week via Palm Pilots—on 7- to 12-year-old girls' symptoms of anxiety (19). Girls who had difficulty coping with their emotions prior to recording their feelings reported fewer anxiety symptoms at the end of the week than girls who were able to cope well with their emotions at the outset. And girls who had been most reluctant to express emotions prior to that week had fewer parent-reported anxiety symptoms at the end of the week than girls who had been less reluctant to express their emotions at the outset. In other words, deficits in coping with and expressing emotions moderated girls' reductions in symptoms of anxiety (see Figure 2). Thus, emotion-related deficits, such as deficits in coping with and expressing emotions, may constitute a vulnerability factor. Researchers might examine whether similar emotion-related deficits moderate youth's responses to interventions that focus on expressing emotion.

Other advances in our understanding childhood self-control more broadly (20)—coupled with increasingly rigorous methods and interdisciplinary collaborations—have contributed to a more nuanced and comprehensive understanding of genetic, neurological, and physiological factors in child psychopathology. These advances will likely propel the field forward to determine whether neurobiologically vulnerable youth can be identified and whether these children might respond differently to psychological interventions than youth with fewer of these vulnerability factors. Increased understanding of such factors is vital to efforts to tailor ESTs to maximize favorable youth outcomes.

Strategy 3: Building and Tailoring Therapies to Fit Nonclinical Contexts

Complementing efforts to adapt treatments to the context of real-world psychotherapy and youth characteristics are attempts to redefine the nature of clinical care contexts themselves to reach and fit more effectively those who need mental health services.

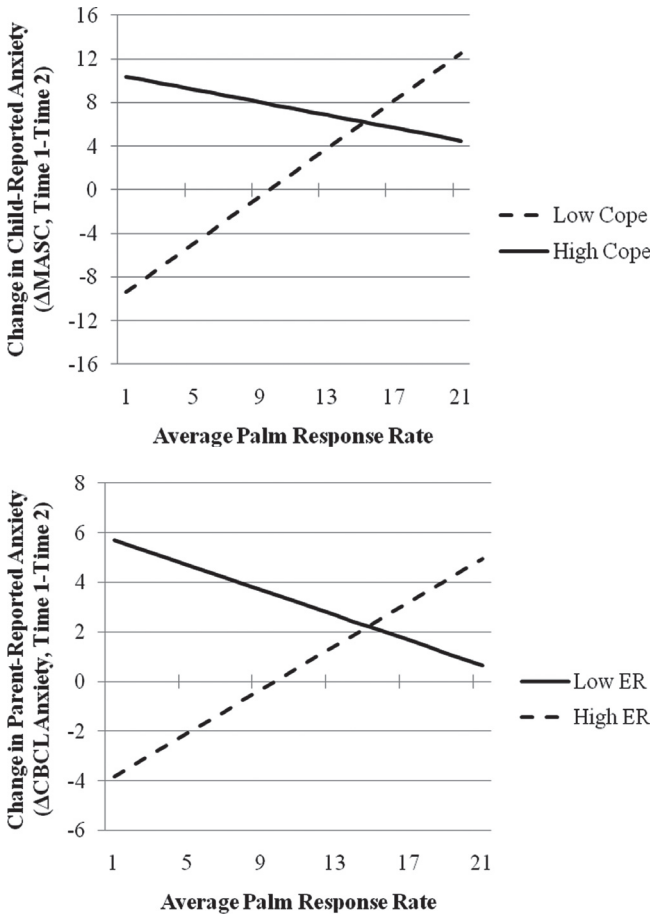

Figure 2. Girls who showed poor emotion coping (Low Cope) prior to a week of emotion reporting on Palm Pilots showed reduced self-reports of anxiety symptoms at the end of the week, unlike girls who had shown good emotion coping (High Cope) at the outset (upper graph); and girls who showed high levels of expressive reluctance (High ER) prior to the week of Palm Pilot reporting showed reduced parent-reports of anxiety symptoms at the end of the week, unlike girls who had shown low levels of expressive reluctance (Low ER) at the outset (lower graph). Note: Vertical axis shows difference scores, with higher scores reflecting greater reduction in anxiety symptoms during the Palm Pilot week.

Source: Thomassin et al. (19). *Springer and the original publisher, Journal of Contemporary Psychotherapy, 42, 2012, 207–213, Emotion Reporting Using Electronic Diaries Reduces Anxiety Symptoms in Girls With Emotion Dysregulation, Thomassin, Morelen, and Suveg, Figures 1 and 2, is given to the publication in which the material was originally published, with kind permission from Springer Science and Business Media.*

Some (21) have advocated for a broad portfolio of treatment delivery methods—beyond the traditional model of weekly, 50-min office visits—to reduce the burden of mental illness (22). Applied to youth psychotherapy, relevant strategies might include embedding treatment within settings with which youth are most familiar (e.g., summer camp, school) and within the technology that is a part of their lives (e.g., computers, the Internet). Next, we highlight two such treatment delivery methods, acknowledging that these are just two of many avenues for tailoring treatment context to fit children's and families' mental health needs.

Table 2
Child Anxiety Multi-Day Program: Session Outline

Day	Treatment group content	Separation	Activity
Monday 10 a.m.–3 p.m.	Psychoeducation Exposure Rewards Break-out parent group	1:15 p.m.: At store following bead selection	Jewelry making
Tuesday 10 a.m.–3 pm	Homework review Cognitive restructuring Break-out parent group	11:45 a.m.: Prior to lunch	Pottery painting
Wednesday 10 a.m.–3 p.m.	Homework review Somatic anxiety management Interoceptive exposure Problem solving	10 a.m.: Drop off	Bowling
Thursday 10 a.m.–3 p.m.	Homework review Diaphragmatic breathing Progressive muscle relaxation Parent group	10 a.m.: Drop off	Duck tour
Friday 6–9 p.m.	Homework review Skill application as needed	6 p.m.: Drop off	Movie night
Saturday 6 p.m.–overnight	Homework review Skill application as needed	6 p.m.: Drop off	Sleepover
Sunday 8–9 a.m.	Review of skills Relapse prevention	n/a	Awards ceremony

Camp-Based Treatment

Delivering treatment in a summer camp setting can be engaging for children and efficient for families, while normalizing mental health treatment and reaching youth who might not access more traditional forms of therapy. Studies point to the value of the intensive Summer Treatment Program for children with externalizing disorders (23–25), and more recent camp-based approaches that use different structures have also shown promise.

As one example, the Child Anxiety Multi-Day Program (CAMP) is a CBT program for school-aged girls with separation anxiety disorder (SAD) that takes the form of a 1-week, summer camp-like experience (26). CAMP begins as a day camp and ends with a therapeutic sleepover, relying on children's engagement in activities of increasing difficulty as the presence of caregivers is reduced gradually over the week (see Table 2). CAMP participants had fewer (and less severe) symptoms of SAD compared to children on a waiting list, as well as less functional impairment and fewer parent reports of anxiety symptoms. The number of clinical-level comorbid anxiety diagnoses also decreased over time, despite the fact that the intervention targeted only SAD (26). Camp-based approaches may offer novel, evidence-based, social setting interventions that are accessible alternatives to the traditional office-based treatment that so many families fail to use.

Technology

Eight- to 18-year-old youth spend almost 3 hr a day using computers and playing video games (27). Rather than trying to get youth to put down their iPhones, researchers have capitalized on this pastime by bringing treatment directly to young people via interactive, computer-based interventions. These treatments, such as Camp Cope-A-Lot (28) and the BRAVE-Online Program (29) for anxiety, and SPARX (30) for depression, have several potential benefits relative to more traditional models of therapy. Computer-based therapy is likely compatible with the youth's interests (31). For example, SPARX teaches CBT skills through an interactive video game. In this fantasy world, the user—in the form of an avatar—faces various quests or puzzles that require the application of different treatment skills. For instance, when introducing cognitive restructuring, the user encounters gloomy negative automatic thoughts (GNATS)—that fly toward the avatar while making negative statements. Once the user shoots down and correctly categorizes the negative thought, the GNATS turn into SPARX, or balls of glowing light (30). Computer-based treatments may help reduce the training clinicians need for evidence-based intervention (32), may broaden the array of settings where such interventions can be delivered, and may enhance therapists' adherence to treatment because of the standardized form of delivery (28). Additionally, technology may offer a unique avenue for reaching youth who are exhibiting subclinical levels of symptomatology who may not pursue treatment in traditional clinical care settings (19).

BUILDING PRACTICE-READY INTERVENTIONS: THE DEPLOYMENT-FOCUSED MODEL

The Child STEPs model, with its modular, transdiagnostic approach and therapist feedback system, may improve the reach

and flexibility of tested treatments for the clients and contexts of clinical care. That goal may also be served by other efforts to tailor interventions to characteristics of individual youth and efforts to design interventions for nonclinical contexts, as we have noted. Of course, such approaches can be developed in a variety of ways, some more effective and efficient than others, so thought should be given not only to the products but also to the process by which these approaches are developed and refined. Because our focus is on developing interventions to meet the challenges of implementation, we propose a *deployment-focused model* of developing and testing interventions (33, 34).

The need for this model is underscored by reviews, spanning more than four decades of research on youth (6, 35), which indicate that most studies have featured youth who were not clinically referred (but were instead recruited), locations that were not clinical care settings (but were created or adapted for purposes of the study), therapists who were not practitioners (but were graduate students, employees of the researcher, etc.), and comparison of the tested treatment to wait list or control groups that were often designed *not* to be therapeutic. We recognize the immense contribution to the field that has been made by treatments developed and tested within graduate training programs, and delivered by graduate students and employees of the researchers involved. Indeed, we have participated in this process and we have seen how it can foster generations of clinical scientists who produce additional promising treatments. However, we also believe there is value in developing and testing interventions under conditions more closely resembling those of real-world implementation (a process in which graduate students and others can participate). Our deployment-focused model proposes that robust interventions will be produced if the interventions are developed and tested with the individuals (e.g., clients, students) and providers (e.g., therapists, counselors), and in the intervention contexts (e.g., clinics) for which the interventions are intended—and if the interventions are tested against active usual practice in those contexts, to provide a fair test of whether the new intervention improves upon the status quo. This deployment-focused approach could be a path to magnifying the impact of research-derived interventions (33, 34).

CONCLUDING REMARKS

Research on the effectiveness of ESTs in clinical care contexts, when compared to usual care, indicates that the label *empirically supported* is no guarantee that a treatment will work well in clinical practice. Because ESTs face barriers in implementation in the mental health ecosystem, we consider strategies for generating ESTs that are both possible to implement and effective in practice. In this article, we outline three strategies for building and refining ESTs that can stand up to the factors in actual clinical-care settings, including designing interventions to fit the contexts of youth's treatment, structuring interventions tailored to individual youth characteristics, and building programs for the nonclinical contexts where many youth spend much of their time. Beyond these individual intervention strategies, we recommend a broad process for developing and testing interventions that are ready for practical implementation. This model may provide an efficient way for researchers to bridge the gap between clinical science and practice. The strategies we describe, and the deployment-focused model in particular, could harness and magnify the power of ESTs, boosting their voltage and enhancing their impact on the developmental trajectories of vulnerable youth.

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