Long-Term Outcomes for the Child STEPs Randomized Effectiveness Trial: A Comparison of Modular and Standard Treatment Designs With Usual Care

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Objective: This article reports outcomes from the Child STEPs randomized effectiveness trial conducted over a 2-year period to gauge the longer term impact of protocol design on the effectiveness of

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The Modular Approach to Treatment of Children With Anxiety, Depression, or Conduct Problems (MATCH) manual used in this study was precursor to a revised and expanded version for which Bruce F. Chorpita, Eric L. Daleiden, and John R. Weisz receive income. Multisystemic therapy (MST), referenced in the introduction of this article, is disseminated by MST Services, LLC, under a license from the Medical University of South Carolina. Sonja K. Schoenwald is a board member and a stockholder in MST Services.

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Given the documented significance of mental health problems for youths, there have been sustained efforts over the past 20 years to develop and test effective treatments for a variety of disorders and problems, and randomized clinical trials with positive findings now number in the hundreds (Chorpita, Daleiden, et al., 2011; Weisz, Jensen-Doss, & Hawley, 2006). Accordingly, policies at both state and federal levels have encouraged efforts to maximize the public health impact of these positive findings (e.g., Chambers, Ringelisen, & Hickman, 2005; Institute of Medicine, National Academies, 2009; Assistant Secretary for Planning and Evaluation, U.S. Department of Health and Human Services, 2007). Researchers have begun to test strategies to enhance the implementation and dissemination of treatments for some target populations with demonstrated effectiveness in practice settings (e.g., Glisson et al., 2010) as well as the effectiveness in such settings of treatments originally evaluated in efficacy trials (e.g., Southam-Gerow et al., 2010; Weisz et al., 2009).

An accumulation of evidence suggests that many evidence-based treatments (EBTs) outperform usual care comparisons (Weisz et al., 2006), including some for youths and families tested in highly representative service contexts (e.g., Chamberlain et al., 2008; Henggeler, Melton, & Smith, 1992). However, a number of EBTs have not been found to outperform usual care (Weisz & Gray, 2008), and comparisons against usual care or active treatment conditions represent only a small fraction of the treatment outcome literature. Moreover, recent rigorous randomized trials comparing some EBTs with usual care in real-world service settings have not demonstrated the expected support for the comparative effectiveness of EBTs (e.g., Southam-Gerow et al., 2010).

In light of such findings, we have recently argued that inadequate fit of some intervention technologies and service contexts may limit the effectiveness of some EBTs in such contexts and that a systematic approach to treatment implementation, grounded in evidence, could improve the fit and effectiveness of treatment in routine care (e.g., Chorpita & Daleiden, in press). For example, we have specifically recommended clinical protocol designs that emphasize the use of procedures commonly found in EBT protocols and incorporate a model for real-time adaptation that is guided by theory, performance feedback, and clinical reasoning (Chorpita & Daleiden, 2009; Weisz & Chorpita, 2012). Such designs allow for a “library” of procedures within a single coordinated system (cf. Malone & Crowston, 1994), which can be arranged for use across multiple disorders, can address comorbidity or treatment interference, and can adapt in response to poor outcomes. This work has therefore emphasized the testing of new designs or treatment architectures to coordinate existing clinical procedures with empirical support (Chorpita, Bernstein, & Daleiden, 2011).

Early evaluations of mental health service systems that use existing EBTs for some strategically targeted youths (e.g., multisystemic therapy for youths with conduct problems) but also add a coordinated, component-based approach for other youths in the system have found that such systems can improve youth outcomes dramatically over time (Daleiden, Chorpita, Donkervoet, Arensdorf, & Brogan, 2006). However, the notion that component-based protocol designs could outperform usual care or other active treatments in effectiveness contexts has only recently been tested in a well-controlled experiment. In a randomized effectiveness trial conducted by the Research Network on Youth Mental Health (Weisz et al., 2012), therapists serving youths ages 7–13 with anxiety, depression, or conduct problems were assigned to one of three conditions: (a) modular treatment, which employed a flexible, components-based design that was guided by clinical algorithms and weekly feedback on practice and progress history, (b) standard EBT treatment, which involved training in three manualized evidence-based treatments, and (c) usual care (UC). As predicted by the research team, therapists trained in the modular treatment condition demonstrated significantly more positive attitudes toward EBTs following training in the modular condition than in the standard EBT treatment condition (Borntrager, Chorpita, Higa-McMillan, & Weisz, 2009), suggesting that therapists respond more positively to designs that allow for guided adaptation relative to those that do not. More surprisingly, results from this trial showed a similar pattern for clinical outcomes over the course of treatment. That is, the modular condition showed significantly steeper trajectories of improvement relative to standard EBTs and to UC on weekly measures of internalizing and externalizing symptoms and on weekly severity ratings of family concerns identified at the beginning of treatment. Further, youths in the modular condition showed significantly fewer diagnoses at posttreatment than youths in the UC condition, with standard EBTs not significantly different from either of the other two conditions (Weisz et al., 2012).
Given that the two EBT treatment conditions contained essentially the same clinical procedures and differed primarily in their arrangement, these early findings suggest that protocol design may impact clinical outcomes. What remains to be seen is (a) whether these outcomes can be observed using more well-established and widely used measures, (b) whether the effects persist over the long term, and if so, (c) whether they are associated with other long-term outcomes such as improved life functioning and reduced utilization of mental health services over time. To address these questions, we conducted this study on the outcomes from the Child STEPs randomized effectiveness trial using comprehensive and well-established measures of symptoms and functioning over a 2-year period to gauge the longer term impact of protocol design on the effectiveness of EBT procedures.

Method

All study procedures were approved by the institutional review boards (IRBs) of the Judge Baker Children’s Center, Harvard Medical School, and the University of Hawaii at Manoa as well as by those IRBs of participating service agencies that requested independent reviews.

Participants

Sample demographics. As described in the report of the short-term outcomes of this effectiveness trial (Weisz et al., 2012), youths were ages 7–13 (N = 174; M = 10.59, SD = 1.76), 70% were boys (n = 121), and the sample was ethnoracially diverse: 45% White, 32% multiethnic, 9% African American, 6% Latino/Latina, 4% Asian American/Pacific Islander, and 2% other. Youths were included if their primary clinical concerns involved diagnoses of anxiety, depression, or disruptive conduct disorders (n = 161; Diagnostic and Statistical Manual of Mental Disorders, 4th ed.; American Psychiatric Association, 2000) determined using the Children’s Interview for Psychiatric Syndromes (Weller, Weller, Rooney, & Fristad, 1999a; 1999b) or if they showed clinical elevations in any of these three areas (n = 13; T scores 65 or higher on Child Behavior Checklist or Youth Self-Report; Achenbach & Rescorla, 2001). Youths were excluded if they had evidence of mental retardation, pervasive developmental disorder, psychotic symptoms, or bipolar disorder, or if their top-ranked clinical concern involved inattention or hyperactivity. Axis I diagnoses were reported for 94.8% of the sample, and 79.8% of the sample had more than one Axis I diagnosis. As shown in Table 1, the most common diagnoses were conduct-related disorders, attention-deficit/hyperactivity disorder, anxiety disorders, and mood disorders. A more detailed description of the diagnostic composition of the sample is reported in Weisz et al. (2012).

Therapists and service settings. Eighty-four therapists in 10 different outpatient community and school-based settings in Massachusetts and Hawaii provided treatment. The sample of therapists was 80% women and had an average of 7.6 years of clinical experience; 40% were social workers, 24% psychologists, and 36% other (e.g., licensed mental health counselor). Therapists saw an average of 2.07 cases serving as study participants (SD = 1.31). There were no significant differences across condition on any therapist demographic or professional experience characteristics or on the number of study cases seen.

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Primary (%)</th>
<th>Anywhere (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attention-deficit/hyperactivity disorder</td>
<td>8 (4.60)</td>
<td>101 (58.05)</td>
</tr>
<tr>
<td>Adjustment disorder</td>
<td>2 (1.15)</td>
<td>4 (2.30)</td>
</tr>
<tr>
<td>Anxiety disorder</td>
<td>51 (29.31)</td>
<td>99 (56.90)</td>
</tr>
<tr>
<td>Conduct-related disorder</td>
<td>74 (42.53)</td>
<td>115 (66.09)</td>
</tr>
<tr>
<td>Eating disorder</td>
<td>0 (0.00)</td>
<td>4 (2.30)</td>
</tr>
<tr>
<td>Elimination disorder</td>
<td>0 (0.00)</td>
<td>1 (0.57)</td>
</tr>
<tr>
<td>Mood disorder</td>
<td>29 (16.67)</td>
<td>76 (43.68)</td>
</tr>
<tr>
<td>Selective mutism</td>
<td>1 (0.57)</td>
<td>2 (1.15)</td>
</tr>
<tr>
<td>No Axis I</td>
<td>9 (5.17)</td>
<td>9 (5.17)</td>
</tr>
</tbody>
</table>

Note. A more detailed diagnostic description is available in Weisz et al. (2012).

Measures

Child Behavior Checklist for Ages 6–18 (CBCL; Achenbach & Rescorla, 2001). The CBCL is a widely used 113-item caregiver-report measure of youth emotional and behavioral symptoms. Items are rated as not true (0), somewhat or sometimes true (1), or very true or often true (2). We used the two broadband Internalizing and Externalizing Problem scales as well as the Total Problems scale as indicators of clinical impairment. Validity and reliability of these scales are well documented (Achenbach, Dumenci, & Rescorla, 2003; Achenbach & Rescorla, 2001).

Youth Self-Report for Ages 11–18 (YSR; Achenbach & Rescorla, 2001). The YSR is a youth self-report form that corresponds to the CBCL and was designed to assess emotional and behavior problems in youths ages 11–18. The validity and reliability of this instrument have been established in multiple populations (Achenbach & Rescorla, 2001), and recent work has shown that the broadband scales (Internalizing and Externalizing) and the Total Problems scale are reliable and valid in children as young as age 7 (Ebesutani, Bernstein, Martinez, Chorpita, & Weisz, 2011).

Brief Impairment Scale (BIS; Bird et al., 2005). The BIS is a 23-item caregiver-report measure of youth functional impairment across three domains: interpersonal relations, school, and self-care. The BIS has demonstrated favorable internal consistency, test–retest reliability, and convergent and concurrent validity in clinical and community samples (Bird et al., 2005).

Services Assessment for Children and Adolescents–Brief Parent Version (SACA; Hoagwood et al., 2000; Horwitz et al., 2001; Stiffman et al., 2000). The SACA–Parent Version is a semistructured interview of lifetime and past-year use of 30 different service settings grouped into three categories: inpatient, outpatient, and school-based services. The SACA has demonstrated favorable test–retest reliability (Horwitz et al., 2001), parent–child agreement (Stiffman et al., 2000), and concordance with service records (Hoagwood et al., 2000).

Measurement Schedule

Assessors blind to condition conducted research assessments at seven time points: baseline, 3 months, 6 months; 9 months, 12 months, 18 months, and 24 months following study enrollment. The CBCL and YSR were administered at every interval, whereas the BIS was administered only at baseline, 12-month, and 24-
month assessments. To assess additional services (not part of the three study conditions) received over the prior year, a brief 33-item version of the SACA was administered to caregivers at the 12-month and 24-month assessments.

**Experimental Design**

This investigation used a cluster randomization design (Campbell, Elbourne, Altman, & the CONSORT Group, 2004; Donner & Klar, 2000; Fayers, Jordhøy, & Kaasa, 2002) with therapists assigned to condition (standard, modular, UC) using blocked randomization (Fayers et al., 2002) stratified by therapist educational level (doctoral vs. master’s degree; see Weisz et al., 2012, for a full description of randomization procedures). All participants in the original trial contributed date to the current long-term outcome evaluation, and Figure 1 shows the original allocation of youths to the three treatment conditions. In cases of therapist turnover (three cases, two therapists), the study treatment episode was terminated. In a single case, an assigned therapist had scheduling problems, and that youth was therefore reassigned to another therapist in the same condition whose schedule permitted the youth to be seen.

**Treatment Conditions**

**Usual care (UC) condition.** Clinicians randomized to the UC condition used treatment procedures as they normally would, and therapy continued until normal client termination. Youths allocated to the UC condition began a new episode of care with study
UC therapists, and this episode characterized the primary UC service for the purposes of the SACA assessments (i.e., any services by nonstudy therapists that were delivered during the study period were considered additional services).

**Standard EBT condition.** Clinicians randomized to the standard condition were trained to use three treatment protocols, with manuals and instructions and prescribed order of treatment sessions: *Coping Cat* for anxiety (Kendall, 1994; Kendall, Kane, Howard, & Siqueland, 1990), *Primary and Secondary Control Enhancement Training* (PASCET) for depression (Weisz et al., 2005; Weisz, Thurber, Sweeney, Profitt, & LeGagnoux, 1997), and *Defiant Children* for disruptive conduct and noncompliant behavior (Barkey, 1997). Weisz et al. (2012) reported protocol fidelity of 93% in a sample of coded treatment session recordings across the three standard EBT protocols. Diagnoses, CBCL and YSR scale scores, and youth- and caregiver-identified top problems from the Top Problems Assessment (Weisz et al., 2011), a measure of youth and caregiver severity ratings of the top three problems identified as most important, were used to determine the focus of intervention for cases assigned to the standard treatment condition (i.e., manual to use first). If a single EBT manual was completed and clinical problems remained in one of the two problem areas, therapists in the standard condition were permitted to administer one of the other two treatment manuals to target the remaining problems. Youths in this condition received an average of 16.3 treatment sessions ($SD = 8.8$).

**Modular treatment condition.** Therapists in the modular condition used the Modular Approach to Therapy for Children (MATCH; Chorpita & Weisz, 2005; 2009), a collection of 31 conditions used the Modular Approach to Therapy for Children (MATCH; Chorpita & Weisz, 2005; 2009), a collection of 31 modules that corresponded to the treatment procedures in the three protocols used in the standard condition, along with guiding algorithms for their use. MATCH algorithms default to an arrangement of those procedures that is similar to the order outlined in the standard condition but allows for real-time adaptation to address any interference when outcomes measures gathered each week demonstrate poor treatment response (see Chorpita, Bernstein, Daleiden, & Research Network on Youth Mental Health, 2008). Thus, changes to the procedures selected or to their arrangement are permitted when data indicate clinical interference, and specific strategies regarding how to address impediments to treatment implementation are collaboratively determined by the treatment team (including the research team members). For example, MATCH therapists could use procedures earlier than indicated (by jumping ahead in the protocol), could omit procedures that did not seem well-suited, or could use procedures for multiple problem areas concurrently within a single treatment episode. Such adaptations were observed in the majority of MATCH cases, and in half of the cases procedures were included to address problems other than the primary treatment focus (e.g., concurrently addressing disruptive behavior in a youth whose primary clinical focus was depression; Weisz et al., 2012). Like the treatments used in the standard condition, MATCH emphasizes building skills and capacities in the youth to manage symptoms and enhance functioning. Fidelity to MATCH procedures was reported to be 83% according to coding performed using the same session recording procedures described previously (Weisz et al., 2012). As in the standard condition, baseline diagnoses, CBCL and YSR scores, and Top Problems Assessment scores (Weisz et al., 2011) were used to determine the initial focus of the intervention. Youths in this condition received an average of 16.0 treatment sessions ($SD = 8.8$).

**Clinician Training**

Postdoctoral project consultants were initially trained by experts in the respective treatment protocols. Clinicians in the standard and modular conditions were then trained together for 6 days by the same experts and consultants (2 days per problem area) followed by individual weekly consultation from the project consultants. Consultants in turn participated in weekly discussions with the experts in the treatment of youths with internalizing and externalizing disorders that included review of measurement feedback on client progress and practice history (Chorpita et al., 2008). UC clinicians received only the usual local supervision procedures in their settings, with no intervention from project personnel, other than to retrieve audiotapes of UC treatment sessions on a periodic basis.

**Data Analysis**

For all “overall” youth outcomes evaluated longitudinally, mixed effects regression models were estimated (Bryk & Raudenbush, 1992) with the following predictors: intercept, treatment condition, informant (youth or caregiver), time (the natural log transform of days since intake), and treatment condition by time. Intercept, informant, and time were modeled as random effects. To determine the need for nesting of youths within therapists or organizations, we also evaluated three-level models, which showed that the variance accounted for in outcomes by therapist or organization was near zero (average intraclass correlation $[ICC_{therapists} = 0.0056; ICC_{organizations} = 0.0026]$. Thus, all longitudinal data analyses involved two-level models only. In addition, analyses were conducted separately for outcomes reported by caregivers and youths. In these models, intercept and time were still modeled as random effects, but there was no term in the model for informant. All models assumed data were missing at random such that the missing data were ignorable based on both the fixed-effects in the model (i.e., covariates) and the observed responses to the point of drop out. As reported by Weisz et al. (2012), 27% of participants used psychotropic medication for at least 1 day during their study treatment episode. Thus, we repeated all analyses, controlling for any medication use using a dichotomous variable. Finally, we tested for the effects of an interaction of outcomes by site for all primary outcomes of interest (Boston and Honolulu).

**Results**

**Symptom Outcomes**

**Data availability.** For the primary analyses, data were collected at baseline and at 3, 6, 9, 12, 18, and 24 months postenrollment. The data completion rate for caregiver interviews ranged from 100% (baseline and 6-month wave) to 79% (24-month wave). Likewise, the completion rate for youth interviews ranged from 100% (baseline and 6-month wave) to 79% (24-month wave). There were no significant differences between data completion rates by wave across study conditions for either the caregiver...
interviews, $\chi^2(20) = 0.94, p = .999$, or the youth interviews, $\chi^2(20) = 1.50, p = .999$.

**Overall rate of change.** We first examined CBCL and YSR Total Problems, Internalizing, and Externalizing scores of youths and caregivers in a single model. Our planned tests involved comparison of each of the active treatments with the UC control condition in terms of the decrease in scores over time on the respective measures. Table 2 shows the estimated slopes for the Condition $\times$ Time interactions in a mixed effects regression model. The Condition $\times$ Time interactions were significant for comparisons of the modular condition with UC on Total Problems, Internalizing, and Externalizing scores. In each case, the interaction showed significantly more rapid improvement over time in the modular condition than in the UC condition. The same contrasts between the standard and UC conditions produced no significant condition by time interactions.

Because only the modular condition was superior to UC on the planned analyses, we then chose to compare modular with the standard condition directly on Total, Internalizing, and Externalizing scores, again modeling informant as a random effect. None of these direct contrasts produced significant differences on rates of change on the three symptom scales.

In the models evaluated separately for effects according to youth and caregiver reports, the modular condition showed a significantly faster rate of improvement on Internalizing scores relative to UC according to youth report, and a significantly faster rate of improvement on Externalizing scores relative to UC according to caregiver report. No other contrasts were significant. All tests (modeling data from both informants as well as from youth and caregiver separately) were repeated, controlling for medication use, and results were unchanged for all of the significance tests. Finally, in models evaluating differences in change over time by site, there were no significant Site $\times$ Condition $\times$ Time interactions.

Table 2 also shows the effect sizes for log-linear rates of change associated with each contrast. The effect sizes are calculated as the estimated difference in rate of change (i.e., the Condition $\times$ Time parameter) divided by the square root of the estimated time trend variance. Statistically significant contrasts were associated with effect sizes ranging from .51 to .65.

**Timing of change.** Given that overall differences were observed in the primary analyses, we then sought to locate at which points during treatment these differences were most pronounced. By centering the data to locate the intercept (Day 0) at 3, 6, 9, 12, 15, 18, and 21 months (all embedded within the assessment window), we were able to estimate the instantaneous linear rate of change at these time points. Model specification was the same as for the primary analyses using two informants, with the exception that time was now modeled using the best fitting polynomial function for each time point (cubic for the intercepts at 3–6 months, quadratic for intercepts at 12–21 months), given that our intercept was no longer at baseline.

For Total Problems, the MATCH condition showed a significantly greater rate of change than UC at the 3-, 6-, and 12-month time points ($p < .05$), and no other contrasts were significant. For Internalizing Problems, MATCH also showed a significantly greater rate of change than UC at the 3-, 6-, and 12-month time points, and no other contrasts were significant. Finally, for Externalizing Problems, MATCH showed a significantly greater rate of change than UC at the 3-, 6-, and 18-month time points, with no other contrasts being significant.

### Table 2

**Coefficient Estimates for Condition by Time (Log-Day) for Overall and Youth- and Caregiver-Reported Scores (N = 174 for Each Analysis)**

<table>
<thead>
<tr>
<th>Score</th>
<th>Standard vs. usual care</th>
<th>Modular vs. usual care</th>
<th>Modular vs. standard care</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Est.</td>
<td>$p$</td>
<td>ES</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td>$-0.275$</td>
<td>.27</td>
<td>.27</td>
</tr>
<tr>
<td>Youth</td>
<td>$-0.097$</td>
<td>.78</td>
<td>.07</td>
</tr>
<tr>
<td>Caregiver</td>
<td>$-0.543$</td>
<td>.06</td>
<td>.45</td>
</tr>
<tr>
<td>Internalizing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td>$-0.256$</td>
<td>.32</td>
<td>.25</td>
</tr>
<tr>
<td>Youth</td>
<td>$-0.027$</td>
<td>.94</td>
<td>.02</td>
</tr>
<tr>
<td>Caregiver</td>
<td>$-0.565$</td>
<td>.06</td>
<td>.49</td>
</tr>
<tr>
<td>Externalizing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td>$-0.163$</td>
<td>.50</td>
<td>.16</td>
</tr>
<tr>
<td>Youth</td>
<td>$-0.036$</td>
<td>.92</td>
<td>.03</td>
</tr>
<tr>
<td>Caregiver</td>
<td>$-0.353$</td>
<td>.21</td>
<td>.31</td>
</tr>
</tbody>
</table>

*Note.* Est. = estimate of the condition by log(day) interaction parameter, adjusted for all other effects in the model. A negative estimate indicates that the treatment condition mentioned first in the column heading showed faster reduction in problem severity over time than the other condition. Results shown in bold are statistically significant. ES = effect size, calculated as absolute value of the ratio of the difference in rates of change divided by the square root of the time trend variance (which indicates the standardized magnitude of the effect).
Slope, 1-Year, and 2-Year Change Estimates by Condition

Table 3

<table>
<thead>
<tr>
<th>Score</th>
<th>Standard</th>
<th>Modular</th>
<th>Usual care</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Slope 1-year change</td>
<td>2-year change</td>
<td>Slope 1-year change</td>
</tr>
</tbody>
</table>

Note. The slope is the estimate of the change in T-score units per log day, and the 1- and 2-year change estimates represent estimated change in Child Behavior Checklist and Youth Self-Report T scores at 1 and 2 years, respectively, after the initial assessment.

Functioning

Measures of life functioning were obtained using the Brief IMPAIRMENT Scale at baseline, 1-year, and 2-year assessments only, given that the reliable and valid scores from this measure have been documented for its use only at annual intervals. Mixed-effects models were used to evaluate the relative differences in slopes among the three conditions, representing the difference in rates of change for the modular, standard, and UC conditions. Our primary analysis again involved two comparisons, each testing an active treatment against the UC condition. Neither contrast was statistically significant (modular vs. UC slope = −0.94, p = .32; standard vs. UC slope = 0.02, p = .98), nor was a secondary test comparing the modular with the standard condition (slope = −0.96, p = .31). Youths in all three conditions improved significantly over time (slope = −2.98, p < .0001).

Service Use

Table 4 summarizes the rates at which caregivers reported receiving other mental health services for their youths over the past year. Categories examined included seeking other mental health services from a community clinic or outpatient center (Community Clinic); from a psychologist, psychiatrist, social worker, or family counselor not part of the community clinic in the previous category (Professional); from an in-home therapist, counselor, or behavior support worker (In Home); from a pediatrician (Pediatrician); from a probation or juvenile corrections officer or court counselor (Corrections); from a self-help group such as Alcoholics Anonymous (Self-Help); or any of the these categories. Results showed...
that 1 year after beginning services in the project, as many as half of
the youths received additional outpatient or home-based ser-
vices, and those services most commonly included working with a
mental health professional or attending a community mental health
center. Similarly, 2 years after beginning services in this study,
slightly more than a third of participants reported that they had
sought other services over the past year. The majority of these
additional services involved additional assessment, services for
issues not part of the focus of the primary treatment episode (e.g.,
grief, academic performance), medication management, or psycho-
therapy for the caregiver(s). Again, mental health professionals
and community outpatient clinics were the most commonly used
services. Differences among study conditions were not significant
on any variable for either time period.

Discussion

These findings provide support for the longer term clinical
benefits to youths of the promising effects of the MATCH program
relative to UC found during treatment in an earlier investigation. In
that study (Weisz et al., 2012), weekly measures obtained during
treatment showed a significantly greater rate of improvement for
the modular relative to both the standard and UC conditions. In
the present study, although the rate of improvement on internalizing
and externalizing symptoms was not significantly different be-
tween the modular and standard conditions, MATCH afforded a
significant advantage over UC during the 2-year assessment pe-
riod, whereas the treatments in the standard condition did not.

As with the earlier short-term outcomes analysis, the lack of a
significant contrast between standard and UC raises some con-
cerns, although one explanation is that UC services in this study
appeared to be reasonably effective overall, and thus challenging
to outperform, which may reflect a broader trend toward increas-
ingly higher levels of quality in UC conditions as time goes on.
This idea is supported in part by the effect sizes observed for both
conditions showed nearly identical slopes on scores for functional
impairment. The pattern in these data suggests that our choice to
measure functioning only at three of the seven time periods may
have limited the statistical power to estimate these differences
reliably. This choice was mainly due to the response window of the
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Our analysis related to service use also produced no significant
differences among the three treatment conditions. Roughly 40% to
just over half of youths received some type of additional mental
health services during the first year following study enrollment,
with service use being slightly higher in the standard condition
than in either of the other two conditions. At the 2-year assess-
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health services. The most common were additional services from
a mental health professional or within the same or another com-
munity mental health clinic. This pattern of additional service use,
although not trivial, is also not entirely surprising, given the
complexity and severity of problems experienced by the youth
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organizations for handling emergent clinical needs. Examples of
overlapping service episodes are not uncommon in such contexts,
even within randomized trials (e.g., Abikoff et al., 2002).

The data did not point to any clear trend with respect to the
impact of the different treatment conditions on additional service
use; however, the rates were similar enough across condition to
suggest that differences observed in symptom-level outcomes were
unlikely to be due to differences in rates of service utilization
overall. This finding is similar to the initial observations regarding
medication use in this trial (Weisz et al., 2012), which revealed no
significant differences across conditions in rates of youths taking
medication and significant effects of condition on outcomes when
medication status was controlled. Weisz et al. (2012) found that
the mean duration of UC (275 days) was significantly longer than
the mean duration of either the standard (196 days) or modular
(210 days) treatment. Thus, the failure to detect greater additional
service utilization for the UC condition may have been due in part

In general, the advantage of MATCH over usual care was most
pronounced in the first 6 months of treatment and again at the
1-year observation period, after which few additional gains were
observed in any condition (approximately 85% of gains in any
condition were within the first year of beginning treatment; see
change estimates in Table 3). Rates of change were near zero for
all conditions for the second year of observation, suggesting that,
on average, gains were maintained. Moreover, the groups origi-
nally found to differ (MATCH, UC) did not converge over the long
term. This is in contrast to patterns noted in several other long-term
outcome studies (e.g., Birmaher et al., 2000) and is particularly
surprising in this context, given that many youths in this study
received additional services during the second year, which one
might expect to have had a convergent influence.

On measures of functioning, improvements for youths assigned
to the modular condition were larger on average than in both other
conditions, but not significantly so, and the standard and UC
conditions showed nearly identical slopes on scores for functional
impairment. The pattern in these data suggests that our choice to
measure functioning only at three of the seven time periods may
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to the longer UC service episodes inhibiting the need to seek additional (nonstudy) services.

Overall, the findings extend previous results (Weisz et al., 2012) by showing that the strengths of the modular design in a community and school-based mental health context extend over a 2-year period and can be documented by a well-established and widely used measure of youth psychopathology. Although effect sizes were larger for the modular condition than for the standard condition, these groups did not differ over the 2-year period, which differs from the findings of Weisz et al. (2012). One possible explanation may have to do with the sensitivity to change afforded by the relative timing and density of the earlier measurement design, which involved weekly measurement during the course of treatment, typically less than 1 year. Because the current findings suggested that most of the relative benefit of the modular treatment occurred in the first 6 months, the present design—which was aimed at investigating trends over a long-term interval using longer, more comprehensive symptom measures—may not have had sufficient measurement density early in the 2-year study interval. Until clearer recommendations emerge for assessment timing in longitudinal growth models, those selecting future treatment designs might consider monthly assessments early in the observation period, with wider spacing (3–6 months) later in the observation period.

Nevertheless, these long-term outcome findings raise questions about why the standard condition was once again not significantly better than UC services, given the considerable empirical support for these approaches as reported in efficacy trials. Although it is possible to conclude that the approaches used in the standard condition do not generalize well to a community and school-based context, as some have speculated previously (Weisz et al., 2012), it is also possible that the perceived complexity involved in the standard condition for learning and implementing three treatments (i.e., Coping Cat, PASCET, Defiant Children) rather than one (i.e., MATCH) may have represented too great a challenge for study therapists. The therapists were not part of the research staff and typically managed large caseloads of clients, many of whom were not part of the current study. Indeed, we know of no studies in which researchers attempted to train multiple EBPs simultaneously to a single professional therapy audience within a randomized trial, and the training procedures for each protocol (two workshop days each for anxiety, depression, and disruptive conduct, followed by case consultation) were perhaps not as demanding as the preparation of study therapists typically found in efficacy trials. That said, we feel this possibility highlights one strength of the modular approach, given that community service systems often demand that therapists coordinate and master multiple approaches in order to serve a wide variety of youths and families (Chorpita, Bernstein, & Daleiden, 2011).

Limitations to this study have been mentioned in an earlier report (Weisz et al., 2012), including inadequate power to test for higher order interactions (e.g., moderating effects of age, gender, ethnicity, therapist background, internalizing vs. externalizing problems) and a sample characterized by a high degree of heterogeneity, which raises questions about to whom these findings best generalize. For example, in future research, it would be important to know whether these outcomes apply equally well across each of the three problem areas for which youths were selected for the study. Another limitation, mentioned earlier, was limited ability to detect differences in trajectory of functional impairment across condition, given that our chosen measure of functioning was administered only at 1-year intervals.

Regarding another possible limitation, the relatively small study caseload seen by each therapist might suggest that the applicability of these treatments is somewhat limited. However, the small study caseload appeared to be due more to issues related to the demand of research study participation (i.e., the additional effort required of organizations to identify possible cases and of therapists to record treatment sessions, meet with project staff, and complete study paperwork for active cases) than to the generalizability of the treatments. Indeed, the observation that study caseloads for the UC condition were similar to those for the modular and standard condition study caseloads supports this hypothesis as well. In fact, recent evidence supports the notion that the study protocols were generally applicable to large portions of the nonstudy caseloads, given that therapists in the standard and modular conditions appear to have been using the study protocols, or at least parts of them, for their nonstudy cases (see Palinkas et al., in press).

Overall, these results extend earlier findings and suggest that treatment protocol designs that include the structured use of EBT procedures and a systematic method for flexible and responsive management of the treatment episode may have considerable promise in serving youths with complex needs in community settings.

References


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New Editors Appointed, 2015–2020

The Publications and Communications Board of the American Psychological Association announces the appointment of 6 new editors for 6-year terms beginning in 2015. As of January 1, 2014, manuscripts should be directed as follows:

- **Behavioral Neuroscience** (http://www.apa.org/pubs/journals/bne/), Rebecca Burwell, PhD, Brown University
- **Journal of Applied Psychology** (http://www.apa.org/pubs/journals/apl/), Gilad Chen, PhD, University of Maryland
- **Journal of Educational Psychology** (http://www.apa.org/pubs/journals/edu/), Steve Graham, EdD, Arizona State University
- **JPSP: Interpersonal Relations and Group Processes** (http://www.apa.org/pubs/journals/psp/), Kerry Kawakami, PhD, York University, Toronto, Ontario, Canada
- **Psychological Bulletin** (http://www.apa.org/pubs/journals/bul/), Dolores Albarracín, PhD, University of Pennsylvania
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Current editors Mark Blumberg, PhD, Steve Kozlowski, PhD, Arthur Graesser, PhD, Jeffry Simpson, PhD, Stephen Hinshaw, PhD, and Stephen Maisto, PhD, will receive and consider new manuscripts through December 31, 2013.