BRIEF REPORT

Psychotherapy for Depressed Youth in Poverty: Benchmarking Outcomes in a Public Behavioral Health Setting

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Research demonstrating the effectiveness of treatment with youth from low socioeconomic backgrounds is limited. To address this limitation, we evaluated pre–post psychotherapy treatment outcomes with youth presenting with depression-related diagnoses (N = 469) at a public behavioral health agency after they implemented a systematic client feedback approach as a quality improvement strategy. Clients were ethnically diverse youth at or under the poverty line. Treatment outcome was measured with the Outcome Rating Scale (Miller, Duncan, Brown, Sparks, & Claud, 2003) and the Child Outcome Rating Scale (Duncan, Sparks, Miller, Bohanske, & Claud, 2006). Benchmark methodology was used to compare effect size estimates to those achieved in randomized clinical trials. Average treatment effect sizes for the public behavioral health depression samples of children and adolescents (d = 1.39 and d = 1.69, respectively) were clinically superior to a waitlist benchmark drawn from clinical trials of youth depression, and clinically equivalent to a treatment benchmark drawn from youth depression clinical trials. Findings demonstrate that mental health services for depressed youth in poverty across an agency can be effective, and systematic client feedback may be a useful strategy to improve treatment outcomes.

Clinical Impact Statement

Question: Is psychotherapy utilizing systematic client feedback effective in reducing distress among depressed youth in poverty within a public behavioral setting? Findings: We found psychotherapy for depressed youth in a public behavioral setting in which systematic feedback was conducted showed similar effect sizes to treatments in clinical trials. Meaning: Systematic client feedback may be a useful quality improvement strategy for serving depressed youth. Next Steps: Although this study provides a more optimistic outlook on treatment of youth in a public behavioral setting than many previous studies, follow-up research is needed that uses a control condition to isolate the effects of client feedback to better understand how such processes benefit youth in psychotherapy.

Keywords: depression, poverty, youth, psychotherapy outcome, client feedback

Psychotherapy with youth has an established history of effectiveness. Meta-analyses and reviews of meta-analyses have found mostly small to moderate treatment effect size estimates (Klein, Jacobs, & Reinecke, 2007; Weisz, McCarty, & Valeri, 2006). When routine psychotherapy with youth in poverty is evaluated, however, treatment outcomes are limited and typically less encouraging (e.g., d = 0.25, Farahmand et al., 2012; d = 0.08, Weersing & Weisz, 2002). Despite being most at risk for ongoing mental health problems (Reiss, 2013), youth from economically impoverished backgrounds often receive ineffective psychological treat-
Breda, de Andrade, & Riemer, 2011; Nelson, Warren, Gleave, & of client feedback with youth. Two studies (Bickman, Kelley, & Kleinstäuber, 2018), but few studies have evaluated the benefit of client feedback in psychotherapy with adults (Lambert, Whipple, & Lapsley, 1985) proposed a “good-enough principle” to allow for statistical testing with a range-null hypothesis to prevent rejection of a point-null hypothesis due to a large N. Recent benchmarking studies (Minami, Wampold, et al., 2008), have used an a priori margin of difference of 10%, indicating a clinically meaningful treatment effect (i.e., 90–110% of efficacy trial benchmark ESs). Because of this, a range-null hypothesis (e.g., \( H_0; \delta_{PBH_{dep}} \leq \delta_{ITT} - 10\% \)) is used instead of a traditional point null hypothesis (e.g., \( H_0; \delta_{PBH_{dep}} = \delta_{ITT} \)). Range-null hypotheses follow a noncentral \( t \) statistic (Serlin & Lapsley, 1985) and a normal distribution is approximated. Critical values are based on this range surrounding the benchmark ESs. Specifically, to determine if a naturalistic treatment ES is equivalent to treatment benchmark a critical value is calculated for the treatment group benchmark ES at \( d_{ITT} - 10\% \), where \( d_{ITT} \) represents the lower bound of the 90–110% range. Thus, the null hypothesis is rejected if the difference exceeds the 90% lower bound of the benchmark ES. To determine if a naturalistic treatment ES is superior to a waitlist control benchmark then a critical value is calculated for the benchmark ES at \( d_{WLC} + 10\% \) (or 110% of the benchmark). The naturalistic treatment ES must exceed this critical value.

For the current study, we used benchmarking methodology (Minami, Serlin, et al., 2008) to evaluate the effectiveness of psychotherapy services that used systematic client feedback with a sample of depressed youth (ages 6–17 years) who received individual treatment in a PBH setting. Our objectives were to examine if psychotherapy outcomes with the PBH youth sample were (a) clinically equivalent to treatment outcomes of a benchmark composed of RCT studies, and (b) superior to a benchmark of RCT studies that used a wait list control condition.

Method

Participants

Southwest Behavioral Health Services (SBHS) granted permission for data analysis from youth discharged cases between January 2008 and March 2014. SBHS is a not-for-profit comprehensive PBH organization serving a diverse range of individuals and families in Arizona. SBHS serves diverse youth at or below 100% of the federal poverty level, and clinicians use PCOMS comprehensively throughout its locations. Clients were excluded if intake scores were determined to be invalid (34 and above) according to parameters described in the PCOMS manual (Duncan, 2011). The final sample consisted of 469 youth who had a primary diagnosis of major depressive disorder, dysthymic disorder, depressed mood not otherwise specified (NOS), adjustment disorder with depressed mood, and adjustment disorder with mixed anxiety and depressed mood. All youth in the final sample engaged in individual therapy. The mean age was 12.88 years (\( SD = 2.97 \)) with ages ranging from 6–17 years. Most clients were female (67.8%) with 29.4% identifying as White, 23.2% Latino/a, 4.1% African American, 2.3% “other,” 1.9% as Native American, and 39.0% unknown. The
average number of sessions attended was 10.91, $SD = 10.26$, for adolescents ($n = 270$) and 12.71, $SD = 12.65$, for children ($n = 199$). Both treatment completers and noncompleters were in the sample. The number of clients who terminated prematurely (post-treatment scores above the clinic cutoff) were 81 (30%) adolescents and 79 (39.97%) children. All services for this sample were provided in English.

Therapists ($N = 86$) were predominantly female (84.2%) and White (88.1%), with 2.1% being African American and 9.8% Latino/a. Most (68.2%) had degrees in counseling, and the remaining had degrees in social work (12.7%), substance abuse counseling (11.3%), and psychology (8.8%). Therapists were all licensed and had at least a master’s degree.

**Measures**

**Outcome Rating Scale.** The Outcome Rating Scale (ORS; Miller et al., 2003) is an ultrabrief four-item self-report outcome measure that uses a 10-cm visual analogue scale and is included in PCOMS (Duncan, 2011). The ORS items evaluate distress at four levels: Individual (personal), Interpersonal (intimate relationships), Social (work/school and relationships outside the home), and Overall. Clients make a hashmark on the visual analog scale to rate themselves on each of the items, which are scored to the nearest millimeter. Scores can range from 0–40 with lower scores indicating more distress. The ORS has a clinical cutoff score of 28 for clients aged 13–17 (Duncan et al., 2006). Scores less than 28 for adolescents indicate clinically significant psychological distress.

Psychometric evaluations of the ORS (Campbell & Hemsley, 2009) have shown the measure in related samples to have coefficient $r$ ranging from .87 to .93. Duncan et al. (2006) reported an $r$ for youth aged 13–17 years as .93. Evidence for concurrent validity is suggested by a moderate bivariate correlation ($r = .53$) between the ORS and the Youth Outcome Questionnaire (Burlingame et al., 2001) with youth aged 13–17 years (Duncan et al., 2006).

**Child Outcome Rating Scale.** Like the ORS, the Child Outcome Rating Scale (CORS; Duncan et al., 2006) is an ultrabrief four-item self-report outcome measure that was designed for children aged 6–12. The same dimensions are evaluated, but the language is simplified, and “frowny” and “smiley” faces are used as anchors on similar 10-cm visual analog scales with scores 0–40. Based on 20,000 administrations from over 3,000 youth, coefficient $r$ for the CORS was .84 (Duncan et al., 2006). Concurrent validity was tested with the Youth Outcome Questionnaire in a clinical sample of children 6–12 years resulting in a correlation of .61 (Duncan et al., 2006). The CORS has a clinical cutoff of 32, indicating a score less than 32 is typical for clinical populations for youth 6 to 12 years old (Duncan, 2014).

**Procedures**

SBHS implemented PCOMS in 2007. PCOMS uses the ORS or CORS to track outcome and facilitate discussions with clients regarding their treatment progress and the Session Rating Scale (SRS; Duncan et al., 2003) to monitor the therapeutic alliance. Monitoring each of these outcomes permits clinicians to intervene with clients who are not making adequate progress and discuss adjustments to treatment needed in a collaborative manner. The ORS or CORS is completed and scored before each session and the SRS toward the end (e.g., last 5 min) of each session (the SRS data were not evaluated in this study). SBHS therapists received 12 hr of training on PCOMS (rationale for use; instruction on administration, scoring, and interpretation; and role plays with feedback) and then received annual 1-day booster trainings. Agency-wide policies enforced fidelity to PCOMS through routine supervisory meetings that include a protocol centered on the use of PCOMS data, and by requiring that therapists systematically collect PCOMS outcome data consistent with PCOMS procedures. For study inclusion, clients had to attend at least two sessions and have pre–post scores. We only included youth who had intake ORS/CORS scores below the clinical cutoff. These inclusion criteria were consistent with the RCT studies from Weisz et al. (2006) that we used as our benchmark.

**Benchmark construction.** The set of benchmarks includes an efficacy benchmark from the pre–post treatment outcomes of RCT treatment groups and a comparison benchmark from pre–post scores of the RCT waitlist/no-treatment control groups. We conducted a systematic search of the clinical trial literature from 2005 to August 2018 using inclusion criteria from recent benchmark studies (Reese et al., 2014). RCT studies had to include an ITT sample, as such samples are most comparable with effectiveness studies and utilize an outcome measure similar to the ORS/CORS (i.e., low reactivity and specificity). The search resulted in no RCTs meeting criteria with youth diagnosed with depression. Given this, we utilized Weisz et al.’s (2006) highly cited, rigorous meta-analysis of clinical trials to construct benchmarks for this study. First, we included 13 RCTs (of the total 35 studies) that reported information for ITT treatment groups in the ITT depression treatment efficacy benchmark. Second, we utilized 17 RCTs from Weisz et al. that reported means and standard deviations of waitlist/no treatment groups to calculate the waitlist control benchmark ES.

**Depression efficacy trial benchmark effect size calculations.** Next, the efficacy trial depression benchmarks were calculated using the procedures from recent benchmarking studies (Minami, Serlin, et al., 2008). We only included pre–post results from self-report outcome measures related to the primary diagnosis. When means and standard deviations were available for two self-report measures within a study, ESs were calculated separately and then aggregated using the mean of the ESs to obtain a single pre–post ES for the waitlist control group and ITT group. The formula $d_{ITT} = [1 - (3/(4n - 5))] [(M_{post} - M_{pre})/SD_{pre})]$ for calculating an unbiased Cohen’s $d$ ES was used. After ESs for each study were calculated, they were aggregated across clinical trials to yield single ESs, serving as comparison benchmarks. The aggregation resulted in a waitlist control benchmark ES of $d_{WL} = 0.37$ and an ITT treatment group benchmark ES of $d_{ITT} = 1.01$.

**Critical value calculation.** The ES for the depression treatment condition has a corresponding critical value associated with the lower bound of the 10% range of clinical equivalence, and the waitlist condition ES has its corresponding critical value associated with the upper bound of the 10% range of clinical equivalence. The benchmarking hypotheses rely on a 95th percentile test statistic (e.g., $t_{ITT}^{95\%}$, $t_{LS}^{95\%}$, and $t_{WL}^{95\%}$), which follows a noncentral $t$ distribution ($v = N - 1$ degrees of freedom) and has a noncentrality parameter $\lambda = \sqrt{N(d_{ITT} - 10\%)}$ or $\lambda = \sqrt{N(d_{WL} +}$
PBI effect size calculations. Next, pre–post ESs (Cohen’s $d$) were calculated for the PBI depression sample using pre–post scores and standard deviations from client ORS/CORS scores. We used the same formula for the benchmarks to calculate ES estimates.

Results

The mean pre–post treatment ORS/CORS scores for the PBI depression sample were $M_{\text{pre}} = 20.75$ ($SD = 6.11$) and $M_{\text{post}} = 29.99$ ($SD = 7.58$), $d_{\text{PBId}} = 1.51$. The mean pre–post treatment ORS scores for adolescents were $M_{\text{pre}} = 19.53$ ($SD = 5.48$) and $M_{\text{post}} = 28.83$ ($SD = 7.50$), $d_{\text{PBIdADOL}} = 1.69$. The mean pre–post treatment CORS scores for children were $M_{\text{pre}} = 22.41$ ($SD = 6.55$) and $M_{\text{post}} = 31.57$ ($SD = 7.68$), $d_{\text{PBIdCHILD}} = 1.39$.

Compared against the ITT benchmark ($d_{\text{ITT}} = 1.01$) with a 10% a priori margin ($d_{\text{ITT}}[90\%] = 0.90$) and an associated critical value of $d_{\text{cv}(\text{ITT})} = 1.00$, the observed PBI effect size estimate ($d_{\text{PBId}} = 1.51$) was statistically significant ($t = 32.70$, $df = 468$, $\lambda = 19.68$, $p < .001$). Specific to adolescents, the effect size estimate was statistically significant ($t = 27.77$, $df = 269$, $\lambda = 14.94$, $p < .001$). For children, the effect size estimate was also statistically significant ($t = 19.61$, $df = 198$, $\lambda = 12.82$, $p < .001$). All these analyses suggest at least clinical equivalence with ITT treatment efficacy from RCTs of youth in treatment for depression.

Compared against the waitlist control benchmark effect size estimate ($d_{\text{WL}} = 0.37$) given a 10% a priori margin ($d_{\text{WL}}[10\%] = 0.41$) and the associated critical value ($d_{\text{cv(WL)}} = 0.49$), the observed PBI effect size estimate ($d_{\text{PBId}} = 1.51$) was also statistically significant ($t = 32.70$, $df = 468$, $\lambda = 8.81$, $p < .001$), suggesting that treatment at PBI was clinically superior to waitlist control conditions from RCTs of youth in treatment for depression (see Table 1). When broken down by adolescents ($t = 27.77$, $df = 269$, $\lambda = 5.47$, $p < .001$) or children ($t = 19.61$, $df = 198$, $\lambda = 4.70$, $p < .001$), the findings are also statistically significant.

Discussion

To our knowledge, this study presents the first benchmarking analysis of treatment outcomes for youth with depression providing client feedback in psychotherapy at a PBI agency. Overall, we found that the treatment for the PBI youth sample was comparable with treatment effects found in youth depression RCTs. We also found that that treatment effects for the PBI youth sample exceeded the waitlist control benchmark for youth.

Our results suggest that psychotherapy that includes a systematic client feedback system for youth provided in a large PBI setting is effective. The findings, though limited in generalizability, contrast with much of the existing literature on mental health treatment outcomes for financially disadvantaged youth. Previous studies have demonstrated that mental health care for youth from economically impoverished backgrounds results in negligible to small treatment effects (Brookman-Frazee et al., 2010; Farahmand et al., 2012). We know of only one previous benchmarking study of youth in poverty receiving mental health care in a PBI setting (Weersing & Weisz, 2002). Weersing and Weisz found that youth being treated for depression at a community mental health center on average had treatment outcomes equivalent to youth in waitlist/no-treatment control groups in RCTs. Their results dramatically differ from our findings, where youth at the PBI agency on average experienced large ES changes in treatment.

Several limitations need consideration when interpreting the findings in the present study. First, caution is warranted in interpreting the results, as we did not have a control condition to isolate the effects of PCOMS with the current sample. Rather, we provide evidence of effectiveness of psychotherapy with youth in poverty in a PBI setting. Findings in this setting may have been due to unknown therapist or supervisor effects or other treatment factors our design could not account for in this study. Because the data were collected within a single agency, perhaps other unknown characteristics of this specific setting accounted for the effectiveness of its youth program. Neither treatment approach nor therapist information in connection to each case was available in the current data set. Second, pre–post treatment analysis with only one outcome measure limits conclusions. Third, the lack of measure equivalency between the current sample and the benchmarks limits methodological rigor. Although the ORS/CORS are psychometrically acceptable, they are broad-based measures and yield less diagnostic specificity compared with the measures in the benchmarks. Alternatively, a case could be made that the lack of measure equivalency resulted in a more conservative comparison. Broad-based measures (i.e., low specificity) like the ORS/CORS often produce smaller effect sizes than high specificity measures (Lee, Jones, Goodman, & Heyman, 2005).

Although the current study cannot isolate effectiveness to the inclusion of client feedback, it is suggestive that it can be part of an effective treatment strategy for youth in poverty receiving psychotherapy services at a PBI agency. Specific to youth, the

Table 1

<table>
<thead>
<tr>
<th>Sample</th>
<th>$N$</th>
<th>$d_{\text{pbid}}$</th>
<th>$d_{\text{cv}(\text{ITT})}$</th>
<th>$p$</th>
<th>$d_{\text{cv}}$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>All youth</td>
<td>469</td>
<td>1.51</td>
<td>1.00</td>
<td>&lt;.001</td>
<td>0.49</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Age 13–17 (ORS)</td>
<td>270</td>
<td>1.69</td>
<td>1.03</td>
<td>&lt;.001</td>
<td>0.51</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Age 6–12 (CORS)</td>
<td>199</td>
<td>1.39</td>
<td>1.06</td>
<td>&lt;.001</td>
<td>0.53</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

Note. PBI = public behavioral health; ITT = intent-to-treat; ORS = Outcome Rating Scale; CORS = Child Outcome Rating Scale; $d = [1 - (3/(4n - 5))] [M_{\text{post}} - M_{\text{pre}}/SD_{\text{pre}}]$; $d_{\text{cv}}$ = critical effect size value required to attain statistical significance.
results are consistent with existing evidence that systematically including the child and adolescents’ voice in clinical planning may improve the quality of mental health services and enhance treatment outcomes (Karver, Handelsman, Fields, & Bickman, 2006; McLeod, 2011).

More broadly, the current study has implications related to public policy for mental health treatment in the United States. Although millions of children in the United States are treated for mental health problems each year with an estimated 247 billion dollar cost (Centers for Disease Control and Prevention, 2013), most children receiving treatment through publicly funded agencies do not show clinical improvement (Warren, Nelson, Mondragon, Baldwin, & Burlingame, 2010). The current study results suggest this does not have to be the case.

Given the preliminary nature of the findings for the current study, we suggest further research evaluating client feedback as a quality improvement strategy in PBH agencies serving children and adolescents is needed. Specifically, we encourage clinical trial studies that use client feedback with youth in PBH settings. Our findings of large effect sizes and overall clinical equivalency with RCT treatment group outcomes support the contention that psychotherapy that includes systematic client feedback may be an effective quality improvement strategy in mental health services with youth in PBH—a sector of mental health where money and resources are limited.

References


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