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Identifying Targets for Quality Improvement in a Community Child Mental Health Agency

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A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science at Virginia Commonwealth University.

by

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Abstract

IDENTIFYING TARGETS FOR QUALITY IMPROVEMENT IN A COMMUNITY CHILD MENTAL HEALTH AGENCY

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The implementation of evidence-based practices has great potential to improve the quality of children's services; however, with a large variety of available practices, it can be challenging to select targets for quality improvement in community-based treatment. This study used a method called relevance mapping to identify how thoroughly evidence-based programs could cover a specific population of children seeking services at a large public agency and identify practice elements relevant to these clients. A therapist survey was used to examine current practice at the agency. Eight therapists at the agency reported on their practice delivery for 141 clients. Results from relevance mapping and therapist surveys were combined to create practice profiles for two predominant diagnostic categories seen at the agency: substance use and depression. These practice profiles were used to identify three areas of interest for agency quality improvement with regard to practice element delivery: Agency *Strengths*, *Opportunities,* and *Weaknesses*. Results demonstrate a potential blueprint for tailoring specific feedback to an agency for use in quality improvement efforts.

Identifying Targets for Quality Improvement in a Community Child Mental Health Agency

Introduction

Mental health services delivered to children in community mental health settings are not always based in empirical evidence (Jensen & Foster, 2010), a fact that raises concerns about the quality of treatment received by children and families. For the last few decades, mental health research has focused on redressing this problem. Through treatment development and outcome research, scientists have developed and tested hundreds of different treatment programs targeting a wide range of youth mental health problems (Silverman & Hinshaw, 2008; Southam-Gerow & Prinstein, 2014). For instance, Weersing et al. (2017) reviewed 42 studies testing treatments for depression and identified interpersonal therapy (IPT) and CBT as having the largest evidence base. Hogue et al.'s (2014) review of outpatient behavioral treatments for adolescent substance abuse found that ecological family-based treatment, individual cognitive-behavioral therapy, and group cognitive-behavioral therapy have the most well-established evidence base.

Although there is now a plethora of evidence-based treatments (e.g., Chorpita et al., 2011; Weisz et al., 2017), there remains a gap between mental health treatment research and the services delivered in many practice settings (e.g., Hoagwood, Burns, Kiser, Ringeisen, & Schoenwald, 2001; Tabak, Khoong, Chambers, & Brownson, 2012). In community-based usual care settings, where the majority of treated children receive services, the use of evidence-based treatment remains limited (Garland, Bickman, & Chorpita, 2010). Researchers have responded to this research-to-practice gap by shifting focus from treatment development and testing to studying the processes involved in disseminating and implementing practices into real world settings (Novins, Green, Legha, & Aarons, 2013; Beidas, & Kendall, 2014).

Many models and frameworks have been developed to organize and guide implementation science research (e.g., Tabak, Khoong, Chambers, & Brownson, 2012). Some models describe the implementation process in stages. Others focus on the aspects of stakeholder groups that might be involved, context, characteristics, action steps, or outcomes to be measured. Some models are one-way and linear in nature, others are multidirectional or multilevel. The purpose of such models is to provide structure to test theory and to provide the field with a taxonomy for communicating about implementation constructs. The Exploration Preparation Implementation Sustainment (EPIS) model has been proposed as one framework to examine different stages of the implementation process, specifically in mental health service systems (Aarons, Hurlburt, & Horwitz, 2011). The framework is divided into four main phases: Exploration (assessing needs, considering new practices), Preparation (planning and preparing for implementation of a new practice), Implementation (delivering the new practice), and Sustainment (maintaining this practice with fidelity after initial implementation period ends).

To this point, more research attention has been given to the factors influencing the Implementation and Sustainment phases. Examples of research foci include training, supervision, leadership, therapist attitudes, and organizational climate (Fixsen, Naoom, Blase, Friedman, & Wallace, 2005; Glisson et al., 2008). Progress in Implementation and Sustainment phases is likely critical for improving mental health care for children and families. However, far less research attention has been given to the first two EPIS model steps (i.e., Exploration and Preparation), particularly the *selection* of evidence-based practices that is an outcome of the Exploration phase. There are a number of ways that treatment selection decisions are made, varying in the extent to which they are systematic. For example, some selection decisions are informed by collaboration via stakeholder meetings or guidance from key opinion leaders

(Rogers, 1983; Bryson, Akin, Blase, & Walker, 2014). An agency may also have one or more practices required through state mandates, policies, and contracts (e.g., Lau & Brookman-Frazee, 2015; Willging et al., 2016).

The preceding examples emphasize more informal approaches to treatment program selection. Ideally, agency leaders and other decision-makers would be able to make these choices very systematically, with empirical evidence as their guide. However, the ongoing development and testing of mental health interventions has created a vast body of treatment research literature, creating a challenging and time-consuming task for decision-makers. To address the challenge, some scientists have focused attention on knowledge management approaches (Rith-Najarian, Daleiden, & Chorpita, 2016). Through *knowledge synthesis,* research evidence can be consolidated, and *knowledge synthesis tools* can then make the consolidated evidence available for easier use (Graham et al., 2006). The idea here is akin to finding the right treatments using an online listing or a smart search engine. The most common type of knowledge synthesis tool found in the literature is a registry or catalogue organized by problem type. Some have also developed searchable databases, with a set of parameters to delimit the search. These approaches aggregate research and generally organize or categorize the evidence by research strength criteria (e.g., numbered or categorical levels; Burkhardt, Schröter, Magura, Means, & Coryn, 2015). Prominent national and international examples of registries include the Cochrane collaborative and the National Registry of Effective Practices and Programs (NREPP; SAMHSA, 2011), Blueprints National Standards Project, and Promising Practices Network. Some states have created their own registries, such as the California Clearinghouse and the Virginia Collection of Evidence-based Practices for Children and Adolescents with Mental Health Treatment Needs.

There are also targeted search engines cataloguing EBPs, such as the PracticeWise Evidence-Based Services Database (PWEBS; PracticeWise). The PWEBS database was the result, in part, of work that resulted initially in a tool called the Hawaii Blue Menu (Chorpita et al., 2002; Nakamura et al., 2011). The Blue Menu, a one-page matrix that summarized evidence-based services with target problems in the rows, the efficacy level in the columns, and the description of the treatment packages in the cells (e.g., CAMHD, 2004; Chorpita & Daleiden, 2007), provided a roadmap to the efficacy level of various services. Based in part on the Blue Menu and other work in the Hawaii system, PWEBS was developed as an interactive database that allows users to enter specific characteristic information about the client (problem type, age, grade, gender, and ethnicity) and then receive a summary of the treatment programs and practices found to be effective (at a level of empirical evidence specified by the user). The database is updated many times a year and purports to include all available randomized controlled trials of child and adolescent mental health problems, with currently more than 1118 studies.

Most registries organize treatments by *program*, meaning individual protocols or manuals, with these categorized by research strength criteria. The criteria vary by registry but typically involve several tests of the rigor of the studies supporting a particular program. In contrast to *program*, some, like the PWEBS database, synthesizes research by *treatment family* and by *practice elements*. Treatment family refers to a group of treatment protocols that are all based in the same theoretical approach or orientation to treating a specified problem area (e.g., cognitive behavioral therapy [CBT] or multisystemic therapy [MST]). Practice elements are more molecular in focus and represent specific intervention strategies (i.e., discrete principles or skills) that compose evidence-based treatments (Chorpita & Daleiden, 2009). Synthesizing by

practice element is considered advantageous because some practice elements have been shown to be effective for addressing multiple problems areas. In short, then, registries can offer guidance on the optimal treatment approaches for particular problem types at the family, program, or practice element level.

Having an evidence-based method like a registry to make decisions about which treatments to include in the care offered by an agency or system represents important progress. The next set of questions facing agency decision-makers concerns the *relevancy* of the information found in these sources for the consumers that they need to serve. That is, which programs or practices are pertinent for the children and families who come to their agency? This question can be guided by tools discussed above, such as the Hawaii Blue Menu or a PWEBS search. However, the choice is more complicated because an agency is making decisions on a larger scale, considering groups of clients, rather than a single client. When making these choices, an agency may prioritize treatments that effectively treat the problem types or diagnoses most commonly found in their clientele. Problem type is also how nearly all registries are organized, facilitating the decision-making process somewhat. However, agencies may also want to consider other potentially relevant parameters, including age, gender, or race/ethnicity. For these parameters, registries are often less instructive.

Assuming an agency could identify a list of programs and practices that are relevant for the population it serves (by problem type, for example), the agency still has practical concerns to consider. Training therapists at the agency on every relevant practice or program would ensure maximum client coverage. However, there are a few reasons that such a solution is not feasible. A notable barrier to implementation is the time and financial resources required for therapist training (e.g., Aarons, Wells, Zagursky, Fettes, & Palinkas, 2009). Many evidence-based

programs require costs for training and consultation, as many program developers adhere to a subscription model, requiring ongoing consultation in order to be considered certified in the model. As Nakamura et al. (2011) described in their description of the efforts to implement EBPs in Hawai'i in the late 1990s and early 2000s, paying for a large number of EBPs is rarely affordable for most agencies. Further, even if there were ample funding, there is the pragmatic question of therapist capacity to learn multiple treatments and deliver them competently.

Consequently, most agencies need to be selective in their treatment selection decisions, aiming for a set of treatments that is limited in number while remaining locally relevant. Agencies differ in the client populations that they serve and just as a treatment for one client might not be an appropriate fit for another client, a *set* of treatments employed by one agency might not be optimal for the client population served at another agency. Ideally, an agency will be able to harness an array of treatments that is both efficient and parsimonious for their client population (Bernstein et al, 2015).

A data-driven method called relevance mapping (R-Map) was developed specifically to address this challenge (Chorpita, Bernstein, & Daleiden, 2011). R-Map is an analytical approach that maps characteristics of the service population (clients) to aspects of the treatment research literature, thereby identifying a set of practices that maximize applicability and efficiency. A key advantage of relevance mapping, an agency is essentially able to conduct many PWEBS inquiries concurrently, rather than examine applicable practices for individual clients one at a time. Relevance mapping can also optimize compiled results to prioritize efficiency in services (e.g., identifying the fewest number of practices that can cover the agency's population).

The results of an R-Map analysis are usually twofold. First, there is a coverage analysis wherein an estimate of the proportion of clients in the sample are "coverable" by any treatment

program. In this coverability analysis, the assumption is that all possible evidence-based programs are available at the agency. The second result of an R-Map analysis focuses on identifying an efficient set of practices that are relevant for a high proportion of the coverable clients from the first analysis, known as a "minimal set". For example, the first analysis determines that 75% of clients could be covered by an EBT whereas the second analysis results in a list of practices that, if included in the treatments used at the agency, would cover XX% of those 75% of clients. The XX is often set at a very high number, such as 98 or 99. The procedure can be optimized for a variety of combinations of parameters, including problem, age, gender, and ethnicity. Analyses can also be run at a number of practice unit levels, identifying a minimal set at the *treatment family* level, *evidence-based treatment* level, or *practice element* level. R-Map is designed to be used as part of a larger set of methods to inform quality improvement efforts.

To date, three published papers have reported results from R-Map studies. In the first illustration of relevance mapping, Chorpita, Bernstein, and Daleiden (2011) used data from 1,781 youths in the Hawaii mental health system. R-Map was performed first by problem only (P), then narrowing parameters to include match on child age and gender (PAG), and finally adding the parameters ethnicity and service setting (PAGES). In the P only scenario, 100% of youth clients were covered by at least one treatment family. In the PAG scenario, coverage decreased, with only 71% of youth coverable. These uncoverable youth were primarily youth with attention problems or autism spectrum problems, presumably owing to their age, gender, or combination thereof. In the PAGES scenario, adding ethnicity and setting parameters, only 14% were coverable. Results illustrated that as parameters become more stringent (matching becomes more specific), coverability decreases. Analyses also identified minimal sets of practices that could

cover youth identified as coverable in the PAG scenario. When matching on problem, age, and gender (PAG), results indicated that two minimal sets of only 8 treatments could cover 100% of coverable youths, when added to the one treatment already in place in that system.

In another study, Bernstein, Chorpita, Rosenblatt, et al. (2015) used relevance mapping to examine whether and which evidence-based treatment (EBT) components (i.e., practice elements) might generalize to youths served by the wraparound process. Matching on problem, age, gender, and setting (PAGS), the coverability for youths receiving wraparound (58%) was similar to those receiving non-wraparound services (61%). This study chose to identify a minimal set of practice elements (rather than evidence-based treatments or families). The minimal set for the wraparound youth included 31 practice elements and the minimal set for non-wraparound youth included 30 practice elements, with 24 of these practice elements overlapping for both groups.

A third study by Bernstein, Chorpita, Daleiden, et al. (2015) illustrated a "hybrid" model of relevance mapping that examined coverability at an evidence-based program level and a practice element level. Although evidence-based protocols are made up of practice elements, efficacy of the protocol does not definitively denote efficacy of its individual practice elements. As such, analyzing at the practice element level presents a tradeoff. Whereas a practice element level of analysis may increase coverability, it may also compromise the extent to which the approach used can be considered evidence-based. Programs and not practice elements have an evidence base. Relevance mapping analyses for this study were performed under a problem, age, gender (PAG) scenario. Coverability analyses indicated that 52% of the study sample was coverable by treatment programs, but 63% were coverable when practice element was used as the practice unit of analysis. The study illustrated that the addition of practice elements to a

hybrid model allowed for youth not covered by programs to be covered by practice elements in the R-Map coverage analyses. The minimum set results for the programs-only model contained 6 programs and the minimum set for the practice elements-only model contained 18 practice elements. Consequently, the hybrid model minimum set contained the 6 programs, plus 13 of the 18 practice elements, to cover the children not covered by the 6 programs.

Regardless of the level of analysis (e.g., program, practice element, hybrid), the R-Map approach provides a set of practices or practice elements that are relevant to an agency's client population. However, the list may be a daunting one if an agency were starting from scratch. Fortunately, agencies already have therapist teams in place who each have a set of practices that they know and deliver routinely. As such, a step to take coincident with R-Map may be to take stock of what expertise already exists at the agency. Practices supported by the R-Map that are already part of the ongoing practice can potentially be removed from the training needs list. Identifying specific discrepancies between evidence-based treatment approaches and "usual care" practice can help narrow down targets for quality improvement efforts. Higa-McMillan and colleagues (2017) argue that "understanding the lay of the land before making substantial investment in training is critical to informing a targeted intervention plan" (p. 691). Assessment of practice patterns has been conducted using several methods, including case record review (Zima et al., 2005), therapist self-report (e.g., Baumann et al. 2006; Bearsley-Smith et al., 2008; Weersing et al., 2002), and observation (in-vivo coding or video tape coding). There are advantages and disadvantages to each of these methodologies and researchers must balance a preference for accuracy and comprehensiveness of data with cost and time constraints on data collection.

One self-report measure that has been used to continuously and systematically assess therapists' practice patterns in Hawaii is the Monthly Treatment Progress Summary (MTPS; CAMHD, 2003). The MTPS is a clinician report form designed to measure treatment targets, clinical progress, and intervention practices delivered on a monthly basis. As part of electronic billing practices, the MTPS has been used system-wide in the state of Hawaii, and the state annually publishes reports of the common practices used by therapists across the mental health system (e.g., Daleiden, Lee, & Tolman, 2004). The checklist of intervention practices has also been used to code the treatment outcome literature (Chorpita & Daleiden, 2009). The MTPS measures intervention practice delivery at the *practice element*-level which aligns with a common elements approach (Chorpita, Daleiden, & Weisz, 2005). This unit of measurement allows for examination of service delivery at a level that cuts across treatment manuals and includes some components of usual care not found in treatment manuals. In this way, the MTPS is particularly useful for examining service delivery patterns in usual care, where therapists might not be using specific manualized treatment protocols.

Previous work has used MTPS practice pattern data to compile *practice profiles* containing multiple sources of data relevant to practice delivery. For example, Higa-Mcmillan and colleagues (2017) developed a practice profile for anxiety to help answer descriptive research questions about usual care and evidence-based care for youth anxiety treatment in a large service system. Practice profiles have also been used to create agency contextualized feedback reports in a Hawaii system-wide monitoring and feedback initiative, comparing agency practice delivery to the evidence base, as well as providing a benchmark against other agencies in the service system (Higa-McMillan, Powell, Daleiden & Mueller, 2011). These feedback reports were reviewed as part of "data parties" intended to help therapists and administrators

understand and make use of practice pattern data, establishing a means for collaborating and nurturing an evidence-based culture within agencies (Higa-McMillan et al., 2011). Practice profiles are one of many tools that can be incorporated into conversations about quality improvement at an agency.

Present Study

Building on existing work, this study aimed to demonstrate how results from an R-Map analysis can be combined with practice pattern data to provide feedback to an agency about strength and weakness related to their current use of practice elements. The study was comprised of three parts. First, an R-Map analysis was conducted at a large public mental health agency to determine the percent of cases that are coverable by evidence-based treatments and identify the practice elements that comprise these treatments. Second, therapists at the agency were surveyed to determine their current practice repertoire. Third and last, *practice profiles* were created as a means to integrate the R-Map analysis and therapist survey data. Practice profiles were generated for the two most commonly treated problem types at this agency: Substance use and depression.

The substance use and depression practice profiles were used identify a number of scenarios designed to provide actionable feedback to the agency. These scenarios included (1) Practices derived from evidence-based protocols, highly applicable to the agency's client population, and currently delivered frequently (*Agency Strengths*); (2) Practices derived from evidence-based protocols, highly applicable to the agency's client population, but not currently delivered frequently (*Agency Opportunities*); and (3) Practices not derived from evidence-based protocols but currently delivered frequently (*Agency Weakness*). Results are presented as a means of informing potential quality improvement efforts at this agency.

Method

Overview. The study was comprised of three parts: (1) relevance mapping (R-Map) methods to analyze archival data (electronic medical records) (2) therapist survey data to examine therapist self-report of practice patterns and (3) creation of practice profiles to integrate results. The study was conducted with archival and active data collection at one location of a large public mental health agency in a populous county in the commonwealth of Virginia.

Part 1: Relevance Mapping

Part 1 of this study used a method called relevance mapping (R-Map; Chorpita, Bernstein, & Daleiden, 2011) to identify the maximum number of clients coverable by ANY evidence-based practice and the practice elements that compose these evidence-based practices. As described earlier R-Map utilizes a *client dataset* and a *study dataset* to match clients to studies on one or more parameters. For the purposes of the present study analyses run based problem type (i.e., primary diagnosis) (P), problem type, age, and gender/sex (PAG), and problem type, age, gender/sex, and ethnicity (PAGE) are presented.

Client dataset participants. Electronic health records were obtained for all clients aged 3 to 19 who received services at the agency from January 1, 2011 – December 30, 2011. If a client had more than one episode of service during that timeframe, only the client's first episode was used for the present study. The dataset contained 221 clients ranging in age from 3 to 19 years (M= 14.0, SD 3.7); these clients were 63% male and 37% female. Youth's ethnic groups included White (43%), African-American (12%), multi-racial (11%), Asian-American (9%), other (23%), and not reported (3%). Chart diagnoses were based on the Diagnostic and Statistical Manual of Mental Disorders (4th ed. [DSM–IV]; APA, 2000) codes. Primary diagnoses included

substance use (26.47%), depression (20.59%), other problems (16.67%), attention (13.73%), disruptive behavior (5.88%), none (4.41%), traumatic stress (4.41%), anxiety (3.92%), mania (2.45%), and autism spectrum disorder (1.47%).

Client dataset preparation. The client dataset was prepared by extracting information from the electronic health records. Data available included: (a) age, (b) sex, (c)ethnicity, and (d) all assigned diagnoses at intake. For this study, primary diagnosis was determined by the first diagnosis listed in the electronic medical records. Diagnosis was listed by *DSM-IV* code. These codes were transformed to the following broad diagnostic categories: disruptive behavior, depression, attention/hyperactivity, traumatic stress, substance use, anxiety, autism spectrum, and eating disorders. As described by Chorpita et al., (2011) this categorization provides a common framework for matching clients to studies, given that there is a wide variety of taxonomies and methods for classifying and enrolling participants in research studies, not limited to diagnosis.

Study dataset preparation.

The study data set involved codes from 437 randomized clinical trials of child mental health treatments corresponding to the following problem areas: anxiety (n studies _ 125), attention/hyperactivity (n studies _ 83), autism spectrum (n studies _ 25), depression (n studies _ 32), disruptive behavior (n studies _ 192), eating disorders (n studies _ 11), substance use (n studies _ 18), and traumatic stress (n studies _ 13); characteristics of this data set have been reported in previous research (Chorpita et al, 2011). Each study had numerous records in the data set, with each representing a single characteristic of participants included in the study (e.g., problems, ages, genders, and ethnicities) as well as the setting(s) in which treatment was provided, the name and type of treatment protocol used, and other study information not used in

the present analysis (e.g., treatment format, therapist education level, etc.). Eight hundred thirty-two coded treatments were grouped into 98 general "families" of approaches (e.g., "Cognitive Behavior Therapy," "Client Centered Therapy," "Family Systems Therapy," "Parent Management Training," "Multisystemic Therapy," etc.), consistent with the organization of traditional meta-analytic reviews (e.g., Weisz, Hawley, & Jensen Doss, 2004). Relevance mapping requires the user to select or define some standard of evidence that identifies which treatments in the study data set are considered evidence based, in order to determine which of these treatments are candidates for analysis (although it does not depend on any single definition). In other words, any list of EBTs could be used for analysis (e.g., NREPP [SAMHSA, 2011], American Psychological Association's Division 53 review of evidence-based practices [Silverman & Hinshaw, 2008]), and each list's standard of evidence could theoretically produce a slightly different solution. For the current study, standard of evidence was based on definitions outlined by the APA Task Force on Promotion and Dissemination of Psychological Procedures (APA, 1995). These guidelines state that a manualized treatment must (a) show statistically superior outcomes to a waitlist or no-treatment control group in at least two randomized trials, (b) show statistically superior outcomes to an active treatment or psychological placebo in at least one randomized trial, or (c) show equivalent outcomes to an already established EBT in at least one randomized trial in which the average group size is at least 30 participants (see Chorpita et al., 2011, for additional details).

Procedure. Relevance mapping involved a computer-automated, structured comparison of client characteristics and participant characteristics from a client dataset to treatments found in a study dataset (Chorpita, Bernstein, & Daleiden, 2011). For this study, the study dataset was comprised of coded randomized clinical trials for youth treatment, described above. Structured

comparisons conducted in relevance mapping can use any variables common to the client and study datasets. This study used problem (primary diagnosis), age, gender/sex, and ethnicity for matching youths to studies. Relevance mapping was used to (a) examine how many clients at this agency are "coverable" by any existing evidence-based treatment program, and (b) distill these evidence-based treatments into practice elements (PE).

Data analysis. All analyses were algorithmic and no subjective rating or coding was performed, except for preparation of the datasets used as inputs. *Coverability analyses* identified evidence-based treatments that matched problem areas present in client population (based on agency medical records) to determine overall coverage.

Part 2: Therapist Survey

Part 2 examined current practice patterns at this agency and the extent to which current practices align with those derived from the evidence base.

Therapist sample. Eight therapists participated in 4 surveys quarterly for one year. Therapists were ages 24-60 (M = 41.56; SD = 12.05), 100% white, 78% female, with master's degrees, and 44% were licensed clinicians.

Client sample. Therapists reported on a total of 140 clients. Clients ranged in age from 4-18 and had an average age of 13.64 (SD=3.48). Client race, as indicated in client medical chart, included White (21.3%), Black (9.2%), Asian (7.1%), multiracial (9.2%), and race was unknown or missing for 19.1% of clients. Medical chart data indicated 30.5% of clients were Hispanic, 34.8% were not Hispanic, and Hispanic origin was unknown or missing for 34.8% of clients. Client primary diagnosis categories included depression (31.4%), substance use (17.9%), attention (17.1%), anxiety (14.3%), traumatic stress (5.7%), disruptive behavior (2.1%), autism (2.1%), other diagnosis (7.1%), and no diagnosis (0.7%).

Procedure. Study procedures received IRB approval. Therapists were offered the opportunity to participate in the study at an informational meeting held during an all-staff meeting time. Therapists were consented in a face-to-face meeting with a member of the research team either the same day or on a different day if the therapist wanted more time to consider participation. All eligible therapists consented to participate. Surveys were collected online using Redcap. Nine therapists completed the Monthly Treatment and Progress Summary (MTPS) quarterly for one year, for up to 10 clients. On a quarterly basis, therapists identified treatment targets and up to 63 predefined practice elements they used in their treatment with youth clients. For the purposes of this study, only the practice elements (PE; e.g., activity scheduling, catharsis) portion on the MTPS were examined. Medical records were also compiled for the clients that therapists reported on for each wave of survey data collection.

Instrument. The MTPS is a therapist report form designed to measure treatment targets, clinical progress, and intervention practice elements (Hawaii Child and Adolescent Mental Health Division, 2003). The MTPS practice elements have demonstrated acceptable 1-month stability estimates (Chorpita, Daleiden, & Weisz, 2005) and structural validity with support for three factors corresponding to behavior management interventions, self-control practices, and family interventions (Orimoto et al, 2012). Borntrager and colleagues (2015) found acceptable agreement between therapist-reported MTPS and observational coding for nine of the practice elements. They also found that clinicians were more likely to overreport than underreport their use of practice elements.

Scoring and analysis.

MTPS practice element counts. MTPS reports from the four waves of survey data were collapsed across each youth. Next, MTPS practice counts were created for each youth, for each

practice on the MTPS. Youth that received the practice element at least once over the 4 waves received a score of "1" for that practice and those that did not received a score of "0". These practice scores were summed across cases to calculate total scores for (1) sample youth overall that received the practice element at least once (summing across entire sample); (2) sample youth with a primary diagnosis of substance use that received the practice element at least once (summing across only youth with a diagnosis of substance use; and (3) sample youth with a primary diagnosis of depression that received the practice element at least once (summing across only youth with a diagnosis of depression).

MTPS Practices Derived from the Evidence Base (PDEB). The MTPS includes both practices commonly found in evidence-based treatment protocols (e.g., exposure, problem solving) and practices that are not commonly found in evidence-based treatment protocols (e.g., sand tray). Methods described by Higa- McMillan et al. (2017) were used to categorize MTPS practices into *Practices Derived from the Evidence Base (PDEB)* and *Practices with Minimal Evidence Support (PMES)* for the two diagnoses that are the focus of the present study, substance use and depression.

For these designations, "the evidence base" refers to treatment protocols with established empirical evidence (level 1 'well established treatments' or level 2 'probably efficacious treatments' as defined by APA, 1995). As such, practice elements "derived from the evidence base" are those that occur as part of these treatment protocols. In this study, the PracticeWise Evidence-Based Services database, (PWEBS; Practicewise), was used to search for level 1 and level 2 treatment protocols and the treatment components (practice elements) that occur in these protocols.

Two separate PWEBS database searches were conducted to search for all level 1 and level 2 substance use treatment protocols and all level 1 and 2 depression protocols. The PWEB searches identified practice elements included in these protocols and for each practice element, indicated the percentage of all identified protocols in which they occur. This percentage was used to categorize the MTPS practice elements into *Practices Derived from the Evidence Base (PDEB)* and *Practices with Minimal Evidence Support (PMES)*. Following Higa- McMillan et al.'s (2017) method, MTPS practice elements were considered *PDEB* if they occurred in 10% or more of the identified level 1 or 2 evidence-based treatment protocols and *PMES* if they occurred in fewer than 10% of the identified level 1 or 2 evidence-based treatment protocol for the treatment target.

Part 3: Creating Practice Profiles

A substance use *practice profile* (Table 1) and a depression *practice profile* (Table 2) were created to integrate study results. Results from analyses described above populate five columns. The first column lists all 63 practice elements measured on the MTPS. The second column indicates the percent of level 1 or level 2 evidence-based protocols for substance use in which the practice element is present (e.g., motivational enhancement shows up in 48% of level 1 or 2 protocols for substance use). This value was obtained using a PWEBS search of level 1 and 2 treatment protocols for treating substance use. The third column indicates the percent of youth in our sample coverable by the practice element (i.e., case applicability). This was determined from the R-MAP *relevant practice analyses*. The fourth column indicates the percent of all youth in our sample that received the practice element during treatment. This was determined by the proportion of *all cases* that received an MTPS score of 1 for the practice element. The fifth column indicates only the percent of *youth with a substance use diagnosis* in

our sample that received the practice element. This was determined by the proportion of *substance use cases* that received an MTPS score of 1 for the practice element.

The substance use practice profile and the depression practice profile were each used to examine a number of potential scenarios, including: (1) *Strengths:* practices that are derived from evidence-based protocols, highly applicable to the agency's client population, and currently delivered frequently; (2) *Opportunity:* practices that are derived from evidence-based protocols, highly applicable to the agency's client population, but not currently delivered frequently; and (3) *Weakness:* practices that are not derived from evidence-based protocols but are currently delivered frequently.

There are no clear guidelines for classifying case applicability proportions or practice delivery proportions. Therefore, for this study, the following classifications were used: Values in column 3 (case applicability %) were classified as either *high case applicability* (33.4% of cases or greater) or *low case applicability* (33.3% or fewer cases). Values in Columns 4 and 5 (practice delivery %) were similarly be designated *high case delivery* (33.4% of cases or greater), or *low case delivery* (33.3% or fewer cases). These categories aided in drawing conclusions from the multiple analyses included in the study, providing a guide for making meaning of the two practice profiles. The number of practice elements that fall into each of the three potential scenarios described above are reported. These scenarios are not exhaustive but represent three scenarios particularly relevant to agency decision-makers.

Results

Overview

As noted, the study consisted of three parts: (a) relevance mapping, (b) therapist survey, and (c) practice profiles. Each is reported separately here.

Part 1: Relevance Mapping

Relevance mapping was used to identify (a) the maximum number of clients coverable by ANY evidence-based programs and (b) the relevance (applicability) of the practice elements that compose these programs. A *client dataset* and a *study dataset were used* to match clients to studies on a number of parameters. Three separate analyses were performed—clients were matched to studies first by problem only (P), then by problem, age, and gender/sex (PAG), and then by problem, age, gender/sex, and ethnicity (PAGE).

Relevance mapping, matching client to treatment programs based on problem only (P), indicated 79.8% of the client population could be covered by at least one evidence-based program in the treatment outcomes literature. Consequently, 43 clients of 204 were not covered. These clients either had no primary problem indicated in their medical record (N=9) or had a problem that did not fit into the 7 problem areas included in analyses (N=34). Problem areas included in analyses were anxiety, attention, autism spectrum, depression, mania, substance use, and traumatic stress. For the 79.8% of coverable clients with at least one identified matching EBP, the practice elements with the greatest applicability to the overall sample were communication skills (78.9%), maintenance (78.9%), problem solving (78.9%), and caregiver psychoeducation (78.9%). The practice elements with the lowest applicability were personal safety (8.3%), couples therapy (5.9%), and discrete trial (1.5%). See RMAP column of Tables 1 and 2 for full RMAP coverability results.

Additionally, relevance mapping was performed matching client to treatment programs based on problem, age, and gender/sex (PAG). As these analyses added two additional parameters for matching, fewer clients were coverable; 68.6% of clients as compared to 79.8% of clients coverable when matching only on problem. Under these conditions, the practice elements with the greatest applicability were caregiver psychoeducation (68.6%), modeling

(66.7%), problem solving (66.2%), and relaxation (65.2%). The practice elements with the lowest applicability were personal safety (6.9%), couples' therapy (5.4%), response prevention (3.9%), and physical exercise (2.9%).

In a third set of analyses, relevance mapping added ethnicity as a parameter for matching clients to treatment program (PAGE). Adding this parameter further decreased coverability to 60.3% of clients covered by at least one evidence-based treatment program. Under these matching parameters, the practice elements with the greatest applicability were problem solving (56.4%), child psychoeducation (54.4%), maintenance (54.4%), and social skills training (52.5%). The practice elements with the lowest applicability were personal safety (1.0%) and response prevention (3.4%).

Part 2: Therapist Survey

In total, eight (8) therapists completed the therapist survey. Two therapists completed the survey two times and six therapists competed the survey all four waves. In both waves one and two, seven therapists completed the survey for an average of 9.29 clients (N=65). In wave three, seven therapists completed surveys for an average of 9.86 clients (N=69). In wave four, seven therapists completed surveys for 10 clients (N=70). Overall, therapists each completed the survey for an average of 17.63 (range 5-31; SD=7.67) different clients, across the four waves. In total, therapists completed the survey for 141 clients. Eighteen clients were included in all four waves, 14 were included in three waves, 46 were included in two waves, and 63 were included in one wave of survey completion.

Survey responses were compiled across all four waves to examine how frequently clients received a variety of practice elements, as measured by the MTPS. Results indicated that on average, children received 14.94 different practice elements at least once, over the period of up to one year of services. This did vary some depending on the number of waves in which clients

were included. Clients with one wave of data received an average of 8.7 (SD=5.20) practice elements, those included in two waves received an average of 18.56 (SD=9.82) different practice elements, those included in three waves received an average of 20.0 (SD=9.14), and those included in all 4 waves received an average of 23.56 (SD=9.01) different practice elements. Overall, the most commonly delivered practice elements were family therapy (65.2% of clients received), child psychoeducation (63.1%), cognitive (61.7%), caregiver psychoeducation (61.0%), and emotional processing (56.7%). The least common were discrete trial (1.4%), twelve step (1.4%), catharsis (1.4%), hypnosis (1.4%) and couples therapy (0.7%).

Table 1 shows practices delivered to clients with a primary diagnosis of substance use problems. The most commonly delivered practice elements were child psychoeducation (76%), caregiver psychoeducation (64%), problem solving (52%), goal setting (52%), motivational interviewing (48%), and cognitive (48%). More than a dozen practices were delivered infrequently (<5%) such as exposure and personal safety. Table 2 also shows practices delivered to clients with a primary diagnosis of depression. The most commonly delivered practice elements were family therapy (75.0%), cognitive (72.7%), child psychoeducation (70.5%), caregiver psychoeducation (70.5%), and emotional processing (63.6). The least common were commands (2.3%), sand tray (2.3%), stimulus control (2.3%), and timeout (2.3%).

Part 3: Practice Profiles

Practice profiles combined data from the R-Map and therapist survey data (i.e., Parts 1 and 2) to create a number of scenarios, including: (1) *Agency Strength:* practices that are derived from evidence-based program, highly applicable to the agency's client population, and currently delivered frequently; (2) *Agency Opportunity:* practices that are derived from evidence-based program, highly applicable to the agency's client population, but not currently delivered

frequently; and (3) *Agency Weakness*: practices that are not derived from evidence-based programs but are currently delivered frequently.

For the substance use practice profile (Table 1), 23 practice elements were identified as derived from evidence-based programs for treating substance use (PDEB). Of these 23 PDEB, eight practices were highly applicable to the agency's client population and currently delivered frequently to substance use clients (>33% of substance use clients received these practices), falling into the *Strength* category. These practices were motivational interviewing, child psychoeducation, problem solving, maintenance, family therapy, goal setting, cognitive, and caregiver psychoeducation. The remaining fifteen PDEB were highly applicable to the agency's client population, according to R-Map results, but delivered infrequently (<33% of substance use clients received), thus falling in the *Opportunity* category. These were practices such as stimulus control, communication skills, assertiveness training, modeling and therapist praise. Substance use clients did receive practice elements that are not derived from the evidence base, but all of these practice elements were delivered to fewer than 33% of substance use clients, thus none met the study's criteria for the *Weakness* category.

For the depression practice profile (Table 2), 21 practice elements were identified as elements derived from evidence-based programs (PEDB) for treating depression. Of these 21 PDEB, 14 were categorized as *Strength*: highly applicable to the agency's client population and currently delivered frequently (>33% of depression clients received). Some of these practices included cognitive, child psychoeducation, problem solving, goal setting, self-monitoring and caregiver psychoeducation. The remaining seven PDEB for depression were highly applicable to the agency's client population, but currently delivered infrequently (<33% of depression clients received), thus categorized as practice elements providing *Opportunity*. These practices included

maintenance, social skills, behavioral contracting, stimulus control, modeling, assertiveness training, and parent coping, many of which also overlap with areas of opportunity identified for substance use clients. Four practices were practices that are not derived from evidence-based programs for treating depression (PMES) but are currently delivered frequently to clients with depression (>33% of depression clients received). These practices, categorized as *Weakness*, were supportive listening, family therapy, emotional processing, and mindfulness.

Discussion

The present study addressed three aims designed to develop a possible blueprint for providing feedback to an agency in their process for selecting evidence-based practice elements for use with their clientele. First, a relevance mapping approach was used to identify how thoroughly evidence-based programs could cover a specific population of children seeking services at a large public agency in a large metropolitan area in a mid-Atlantic state. Second, therapists reported which practices they used for 141 clients at the agency. These two sets of results were then combined to create practice profiles for two predominant diagnostic categories seen at the agency: substance use and depression. The practice profiles yielded areas of *Strength* (i.e., practice elements derived from evidence-based protocols for depression/substance use and highly applicable to the client population used frequently), *Opportunity* (i.e., practice elements derived from evidence-based protocols for depression/substance use and highly applicable to the client population used *infrequently*), and *Weakness* (i.e., practice elements *not* derived from evidence-based protocols for depression/substance use and highly applicable to the client population used *frequently*).

In brief, results suggested that almost 80% of agency clients were coverable by an evidence-based practice (EBP) when focused on problem alone. The level of coverage

diminished to as low as 60% when other parameters, like age, gender, and ethnicity, were considered. Therapists at the agency delivered a variety of practice elements, on average delivering 14.94 practice elements at least once to clients over the course of up to one year of treatment. Finally, practice profiles suggested that providers frequently delivered a number of practices from the evidence base and infrequently delivered practices with a limited evidence base to substance use clients. Providers also frequently delivered practices from the evidence base, though they also delivered several practices with a limited evidence base to depression clients. Each finding is described in turn.

Relevance mapping results, matching client problems to the treatment outcomes literature, indicated 79.8% of the client population at this agency could be covered by at least one existing evidence-based program. Consequently, more than one of five of clients is uncovered by any evidence-based program. This is similar to findings from previous relevance mapping studies. For example, Chorpita et al. (2011) found 21% of clients were not coverable at the problem only level of analyses. In our study, these 20.2% non-coverable clients were clients with no diagnosis or "other" diagnosis (e.g., adjustment disorder). For those uncoverable cases, it is reasonable to ask how a therapist should approach treatment for youth whose primary diagnosis does not match to any evidence-based programs?

This question becomes more pressing when results from the relevance mapping analysis with additional parameters added are considered. Adding the parameters age and gender/sex decreased coverage to 68.6% of clients and adding ethnicity as a matching parameter further decreased coverability to 60.3% of clients covered by at least one evidence-based treatment program. Two of five clients are not coverable under the most restrictive of these scenarios, a result similar to past relevance mapping studies (Bernstein et al., 2015; Chorpita et al, 2011).

Thus, the challenge for a therapist seeking to deliver evidence-based care is even more challenging when characteristics of the client beyond problem type are considered. Chorpita et al. (2011) provide some suggestions for approaching practice with clients not coverable by EBT, for example adapting a treatment to be age appropriate for an untested population or extending (using unmodified) with an untested population. When attempting to adapt a practice not yet supported for a particular racial or ethnicity group, research has suggested the importance of considering strategies that aim to *contextualize practice element content* (for example, incorporating racial socialization content in parenting strategies for African American families; Coard, Wallace, Stevenson, & Brotman,, 2004) and *enhance engagement* (for example, addressing stigma concerns for Mexican American families; McCabe, Yeh, Garland, Lau, & Chavez, 2005) in order to better fit the needs of the intended community (Lau, 2006).

Our therapist survey results found that on average, each client received 14.94 different practices over the course of up to one year of treatment. Although the number exceeds that found in most single evidence-based treatments, it does compare with previous research on practice use in community-based settings. For example, Garland et al. (2010) found that community therapists treating disruptive behavior problems tended to deliver a wide range of different strategies (evidence-based and non-evidence based) at a relatively low intensity, with an average of 10.9 strategies directed toward children and 8.1 strategies directed toward parents *per session*. Although the current study did not measure intensity of delivery, it is possible that intensity varied, especially considering that the instrument used did not require the therapist indicate the extensiveness with which each practice was used.

Another reason for the relatively larger number of practices may be that the present study only considered primary diagnosis. Previous research has found that clients in community-based

settings tend to have a higher rate of comorbidity (Mueller, Tolman, Higa-McMllan, & Daleiden, 2010; Southam-Gerow, Weisz, & Kendall, 2003). Thus, it is plausible that therapists were using multiple practices to address multiple problems. Orimoto, Mueller, Hayashi and Nakamura (2014) examined practice delivery among community therapists treating youth with disruptive behavior disorders (BDB) and at least one other comorbid diagnosis. They found that therapists reported delivering a more diverse set of practice elements to multimorbid (three or more diagnoses) youth than to youth with only BDB or BDB comorbid with one other diagnosis.

Turning to results from practice profiles, there are a few notable findings, First, our results suggest that these community-based therapists are delivering many PEs consistent with the evidence base for their clients with depression and substance use problems, our *Strengths* scenario. For example, the various evidence based treatments for depression together contain 21 total practice elements. Therapists from the agency reported delivering 14 of these. For substance use, therapists reported delivering eight of 23 practices derived from the evidence base. The results contrast some previous work suggesting lower use of evidence-based practices for therapists in community practice, though those studies focused on different problem areas (anxiety, Higa-McMillan et al., 2017 and trauma, Borntrager et al., 2013). Of note, in both of these studies, therapists reported very low use of exposure, a practice element identified found in most EBTs for anxiety and trauma, a finding that identified a potentially major omission. Our results did not identify a comparably large gap for substance use and depression treatment at a community-based treatment agency.

Turning to our *Opportunity* scenario—that is evidence based practices that fit the primary diagnosis but are not commonly delivered by therapists in our study—we found multiple examples for both depression and substance use. For substance use, communication skills and

assertiveness training both presented opportunities for greater use. Evidence based programs that include these practice elements, such a Multidimensional Family Therapy (Liddle et al., 2001), focus on improving a client's ability to be assertive in situations that might require refusing a substance and improving a client's ability to express their needs or perspective as part of problem solving with peers and family in order to decrease conflict.

For depression, one candidate as an opportunity practice was maintenance. Maintenance is a practice element employed towards the end of a treatment episode and is used to plan for that end through highlighting treatment gains, noting client efforts that facilitated the gains, and talking over future possible challenges with an eye on how to apply skills learned in treatment. There are at least two reasons to be hesitant in seeing the practice as a major target of quality improvement (QI) efforts. First, attrition is high in community-based clinics. In one study of a community-based clinic, Miller, Southam-Gerow, and Allin (2008) found that the average number of session that clients attended was 8 and the mode was 1 session. Another reason to discount the practice element as a key target for QI is that the present study only captured up to one year of services and for most clients only three months. Further, the present study did not collect data on whether the episode of care was ongoing or ended during the reporting period. As a result, methods used in the present study may have reduced the chance of gauging the extent to which maintenance is used in treating depression.

We turn last to the *Weakness* scenario; that is, practices occurring with some frequency but not considered evidence-based for the primary diagnosis. The good news is that there were no practices that fell into this category for treatment of substance use (at frequency greater than 33%). There were a handful of practices that met our Potential Weakness scenario criteria for depression. Specifically, four practices delivered to more than 33% of cases with depression

were not derived from evidence-based programs. These practices were *supportive listening*, *family therapy*, *emotional processing*, and *mindfulness*. A distinction between practices that are proscribed and those that are not prescribed but also not proscribed may be helpful in considering the implications of practices identified in the *Weakness* scenario. It is difficult to imagine a treatment program proscribing the use of supportive listening. In fact, it is possible that supportive listening may be a baseline expectation for some therapy programs. Reflective, empathetic discussion might be used to establish rapport and contribute to other activities that are key to developing an affective bond between client and therapist, such as collecting information and exploring the client's subjective feelings (Karver, Handelsman, Fields, & Bickman, 2008).

Family therapy, on the other hand, is not proscribed by EBTs for depression but is not a common factor of many therapy approaches. What should we make of its frequent inclusion in treatment of depression? One possibility is that therapists in the agency, whose top problem area is substance use, are over-extending family therapy, an evidence-based approach for that problem area (Hogue et al., 2017) to depression cases. However, given that clients in the study had multiple problems and the survey did not require the therapist to link practices to problems being addressed by them, it is also possible that therapists were using family therapy to address other problems. Additionally, it is possible therapist's notion of delivering the *family therapy* practice element does not match the concept as intended on the MTPS. Therapists at this agency might be delivering core content associated with family therapy (family engagement, relational reframing, family behavior change, and family restructuring; Hogue et al., 2017). However, it is also possible that therapists at this agency might actually be reporting on *format* of the therapy session (i.e., including family members in therapy session) rather than reporting on family therapy *content*.

Limitations

The present study had a number of limitations that need to be considered when integrating the findings into the literature. First, the analyses in the present study focus on primary diagnosis established by therapist via usual clinical practice. The reliability and validity of diagnostic procedures in community-based treatment settings may vary and some data suggest that they do not follow stringent assessment procedures (Jensen-Doss, 2011). Unstructured clinical interviews are the most common, and often only, assessment method used by clinicians, however, results of unstructured clinical interviews demonstrate low agreement when compared with more structured assessment procedures (Jensen-Doss & Hawley, 2011; Rettew, Lynch, Achenback, Dumenci, & Ivanova, 2009). Because all three parts of the study rely on the primary diagnosis, caution is needed.

Second, the therapist survey relied on a self-report measure for practices delivered. Though the MTPS has published psychometric data supporting its use (Chorpita, Daleiden, & Weisz, 2005; Borntrager et al., 2015; Orimoto et al., 2012), self-report of practices has been questioned by some studies (Carroll, Nich, & Rounsaville, 1998; Hurlburt, Garland, Nguyen & Brookman-Frazee, 2010). Further, given that the instrument does not define each item, the present study cannot determine if therapists applied the same definitions of each element. As discussed earlier, *family therapy* represents one important example. The MTPS also does not examine extent of delivery practice elements nor does it require a therapist to limit the number of practices selected. Thus, practices selected may have varied in their extent for each client. Finally, the MTPS does not match practices to specific targets, meaning that we do not know what target therapists intended for each particular PE.

Another methodological limitation is that the present study used >10% as the cutoff for practices in the evidence base. Though this choice was based on previous work (Higa-McMillan, 2017), we acknowledge that using a different cutoff point would influence results. This study also created cutoffs for the other categories (e.g., "frequently delivered," "highly applicable"); these cutoffs were created without strong empirical basis. Another weakness is that the present study did not examine client outcomes. Thus, we do not know whether the practice elements delivered by therapists were effective or not for the clients. Further, the relevance mapping analysis focused on a different group of clients from the therapist survey results. Although primary problems from the two did correspond fairly well, it is possible that the client population shifted over time. Last, the present study only examined coverability based on problem, age, gender, and ethnicity. Although these are four major factors studied in outcomes research, the current approach does not consider many other parameters that might influence treatment selection, such as socioeconomic status (Leijten, Raaijmakers, de Castro, & Matthys, 2013) and sexual orientation (Craig, Austin, & Alessi, 2013). Further, the approach does not permit an adequate exploration of the relevance of the intersectional nature of identity in treatment selection (Warner, 2008).

Future Directions

To limit the scope of the present study, the two most common diagnosis served at this agency were used for practice profiles, meaning that the study focused on the majority of clients served, rather than the minority (e.g., clients with ASD, clients with suicidality). Future work could assess targets for quality improvement by instead examining the least common problems at an agency. Additionally, future studies can build on the present study by examining the dosage and competency with which therapists deliver practice elements, neither of which were captured

in this study. Finally, the present study could be extended by future efforts to examine practice element use and subsequent therapeutic outcomes.

Conclusion

Leveraging tools such as relevance mapping and service delivery monitoring offers great potential benefits to agencies and researchers embarking on quality improvement projects. This study demonstrated the ability to examine current service delivery patterns, as well as their overlap and non-overlap with the evidence base and specific applicability to the agency's client population, in order to provide a roadmap with which agency leaders can begin to make decisions about implementation and training, as well as examining changes in service delivery over time. The resulting practice profiles illuminated areas of strength, opportunity, and weakness, specific to this agency, that can be used to develop an actionable plan for quality improvement. This study demonstrated one of many ways data from these tools can be compiled and presented in a meaningful way in order to set the stage for identifying positive changes to child mental health treatment in community-based service settings.

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Table 1.

Substance Use Practice Profile

Practice Element	PWEBS (%)	RMAP (%)	Substance Use (N=25) (%)	All Clients (N=141) (%)
Motivational interviewing	49.00	47.10	48.00	43.30
Psychoeducation child	47.00	65.20	76.00	63.10
Problem solving	45.00	78.90	52.00	47.50
Maintenance	41.00	78.90	40.00	19.10
Stimulus control	41.00	76.50	4.00	5.00
Communication skills	35.00	78.90	20.00	52.50
Assertiveness training	35.00	75.00	8.00	22.00
Family therapy	30.00	56.90	44.00	65.20
Goal setting	28.00	76.50	52.00	51.80
Cognitive	26.00	63.70	48.00	61.70
Family engagement	26.00	33.80	32.00	37.60
Rapport	26.00	0.00	24.00	29.80
Psychoeducation caregiver	20.00	78.90	64.00	61.00
Modeling	20.00	76.50	4.00	19.90
Self monitoring	18.00	75.00	16.00	40.40
Therapist praise	18.00	72.10	4.00	35.50
Parent monitor	18.00	55.90	16.00	31.20
Behavioral contracting	15.00	70.60	16.00	24.80
Skill building	13.00	66.70	20.00	39.70
Functional analysis	13.00	32.40	0.00	4.30
Rewards caregiver	11.00	76.50	4.00	14.20
Relaxation	11.00	75.00	24.00	56.00
Supportive listening	11.00	51.00	12.00	41.80
Social skills	9.00	74.50	4.00	29.10
Activity scheduling	9.00	0.00	4.00	20.60
Insight	7.00	76.50	28.00	53.20
Educational	5.00	51.50	8.00	21.30
Self reward	5.00	44.10	16.00	34.00
Cultural	5.00	0.00	4.00	3.50
Active ignoring	3.00	55.90	8.00	16.30
Parent coping	3.00	48.00	20.00	28.40
Commands	3.00	47.50	4.00	4.30
Attending	3.00	47.50	12.00	24.80
Response cost	3.00	46.10	0.00	3.50
Parent praise	3.00	29.40	8.00	26.20
Twelve step	3.00	0.00	0.00	1.40
Peer pairing	3.00	0.00	0.00	2.10
Mindfulness	3.00	0.00	16.00	48.20
Timeout	0.00	29.40	0.00	5.00
Natural consequence	0.00	29.40	16.00	24.80

Crisis management	0.00	26.50	8.00	16.30
Exposure	0.00	14.20	4.00	14.20
Biofeedback	0.00	13.70	0.00	4.30
Physical exercise	0.00	13.70	0.00	8.50
Individual	0.00	9.80	4.00	8.50
Response prevention	0.00	9.80	16.00	10.60
Personal safety	0.00	8.30	4.00	19.10
Couple therapy	0.00	5.90	0.00	0.70
Discrete trial	0.00	1.50	4.00	1.40
Catharsis	0.00	0.00	0.00	1.40
Hypnosis	0.00	0.00	0.00	1.40
Sand tray	0.00	0.00	0.00	8.50
Play therapy	0.00	0.00	0.00	14.20
Milieu	0.00	0.00	4.00	2.10
Mentoring	0.00	0.00	4.00	3.50
Line of sight supervision	0.00	0.00	4.00	5.00
Medication	0.00	0.00	4.00	49.60
Other	0.00	0.00	8.00	2.10
Interpretation	0.00	0.00	12.00	19.90
Care coordination	0.00	0.00	16.00	31.20
Emotional	0.00	0.00	20.00	56.70

Table 2.

Depression Practice Profile

Practice Element	PWEBS (%)	RMAP (%)	Depression (N=44) (%)	All Clients (N=141) (%)
Cognitive	68.00	63.70	72.70	61.70
Psychoeducation child	64.00	65.20	70.50	63.10
Activity scheduling	57.00	0.00	22.70	20.60
Problem solving	51.00	78.90	54.50	47.50
Maintenance	51.00	78.90	18.20	19.10
Goal setting	42.00	76.50	54.50	51.80
Social skills	39.00	74.50	18.20	29.10
Self monitoring	35.00	75.00	38.60	40.40
Psychoeducation caregiver	33.00	78.90	70.50	61.00
Communication skills	33.00	78.90	43.20	52.50
Relaxation	28.00	75.00	56.80	56.00
Self reward	24.00	44.10	36.40	34.00
Behavioral contracting	20.00	70.60	15.90	24.80
Skill building	19.00	66.70	36.40	39.70
Therapist praise	17.00	72.10	31.80	35.50
Stimulus control	17.00	76.50	2.30	5.00
Insight	15.00	76.50	52.30	53.20
Modeling	15.00	76.50	20.50	19.90
Assertiveness training	11.00	75.00	27.30	22.00
Motivational interview	10.00	47.10	54.50	43.30
Parent coping	10.00	48.00	29.50	28.40
Supportive listening	6.00	51.00	54.50	41.80
Crisis management	6.00	26.50	27.30	16.30
Rewards caregiver	6.00	76.50	13.60	14.20
Family therapy	4.00	56.90	75.00	65.20
Physical exercise	4.00	13.70	11.40	8.50
Emotional	2.00	0.00	63.60	56.70
Mindfulness	2.00	0.00	56.80	48.20
Parent monitor	2.00	55.90	27.30	31.20
Parent praise	2.00	29.40	27.30	26.20
Functional analysis	2.00	32.40	4.50	4.30
Peer pairing	2.00	0.00	0.00	2.10
Medication	0.00	0.00	54.50	49.60
Rapport	0.00	0.00	43.20	29.80
Care coordination	0.00	0.00	36.40	31.20
Family engagement	0.00	33.80	36.40	37.60
Attending	0.00	47.50	22.70	24.80
Interpretation	0.00	0.00	22.70	19.90
Cultural	0.00	0.00	20.50	3.50
Educational	0.00	51.50	20.50	21.30

Personal safety	0.00	8.30	20.50	19.10
Natural consequence	0.00	29.40	18.20	24.80
Exposure	0.00	14.20	15.90	14.20
Active ignoring	0.00	55.90	13.60	16.30
Play therapy	0.00	0.00	6.80	14.20
Response prevention	0.00	9.80	6.80	10.60
Individual	0.00	9.80	4.50	8.50
Line of sight supervision	0.00	0.00	4.50	5.00
Commands	0.00	47.50	2.30	4.30
Sand tray	0.00	0.00	2.30	8.50
Timeout	0.00	29.40	2.30	5.00
Biofeedback	0.00	13.70	0.00	4.30
Catharsis	0.00	0.00	0.00	1.40
Couple therapy	0.00	5.90	0.00	0.70
Hypnosis	0.00	0.00	0.00	1.40
Mentoring	0.00	0.00	0.00	3.50
Milieu	0.00	0.00	0.00	2.10
Other	0.00	0.00	0.00	2.10
Response cost	0.00	46.10	0.00	3.50
Twelve step	0.00	0.00	0.00	1.40
Discrete trial	0.00	1.50	0.00	1.40