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Identifying the Common Elements of Treatment Engagement Interventions in Children's Mental Health Services

Michael A. Lindsey · Nicole E. Brandt · Kimberly D. Becker · Bethany R. Lee · Richard P. Barth · Eric L. Daleiden · Bruce F. Chorpita

Abstract Difficulty engaging families in mental health treatment is seen as an underlying reason for the disparity between child mental health need and service use. Interpretation of the literature on how best to engage families is complicated by a diversity of operational definitions of engagement outcomes and related interventions. Thus, we sought to review studies of engagement interventions using a structured methodology allowing for an aggregate summary of the most common practices associated with effective engagement interventions. We identified 344 articles through a combination of database search methods and recommendations from engagement research experts; 38 articles describing 40 studies met our inclusion criteria. Following coding methods described by Chorpita and Daleiden (J Consul Clin Psychol 77(3):566–579, 2009, doi:10.1037/a0014565), we identified 22 engagement practice elements from 89 study groups that examined or implemented family engagement strategies. Most frequently identified engagement practice elements included *assessment*, *accessibility promotion*, *psychoeducation about services*, *homework assignment*, and *appointment reminders*. *Assessment* and *accessibility promotion* were two practice elements present in at least 50 % of treatment groups that outperformed a control group in a randomized controlled trial. With the exception of *appointment reminders*, these frequently identified engagement practice elements had a high likelihood of being associated with winning treatments when they were used. This approach offers a novel way of summarizing the engagement literature and provides the foundation for enhancing clinical decision-making around treatment engagement.

Keywords Engagement · Common elements · Child mental health · Service use

Introduction

The consequences of untreated and ineffectively treated mental health disorders among youth are likely to be significant. Mental health disorder prevalence rates for youth are at least as high as those for adults—indeed half of all lifetime adult mental health disorders have an onset during childhood (Kessler et al. 2005) and many disorders recur over the lifespan (Kessler et al. 2012). Given the demonstrated efficacy of hundreds of psychosocial interventions (Chorpita et al. 2011), impairment related to mental health disorders could be markedly decreased with greater utilization of these interventions in communities. However, fewer than half of the youth in the USA who have a diagnosable mental health disorder receive care (Costello et al. 2003; Merikangas et al. 2010). Furthermore, the

M. A. Lindsey · B. R. Lee · R. P. Barth
University of Maryland School of Social Work, Baltimore, MD, USA

M. A. Lindsey (✉)
Silver School of Social Work, New York University,
1 Washington Square North, New York, NY 10003, USA
e-mail: michael.lindsey@nyu.edu

N. E. Brandt · K. D. Becker
Department of Psychiatry, University of Maryland School of Medicine, Baltimore, MD, USA

E. L. Daleiden
PracticeWise, LLC, Satellite Beach, FL, USA

B. F. Chorpita
Department of Psychology, University of California, Los Angeles, CA, USA

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majority of youth who enter formal mental health treatment terminate early (USDHHS 2001, 2003), and recent research suggests only about half of families who contact a clinic for services even begin treatment (Pellerin et al. 2010).

Improved ability to engage youth and families in treatment is therefore fundamental to achieving better public health outcomes. There are myriad challenges, however, to engaging families at the initiation or through the course of treatment. These challenges include concerns that are both pragmatic (i.e., lack of transportation, no child care) and perceptual (i.e., perceived relevance of treatment, prior negative treatment experiences, stigma regarding mental illness and mental health services) (Bannon and McKay 2005; Harrison et al. 2004; McKay et al. 2001). Although several federally commissioned reports prescribe attunement to issues of engagement and retention as pivotal to addressing the divide between high mental health need and low service use in children's mental health services (USDHHS 2001, 2003), treatment engagement remains a poorly understood component of successful service delivery. This could be, in part, related to the fact that despite rich theory, information from research on engagement strategies has not been aggregated in ways that are readily translatable into improved services (Nock and Ferriter 2005; Snell-Johns et al. 2004).

Treatment Engagement: Theoretical Considerations and Research

Recently, engagement interventions have increasingly been subjected to "gold standard" experimental methods for establishing evidence, such as randomized controlled trials (RCTs), and there is much to learn from this growing literature (Gopalan et al. 2010; Ingoldsby 2010; Kim et al. 2012; Staudt 2007). To begin, there are varied operational definitions of treatment engagement, which have included client attendance, participation in treatment, alliance with therapy, and treatment retention/attrition as defining components (Elvins and Green 2008; Gopalan et al. 2010; Ingoldsby 2010; Snell-Johns et al. 2004; Staudt 2007). The terms alliance and engagement, in fact, are often interchangeably used (Staudt 2007). Contributing to the diversity in defining treatment engagement is the emerging consensus among mental health services researchers suggesting that treatment engagement is a multi-component construct targeting both attitudinal and behavioral dimensions (Gopalan et al. 2010; Ingoldsby 2010; Staudt 2007).

As a conceptual framework, then, treatment engagement may be thought of as including both attitudinal and behavioral dimensions. The attitudinal dimension of engagement refers to an individual's "emotional investment in and commitment to" mental health treatment (Staudt 2007, p. 185), whereas the behavioral dimension of engagement refers to "client performance of tasks that are necessary to implement treatment and to ultimately achieve outcomes" (Staudt 2007, p. 185). Strategies that address the attitudinal dimension of engagement might include eliciting change talk or setting positive expectations of treatment with the goal of influencing cognitions related to the relevance of treatment (Becker et al. 2013). Strategies focusing on behavioral dimensions, such as therapist response cost (e.g., penalty associated with missed appointment) or completion of in-session work and out-of-session assignments, might influence outcomes like treatment attendance or adherence (Becker et al. 2013).

Beyond attitudinal and behavioral dimensions, engagement might also include access or facilitative dimensions that target client's attendance or adherence to treatment (e.g., appointment reminders, assessment of treatment barriers) (Donohue et al. 1998; Kazdin et al. 1997; Kazdin and Wassell 1999; Kourany et al. 1990; Watt et al. 2007), as well as more social process-oriented dimensions that build mutual support and regard for the opportunities and challenges experienced among families presenting for mental health treatment (e.g., peer pairing or support networking) (Chacko et al. 2009; Cunningham et al. 1995; Fabiano et al. 2009; McKay et al. 2011). In essence, engagement can be operationalized as multidimensional including attitudinal, behavioral, facilitative (in terms of factors that influence access), and socializing dimensions.

Treatment engagement might also be conceptualized in terms of process indicators whereby engagement strategies might be deployed to influence an engagement outcome at a specific point in time regarding treatment (Nock and Ferriter 2005; Staudt 2007). For example, Nock and Ferriter (2005) conceptualize these more process-oriented aspects of treatment engagement as *preparatory enhancement* and *continuous enhancement* strategies. Preparatory enhancement strategies have been utilized to help families attend their first mental health treatment appointments by improving accessibility to services (e.g., providing transportation, offering child care) or by providing psychoeducation about services to families (e.g., reducing stigma and confusion about the nature of services). On the other hand, continuous enhancement strategies have targeted ongoing treatment participation, such as the use of therapist reinforcement strategies (e.g., monetary rewards, verbal praise) that reward attendance or homework completion.

Historically, engagement research in children's mental health has placed greater emphasis on behavioral outcomes—in particular, attendance at initial psychotherapy appointments (Nock and Ferriter 2005; Staudt 2007). Not surprisingly, there is now strong evidence for certain

interventions to increase attendance at the first appointment (McKay et al. 1996a, b, 1998; Watt et al. 2007). The evidence is less clear, however, concerning engagement interventions that enhance retention later in treatment (Gopalan et al. 2010; Ingoldsby 2010; Nock and Ferriter 2005; Staudt 2007). A limited number of studies point to strengths-based approaches (i.e., based on client empowerment/activation and motivational interviewing principles) to improve retention in services, particularly among youth and families of color (Gopalan et al. 2010; Snell-Johns et al. 2004). With few exceptions (Nock and Ferriter 2005), there remains a dearth of evidence concerning interventions to address barriers as they emerge through the course of treatment. There has been, however, some thought that clinicians and researchers have yet to develop adequate models for predicting and controlling treatment engagement outcomes such as attendance and adherence (cf. Nock and Ferriter 2005; Staudt 2007). As we argue in the next section, there may be some distinct advantages to knowledge aggregation methods (e.g., the common elements framework), which might point to engagement strategies that hold promise for influencing diverse engagement outcomes (Becker et al. 2013).

Applying a Common Elements Analytic Framework to Treatment Engagement in Child Mental Health Services

Chorpita and Daleiden (2009) outlined a promising methodology for identifying component practices of effective interventions, summarizing techniques—referred to as *practice elements*—that are most commonly associated with treatments found to be successful in outcome research. Such methodology has the potential to offer new insights regarding best practices for engaging youth and families, in part by sharpening language and constructs used to define engagement practices across the literature (i.e., the independent variables). A parallel process summarizing common targets and outcomes (i.e., the dependent variables; cf. Becker et al. 2013) offers a similar perspective across the literature in aggregate. In conjunction with the former strategy, this process may even point to which particular practice elements might ultimately be best suited to which particular types of engagement outcomes (i.e., practices A and B work most often with outcomes X and Y).

This "common elements" framework is an analytic tool designed to summarize the literature at a level of detail that can aggregate findings across fully integrated intervention packages, thus allowing for a summary analysis at the level of component techniques. This approach can point to the potential relevance of specific components across multiple treatment studies, which complements the traditional summary of whole interventions afforded by other reviews and meta-analytic approaches. For example, an intervention designed to treat child anxiety may be comprised of exposure, relaxation, or modeling practice components (Chorpita and Daleiden 2009), and these individual practices can be identified for how frequently they occur across all effective treatments (e.g., X % of successful treatments for child anxiety use element Y).

Although not intended as an intervention design strategy, the common elements framework affords a view of the literature that can influence subsequent design efforts. For example, a common strategy when designing a new intervention is to make theory-driven modifications to an existing intervention. The common elements framework, on the other hand, affords a view of the literature that allows a developer to consider all of the elements that were present in any successful treatments, thus exposing a larger library of ideas. Because the framework exposes what elements are most often part of treatments that work, it can raise new hypotheses about which elements might be understudied, which combinations may be important, and which strategies are associated with which outcomes, across the literature as a whole. This strategy has, admittedly, some tradeoffs regarding generalizability to future intervention designs, depending on the extent to which the new intervention studies differ from those from which the practice elements were harvested.

The Current Study

The primary goals of this study are to identify the practice elements of treatment engagement interventions in children's mental health services research, the ways in which these engagement elements have been deployed as intervention strategies, and the connection of engagement elements to study outcomes. Specifically, we summarize the study characteristics (e.g., sample, setting) of RCTs examining treatment engagement in children's mental health services. Additionally, we present the frequency with which each engagement practice element is present in interventions tested in RCTs, as well as the frequency with which each practice element was used in a study group that outperformed a comparison group in at least one study. We also provide conditional probabilities reflecting the likelihood of each practice element being associated with a winning treatment group when it was used. Finally, we provide descriptive information regarding the operationalization of engagement outcomes in the RCT literature.

Consistent with the current empirical literature, our conceptualization of engagement is framed as both dimensional (attitudinal, behavioral, facilitative, and social) and in terms of process indicators (preparatory enhancement and continuous strategies). Therefore, coding

efforts in this study were shaped by this conceptualization with the goal of providing a broad examination of engagement strategies. It is this initial attempt to aggregate empirical knowledge about engagement practices that can then address other empirical questions, such as which practices might be best suited for particular engagement outcomes (i.e., Becker et al. 2013). We return to this point in the discussion.

Methods

Search Selection and Criteria

The study began with a systematic search for randomized controlled trials (RCTs) on treatment engagement among youth and families. To be included in our review, the study had to (a) be an RCT, (b) implement a strategy or intervention to engage families in children's mental health treatment, (c) report a measure of treatment engagement (e.g., attendance, adherence) as an outcome, (d) have a sample that targeted youth under the age of 21 and their families, and (e) include children with mental health problems or children who were referred for mental health treatment. PsycINFO and SocIndex served as the primary databases for selection of RCTs of treatment engagement interventions and established engagement protocols. The search included the following terms and strategy: *engagement* OR *retention* OR *attrition* combined with an "exploded" *mental health services* term.[1] This yielded 331 articles (PsychINFO = 93; SocIndex = 238). Additionally, we augmented our search for engagement RCTs with the following: (a) personal communication with engagement experts in the field who nominated 3 additional articles; (b) 7 articles having a "family engagement" intervention component were identified within the context of an ongoing literature review in children's mental health (i.e., PracticeWise 2012); and (c) forward and backward searches of engagement RCTs already identified from one of our prior search strategies (i.e., database searches, published literature reviews, etc.), which yielded 6 additional articles.

Our combined search strategies yielded 344 articles that were screened for inclusion in our review. Of the 344 articles, 38 articles[2] describing 40 studies, published between 1974 and 2011, met study inclusion criteria. Table 1 displays the 38 articles organized by author and describes the targeted client of the engagement intervention (i.e., youth, caregiver, family), the setting in which the engagement elements were used, and associated outcomes for each article. Based on the PracticeWise Clinical Coding System (PracticeWise 2008), a *study* was defined as a discrete scientific investigation in which participants were randomly assigned to different study groups (i.e., there were two articles that described more than one study). A *study group* was defined as a set of multiple participants within a study who were randomly assigned to share the same independent variable level for engagement. For example, a study may have two study groups including (a) an engagement group that received appointment reminders and childcare or (b) a control group that did not receive engagement strategies. For this review, there were 98 study groups included across the 40 studies. Seventy-nine out of the 98 study groups (80.6 %) targeted increasing treatment engagement via a specific intervention strategy. Five study groups (5.1 %) were attention control groups, whereas five other study groups (5.1 %) received usual care services to promote treatment accessibility (e.g., receipt of free or reduced cost services). Taken together, the research team coded practice elements for these 89 study groups. Of the remaining nine study groups, six were no-treatment controls (6.1 %), and three were waitlist controls (3.1 %) that had no practice elements.

Coding System

The development of the coding system was based on the PracticeWise Clinical Coding System (PracticeWise 2008), which helped to guide decisions about the coding of study designs, program, sample demographics, group characteristics, measures, outcomes, and practice elements (see Chorpita and Daleiden 2009, for additional details about the coding system). A *program* was defined as a package of family engagement strategies with a defined arrangement and logic; four programs were identified: brief strategic family therapy (BSFT), motivational enhancement therapy (MET), motivational interviewing (MI), and the McKay engagement intervention. A *practice element* was defined as a discrete strategy used as part of a larger intervention or protocol to engage youth and families in treatment (e.g., *appointment reminders*, *psychoeducation about services*, *assessment of treatment barriers*). The research team modified the PracticeWise Clinical Coding System by adding more practice elements to the original coding manual to adequately capture strategies used to engage youth and families in treatment. The team identified 11 supplemental engagement practice elements, provided operational definitions for each, and sent our initial list of practice elements to national engagement research scholars for feedback on existing elements, editing of definitions, and suggestions for additional elements.

[1] Exploding a subject within a search strategy allows for the retrieval of results that contain the subject in combination with all of its narrower forms.

[2] Noted in the reference section by an asterisk (*).

Table 1 Summary of studies included in the review

Author(s) and year	Sample size	Number of study groups	Engagement setting	Target of the engagement intervention[a]	Study outcome
Bonner and Everett (1986)	38	2	Clinic	Youth, caregiver	Cognitive preparedness
Chacko et al. (2009)	120	3	Clinic	Youth, caregiver	Adherence; attendance; satisfaction, clinical outcome
Coatsworth et al. (2001)	104	2	Clinic, home	Family	Attendance
Coleman and Kaplan (1990)	49	2	Clinic	Youth, caregiver	Cognitive preparedness; clinical outcome
Cunningham et al. (1995)	150	3	Clinic, home, community	Youth, family, caregiver	Adherence; adherence; cost; clinical outcome
Donohue et al. (1998)	39	2	Clinic	Youth	Attendance
Dumas et al. (2010)	610	2	Daycare	Caregiver	Adherence; attendance; enrollment/intent to enroll
Eyberg and Johnson 1974	17	2	Clinic	Caregiver	Adherence; attendance; clinical outcome
Fabiano et al. (2009)	75	2	Clinic	Youth, family, caregiver	Adherence; attendance; child functioning; satisfaction; clinical outcome
Fleischman 1979[b]	18	4	Clinic	Family, caregiver	Adherence; attendance
Heinrichs (2006)	197	2	Clinic, daycare, home, school	Caregiver	Attendance; enrollment
Holmes and Urie (1975)	88	2	Clinic	Youth	Attendance
Jensen and Grimes (2010)	82	4	Clinic	Caregiver	Adherence; attendance
Kourany et al. (1990)	11	4	Home	Family	Attendance
Kutash et al. (2011)	115	2	Home	Youth, caregiver	Adherence; cognitive preparedness; mental health services efficacy; clinical outcome
MacLean et al. (1989)	75	4	Home	Family	Attendance
McCabe and Yeh 2009	58	3	Clinic	Youth, caregiver	Attendance; clinical outcome
McKay et al. (2011)	321	2	Clinic	Youth, family, caregiver	Attendance; clinical outcome
McKay et al. (1996a)	108	2	Home	Family	Attendance
McKay et al. (1996b)	107	2	Clinic	Family	Attendance
McKay et al. (1998)	109	3	Home	Family	Attendance
Mendenhall et al. (2009)	165	2	Clinic	Youth, family, caregiver	Adherence; cognitive preparedness; satisfaction; service appropriateness; clinical outcome
Miller and Prinz (2003)	124	3	Clinic	Family	Attendance
Nock and Kazdin (2005)	76	2	Clinic, home	Caregiver	Adherence; attendance; cognitive preparedness
Noel (2006)	90	2	Clinic	Youth	Attendance
Parrish et al. (1986)	99	3	Home	Family	Attendance
Planos and Glenwick (1986)	274	3	Home	Family	Attendance; cost
Prinz and Miller (1994)	147	2	Clinic	Family	Attendance
Santisteban et al. (1996)	193	2	Clinic, home	Family	Attendance
Shuman and Shapiro 2002	149	3	Clinic	Caregiver	Attendance; cognitive preparedness

Table 1 continued

Author(s) and year	Sample size	Number of study groups	Engagement setting	Target of the engagement intervention[a]	Study outcome
Spirito et al. (2002)	76	2	Home, hospital	Family	Adherence; barriers to treatment
Sterrett et al. (2010)	24	2	Clinic	Caregiver	Attendance; barriers to treatment; cognitive preparedness; satisfaction
Stevens et al. 2009	179	2	Home	Youth	Adherence
Szapocznik et al. (1988)	108	2	Clinic, home, community	Youth, family	Attendance; clinical outcome
Warzak et al. (1987)	128	4	Home	Family, clinic	Attendance; cost
Watt et al. (2007)[b]	228	4	Home	Youth	Attendance
Weinstein 1988	36	3	Clinic	Youth	Attendance; cognitive preparedness
Wiseman and McBride 1998	128	3	Home	Family	Attendance

[a] The column notes that the target of the intervention could be the youth, caregiver, family (i.e., multiple family members, typically unspecified as to whom, were the target of the engagement intervention), or clinic (i.e., the target of the engagement intervention was related to improving service related costs at the clinic). If more than one target appears in the cell, this means that the engagement intervention targeted multiple individuals

[b] This article contributed two studies, with two groups per study

Of note, a few of the supplemental engagement practice elements overlapped with existing PracticeWise codes. In these instances, supplemental engagement practice elements were combined with the PracticeWise codes. For example, *joining* (i.e., the process by which the provider reaches out to the family member who initiated treatment contact and presents oneself as an ally) was integrated into the PracticeWise code for *relationship/rapport building* (i.e., strategies of which the primary aim is to increase the quality of the relationship between the therapists and caregiver or family). Further, some supplemental engagement practice elements were better conceptualized as hierarchical, with the existing PracticeWise codes reclassified to include subcodes. For example, *accessibility promotion* (i.e., any strategy used to make services convenient and accessible) included the following subcodes: *availability of on-site child care*, *services free of charge*, *flexible scheduling* (e.g., after hours or walk-in appointments), *providing services at a convenient location* (e.g., home, school), and *providing transportation to appointments* (e.g., bus tokens, gas money). This process resulted in a comprehensive list of 71 codes for practice elements, in which 7 of the 71 codes were hierarchical in nature. Some of the 71 elements were embedded in tested protocols (e.g., *psychoeducation about services*) and some were tested standing alone (e.g., *appointment reminders*). Importantly, a few practice elements (e.g. *case management*, *crisis management*) were identified that have not been typically operationalized as treatment engagement interventions or strategies (Ingoldsby 2010). These practice elements were coded as such because within the studies they were conceptualized as strategies designed to impact an engagement outcome such as attendance (e.g., Kutash et al. 2011; McKay et al. 1996a, b, 1998). See Table 2 for the operational definitions of the engagement practice elements. Finally, raters were also allowed to write in additional practice elements identified within a study that were not featured in our coding manual. Three write-in codes related to *rehearsal*, *homework assignment*, and *assessing barriers to homework completion* were frequently written in and thus were incorporated as practice elements in our codebook.

Each article was double-coded by three doctoral level raters who received rigorous training on the modified PracticeWise Clinical Coding System and the supplemental codes for this project. An expert on the PracticeWise coding system reviewed and resolved discrepancies and made final coding decisions. Interrater reliability among the raters on the initial set of 29 engagement practice elements was conducted to determine rater consistency. The following engagement elements were dropped due to low Kappas (i.e., <0.40; Fleiss 1981): *communication skills*, *goal setting*, *performance feedback*, *psychoeducation about the problem*, *relationship mapping*, *self-monitoring*, and *therapist monitoring* (Note: This finding speaks to the need to have clearer descriptions of interventions provided in articles). Kappas for the remaining engagement practice ($n = 22$) elements ranged from 0.41 to 1.0.

Independent raters also coded the measures used to evaluate the engagement strategies and outcomes. Examples

Table 2 Engagement practice elements by definition and frequency in tested protocols

Practice element	Abridged practice element definition	Tested protocols (89 groups; 47 winning groups)		
		All groups (%)[a]	Winning groups (%)[b]	*P* (winning|used)[c]
Assessment	Measurement of client's strengths/needs through a variety of methods (e.g., interviews, questionnaires, observations, or record reviews) during which the therapist can engage clients through building rapport and an alliance	56 (63.0)	30 (66.0)	0.54
Accessibility promotion	Any strategy used to make services convenient and accessible in order to proactively encourage and increase participation in treatment	38 (42.6)	24 (51.0)	0.63
Psychoeducation about services	Provision of information about services or the service delivery system (e.g., session frequency/content, roles of therapist and client) to increase the likelihood that clients will be prepared for services and actively participate in treatment	38 (42.6)	20 (42.5)	0.53
Homework assignment	Therapeutic tasks given to client(s) to complete outside of session(s) to improve treatment adherence with the goal of reinforcing/facilitating new knowledge or skills that are consistent with the treatment plan	33 (37.0)	18 (38.2)	0.54
Appointment reminders	Providing information about the day, time, and location of next session via mail, text, phone, email, etc. to increase session attendance and retention in services	22 (24.7)	9 (19.1)	0.41
Assessment: treatment barriers	Discussion to elicit and identify barriers that prevent youth/family participation in treatment such as practical issues (e.g., transportation, scheduling), previous experiences with services, stigma, etc.	20 (22.4)	15 (32.0)	0.75
Rehearsal	Within session exercises (e.g., role plays) to build/reinforce competence in a skill area related to improving/increasing engagement	16 (18.0)	5 (10.6)	0.31
Eliciting change talk	Probing disadvantages of the status quo, advantages of change, optimism, and intention to change with the goal of increasing youth/family participation in treatment	16 (18.0)	7 (14.8)	0.44
Expectation setting	Establishing a positive environment and expectation for treatment/service use to encourage engagement in treatment	15 (16.9)	11 (23.4)	0.73
Cultural acknowledgement	Use of strategies explicitly designed to explore the client's culture (e.g., race/ethnicity, age, sexual orientation) to help facilitate engagement in services	14 (15.7)	11 (23.4)	0.79
Therapist reinforcement	Reinforcers (e.g., monetary rewards, verbal praise) used by therapists to increase desired behaviors (e.g., attendance, homework completion) that are related to engagement	11 (12.4)	8 (17.0)	0.73
Behavioral contracting	Creating and using a contract or agreement (e.g., attendance contract, verbal commitment about treatment) to obtain youth/family commitment to participating/engaging in treatment	9 (10.1)	7 (14.8)	0.77
Relationship/rapport building	Strategies to increase the quality of the relationship between the youth/caregiver/family and the therapist (e.g., "joining" in family systems engagement) to help enhance youth/family engagement in services	6 (6.7)	6 (12.7)	1.0
Therapist response cost	A loss/penalty based on unwanted behavior with regard to lack of or poor participation in treatment (e.g., non-adherence to previously established attendance goal might result in termination)	6 (6.7)	2 (4.2)	0.33
Modeling	Demonstration of a desired behavior to promote imitation and performance of that behavior by client.	5 (5.6)	4 (8.5)	0.80
Peer pairing	Pairing the youth, family, or caregiver with another youth, family or caregiver to provide support around seeking/obtaining services, encourage participation in services, enhance skill development, and provide/share information	5 (5.6)	4 (8.5)	0.80

Table 2 continued

Practice element	Abridged practice element definition	Tested protocols (89 groups; 47 winning groups)		
		All groups (%)[a]	Winning groups (%)[b]	*P* (winning|used)[c]
Support networking	Inclusion of informal helpers (e.g., relatives, friends, neighbors, faith leaders) to help with service planning and delivery, and engagement in treatment	4 (4.5)	3 (6.4)	0.80
Parent coping	Exercises/strategies designed to enhance caregivers' ability to deal with stressful situations to indirectly help increase their participation in treatment	4 (4.5)	3 (6.4)	0.75
Case management	Providing coordination and oversight of multiple formal and informal support/services for the identified client such that families receive a lot of assistance navigating multiple domains (e.g., home, school, medical, behavioral health, juvenile justice)	3 (3.4)	3 (6.4)	1.0
Motivational, not otherwise specified	Exercises designed to increase readiness to participate in services (e.g., cost–benefit analysis, persuasion, or Socratic questioning or a variety of other approaches)	3 (3.4)	3 (6.4)	1.0
Crisis management	Managing and resolving urgent and/or dangerous events that may prohibit mental health treatment	2 (2.2)	2 (4.2)	1.0
Problem solving	Training in the use of techniques (e.g., brainstorming, choosing a solution, evaluating results) designed to resolve targeted problems related to engagement (e.g., overcoming barriers to participating in services)	1 (1.1)	1 (2.1)	1.0

[a] Refers to the number (percentage) of groups that contained each practice element. Percentages for "Groups" were calculated as follows: Groups with the practice element defined in the row heading/total groups in tested interventions. For example, 63.0 % of the study groups were included in the assessment

[b] Refers to the number (percentage) of winning groups that contained the practice element. The denominator is based on the number of groups that won ($n = 47$), and the percentage is based on the frequency of that element in the winning group/total winning groups. For example, 66 % of the 47 study groups that contained the assessment practice element won against the comparison condition

[c] Refers to the probability of a practice element being included in a winning intervention given that it was used. For example, assessment had a 0.54 probability of being in a winning study group when it was used

of measures could be formal/standardized (e.g., Parent Motivation Inventory; PMI) or informal (e.g., part of the child or family's service record such as number of sessions attended). For each measure, raters indicated the measure's *respondent* (e.g., mother, father, clinician, clinic, youth) and *target* (e.g., mother/father, family, youth). As an example, raters coded the respondent and target for a measure of attendance as the caregiver or child. In addition, raters coded the measure's scale, score type, and improvement direction. The research team created codes for the measures' constructs that are defined as an abstract concept about which the corresponding measure provides information. The constructs (or outcomes domains) for this review include attendance, adherence (i.e., matters pertaining to compliance with treatment during treatment), cognitive preparedness (i.e., understanding of therapy, motivation to participate in treatment, expectancies about treatment outcomes), satisfaction, barriers to treatment, enrollment/intent to enroll, and mental health services efficacy. Finally, multiple constructs were often consolidated to form one overarching construct. For instance, there were many constructs that comprised attendance including attendance at the intake, attendance for the first three sessions, number of no shows, number of cancellations.

Results

Sample and Setting Characteristics

The total number of participants across all of the studies was 4,815 children, mostly male (53.6 %)[3] with an average age of 10 (SD = 4.16).[4] In the majority of the studies that reported race (26 of 40 studies), child participants were ethnic minorities (61.3 %). Twenty-two of the 40 studies reported a specific location with 19 (86 %) of those studies being conducted in the USA, typically in an urban setting ($n = 14$, or 64 %).

[3] 30 of 40 studies reported data on participants' gender.

[4] 35 of 40 studies reported data on participants' age.

Engagement interventions were most frequently delivered in the clinic setting (62.9 %), followed by the client's home (44.9 %), and other settings (e.g., schools; 7.9 %).[5] In terms of delivery format, in person delivery was most frequent (51.2 %). Forty-four percent were delivered by telephone, 25 % by written communication, and 9.5 % by audio/videotape. The caregiver was most often the target of the engagement intervention, and the interventionist (i.e., individual who implemented the engagement intervention) was most frequently either a graduate student or someone with at least a Master's degree or higher.

Seventy-six of the 89 study groups provided information on whether or not the engagement intervention was manualized. Of these 76 study groups, 66 used a codified set of procedures that articulated how the engagement intervention was delivered. Of the published studies, 75 % included youth with externalizing problems, 27.5 % of the studies included youth with internalizing problems, 5 % of the studies included youth with developmental disabilities, and 30 % of studies included youth with other problems (e.g., substance use, suicidality).

Frequency of Engagement Practice Elements and Probability of Wins

Twenty-two engagement practice elements were identified among the 89 study groups (see Table 2). *Assessment* was the most frequently used engagement practice element, appearing in 63 % of the study groups. *Accessibility promotion* and *psychoeducation about services* were used with equal frequency, 42.6 %. In 37 % of the study groups, a *homework assignment* was delivered as part of the engagement strategy, especially pertaining to reinforcing treatment adherence (e.g., see Chacko et al. 2009). *Appointment reminders* had a frequency of 24.7 %.

Table 2 also shows the frequency of engagement practice elements' use among treatments in *winning* study groups (i.e., a treatment group that outperformed an alternative treatment or the control condition as determined by a significant time by group interaction or at the post-engagement assessment on any outcome measure such as attendance, adherence, or cognitive preparation; see Chorpita and Daleiden 2009). Forty-seven out of 89 study groups outperformed an alternative or control condition and were therefore considered "winning study groups." *Assessment* was included in an intervention that outperformed an alternative treatment or control condition in 30 of 47 winning study groups, or 66 %. *Accessibility promotion* was included in an intervention that outperformed an alternative treatment or control condition in 51 % of the winning study groups. No other engagement practice element was included in at least 50 % of winning study groups.

Finally, the last column of Table 2 shows conditional probabilities that reflect the number of times each practice element was found in a winning group divided by the number of times it was used. Among four of the five most frequently used engagement practice elements (i.e., *assessment*, *accessibility promotion*, *psychoeducation about services*, and *homework assignment*), the conditional probability that each practice element was associated with a winning study group given that it was used in any study was above 0.50. Only *appointment reminders* (0.41) had a conditional probability under 0.50. The 14 engagement practice elements with the highest conditional probabilities of winning out of the times it was used (i.e., 0.70 and above) included the following: *expectation setting* (0.73), *therapist reinforcement* (0.73), *parent coping* (0.75), *assessment of treatment barriers* (0.75), *behavioral contracting* (0.77), *cultural acknowledgement* (0.79), *support networking* (0.80), *modeling* (0.80), *peer pairing* (0.80), *case management* (1.0), *crisis management* (1.0), *motivational NOS* (1.0), *problem solving* (1.0), and *relationship/rapport building* (1.0).

Frequency of Established Protocols among Study Groups

Among the 89 study groups, 3 established engagement intervention programs were identified. They included Brief Strategic Family Therapy (BSFT), the McKay engagement intervention, and motivational interviewing (MI). Of the 89 study groups, BSFT appeared in 3 study groups, the McKay engagement intervention appeared in 5 study groups, and MI appeared in 2 study groups.

Operationalization of Engagement Outcomes

Table 3 reflects the various engagement outcomes observed among the 40 studies. Table 3 might also be interpreted as the range of outcome indicators in the published RCT literature on child and family engagement. In total, there were 152 outcomes observed among the groups, and attendance was an outcome 50.3 % of the time, followed by adherence at 22.5 % and cognitive preparedness at 12.3 %. Considering study outcomes based on the major categories (e.g., attendance, adherence, cognitive preparation), attendance was an outcome reported in 85 % of the studies, followed by adherence at 30 %, and cognitive preparation at 25 %. Finally, the research team further examined how attendance was operationalized among the studies given its higher frequency as an outcome. The categories for types of attendance measured (See Table 3)

[5] Categories are not mutually exclusive; therefore, percentages do not equal 100 % whenever presented in this section.

Table 3 Frequency of engagement outcomes

Outcome	Frequency (%)
Attendance	75 (50.3)
Attendance at single point	18 (24)
Attendance over treatment course	44 (59)
Behavior related to attendance	13 (17)
Adherence	35 (22.5)
Cognitive preparedness	19 (12.3)
Satisfaction	14 (9.1)
Barriers to treatment	5 (3.3)
Enrollment/intent to enroll	3 (1.9)
Mental health services efficacy	1 (.6)

Total number of engagement outcomes equals 152

included attendance at a single point (observed in 24 % of the attendance outcomes), attendance over the course of treatment (observed in 59 % of the attendance outcomes), and behavior related to attendance (e.g., average number of minutes late to sessions, appointment no-show) (observed in 17 % of the attendance outcomes).

Discussion

This systematic review used the common elements framework to identify components common to efficacious engagement interventions in child mental health services studies. This study supplements previous systematic reviews of the outcomes of engagement intervention RCTs in children's mental health services (Ingoldsby 2010; Kim et al. 2012; Nock and Ferriter 2005). In particular, we identified 29 engagement practice elements among the 40 RCTs meeting inclusion criteria for our review—of these 22 were able to be reliably coded based on the articles. *Assessment* was the most prevalent engagement practice element used among engagement RCTs we examined, followed by *accessibility promotion*, *psychoeducation about services*, *homework assignment*, and *appointment reminders*. Among these practice elements, *assessment* (66 %) and *accessibility promotion* (51 %) were frequently included in engagement interventions that outperformed an alternative treatment or control condition among the study groups.

Interestingly, the engagement practice elements with the highest conditional probabilities (0.70 or greater) of being associated with winning study groups (e.g., *expectation setting, therapist reinforcement, parent coping, assessment of treatment barriers, behavioral contracting, cultural acknowledgement, support networking, modeling, peer pairing, case management, crisis management, motivational NOS, problem solving, and relationship/rapport building*) were less frequently tested in published studies. This finding is noteworthy, considering that many of these engagement practice elements concern specific practitioner behaviors that may potentially influence client–therapist alliance (e.g., *expectation setting*, *cultural acknowledgement*, *therapist reinforcement*, *relationship/rapport building*). Practitioner behaviors, indeed, have been conceptualized as being particularly important to the enhancement of clients' attitudes toward and readiness for treatment (Santisteban and Szapocznik 1994; Staudt 2007). This could be interpreted several ways. On the one hand, perhaps it means that these elements warrant additional research. On the other hand, these elements were rarely used in isolation, so one cannot immediately conclude whether these elements are necessary or sufficient to enhancing treatment engagement. Moreover, it is difficult to determine the extent to which the low representation of these elements in the literature may be an artifact of the file drawer problem (Rosenthal 1979), such that they have been tested but the intervention was not more effective than a comparison condition, rendering it less likely to be published.

The data derived in Table 2 (i.e., analyses regarding winning groups versus conditional probabilities) have the potential to enhance clinical decision-making about treatment engagement by prioritizing certain practice elements. For example, as previously mentioned, the frequency data indicate that elements such as *assessment* and *accessibility promotion* are included in at least 50 % of effective engagement interventions. Thus, selecting or designing an intervention with at least one of these high-frequency elements (and to a lesser degree *psychoeducation about services*, 42.5 %, and *homework assignment*, 38.2 %) might increase the likelihood that positive treatment engagement would result rather than selecting an intervention comprised only of elements with low frequencies in winning study groups.

Conditional probability data, which reflect the extent to which the interventions that used these elements have been successful in the published literature, may also be useful to clinical decision-making. Elements such as *relationship/rapport building*, *case management*, *crisis management*, *problem solving*, and *self-monitoring* all had been included in winning study groups each time they were tested in the published literature. Although these probabilities should not be interpreted as translating directly into the likelihood of success when a practice element is used in clinical practice, they offer another piece of information for a clinician to consider when making decisions about the selection of an engagement intervention.

The information on frequencies and conditional probabilities could also be used together. Take, for example, the practice element *accessibility promotion.* Its frequency of

appearing in a winning group versus a control or alternative condition was 51 %, while its probability of winning in the times that it was used was 0.63. One might hypothesize, then, that this element may be particularly promising as a preparatory enhancement intervention to improve an engagement outcome like attendance, especially given both metrics (i.e., frequency of wins and conditional probabilities) are high relative to other practice elements. In contrast, *appointment reminders*, with a winning frequency of 19 % and a conditional probability of 0.41, may not be as promising of an intervention to promote engagement. Although the conditional probability for *appointment reminders* is higher than its frequency of wins, the frequencies of winning may be a better gauge of what has been found to improve engagement in clinical practice. In contrast, conditional probabilities provide more insight about the practice elements on the occasions they were employed to target an engagement outcome; in the case of *accessibility promotion*, the conditional probability of 0.63 provides further confirmation that this practice element is promising with respect to improving an engagement outcome.

Attendance was the engagement outcome assessed most often among the RCTs in our review. This is consistent with extant research (cf. Nock and Ferriter 2005; Snell-Johns et al. 2004; Staudt 2007). When measured, attendance was typically operationalized as attendance over the course of treatment (i.e., attendance measured at each meeting or session instead of only being measured at intake or first appointment). In contrast, outcomes such as adherence, cognitive preparedness, and treatment satisfaction received less attention in the engagement literature. Examining the influence of engagement practice elements on outcomes such as adherence, cognitive preparedness, and treatment satisfaction should expand our knowledge regarding the best targeting of these engagement elements, as research suggests that there are different elements associated with different engagement domains (Becker et al. 2013). In sum, our findings suggest the need for more prospectively designed studies on treatment engagement, especially in areas that go beyond attendance as an outcome.

Limitations

Our findings should be considered in light of the following limitations. First, the common elements identified here represent treatment components aggregated across multiple engagement interventions and are intended as an analytic summary rather than a treatment design strategy. Clearly, elements identified in this manner may not work in isolation or outside of a coordinated engagement intervention to produce the expected outcomes (Chorpita et al. 2005, 2007). They do, however, give us a sense of the range of engagement strategies that have been used to influence engagement outcomes (i.e., attendance, adherence, etc.). This advances the area of treatment engagement science and may further enhance our conceptual clarity of engagement.

In a related manner, our analyses do not identify "active" treatment components, but rather common components of successful treatment. We cannot definitively say that element A caused a specific outcome, as one might be able to do based on the results of a specific experimental design (Chorpita et al. 2005). Indeed, some elements may have a stronger effect versus others (e.g., an element like *case management* requires more effort and may even pack a bigger effect versus an element with a minor level of effort such as *appointment reminders*). The fact that some of the engagement strategies include activities that could also be part of a mental health intervention is certainly a confound, but there was no way to reliably separate in this review the engagement strategies and mental health interventions that were used (i.e., what happens after the engagement strategy is used). The "winning" treatment analysis may help identify candidates for active treatment components because they are frequently or uniquely associated with a winning group, but many other aspects of the service implementation could also contribute to the effect, including aspects that were not practice related (e.g., supervision, feedback, coordinating processes).

Our winning treatment analyses are based on a definition of what is a minimally acceptable metric for this calculation. An engagement practice element found in a "winning" treatment group meant that it outperformed an alternative or control condition on any outcome measure (e.g., attendance, adherence, or cognitive preparation). Having a multi-category versus binary analytic for winning (i.e., "treatment" versus "no treatment" or "treatment with engagement strategies" versus "treatment as usual") imposes a higher strength of evidence standard, which will yield fewer results. The RCT engagement literature is not large enough to draw this split, and this is a limitation of the literature. We are aware that if we change the definition of "winning", our results could change. We also did not weigh the winning frequency by a study's sample size or effect size; each study contributed the same weight in calculating frequency of practice elements (Chorpita et al. 2005). These methodological variations may be the focus of future research in this area.

The authors recognize that the conditional probability of being present in a winning treatment will be inflated if there were studies that were not captured in this review that had that treatment element in a condition that did not show any benefit. An example of such a study would be one that was not accepted for publication because despite having a

strong research design there was no evidence of improved engagement and thus the article was rejected. Moreover, the conditional probabilities represent the published literature and therefore should not be reflected as what one would expect to happen when using these elements in clinical care. This is particularly the case when interpreting conditional probabilities calculated for engagement practice elements with small cell sizes (e.g., *support networking* or *motivational NOS*). Notwithstanding these concerns and cautions, the probabilities are likely to be ordered, in the sense that using the engagement practice elements with the highest conditional probabilities may hold more promise than using the ones with lower probabilities.

As with any approach to a scholarly review, this study is also limited by the available evidence in the literature. Many unknowns remain in the literature. For example, there is little information about the extent to which engagement interventions among the studies in our review were delivered with high fidelity. Even though the engagement elements were manualized in some format, either codified as procedures within the study or manualized otherwise, we did not observe consistent, independent assessments of fidelity within the studies. Thus, our distillation of engagement practice elements represents what we reviewed in the literature; an independent evaluation of both the training undertaken to learn the engagement intervention and whether intervention was ultimately delivered in the way it was intended may identify the presence of other elements. Also, the analysis was based on what was written in the articles about the studies—no effort was made to go back to the manuals to verify that some items in the manuals might not have been included in the publications from the studies. These limitations are in juxtaposition to the authors' recognition that careful documentation of manualization and associated fidelity assessment procedures is of great importance in intervention development and testing (Rounsaville et al. 2001).

Finally, our findings in this systematic review are based on RCTs, which may have excluded treatment engagement interventions or strategies that are theoretically strong—that is, strategies emanating from well-known behavioral theories (cf. Ajzen 1991; Ajzen and Fishbein 1980; Rosenstock et al. 1988)—but have not been empirically tested. Thus, our list of elements may exclude some great candidate elements that have been presented as principles, but not translated into testable practices. Treatment engagement interventions tested via alternative designs (i.e., quasi-experimental designs, case studies) may have strong empirical value, but not be quite ready for a RCT due to challenges regarding randomization (e.g., the nature of clients' presenting needs work against denial or delay of treatment) or novelty of the engagement interventions and the need for piloting before going to scale. Additionally, our systematic review may have excluded interventions (e.g., multisystemic therapy, nurse home visitation) that have been identified by their developers as including engagement strategies or interventions, but did not meet our inclusion criteria because the strategies or interventions within these programs did not include a measure of treatment engagement (e.g., attendance, adherence) as the outcome.

Implications and Next Directions

This study provides a snapshot of the treatment engagement literature in child mental health services, clarifying the range of potential independent and dependent variables that characterize this literature. Applying a knowledge aggregation method like the common elements framework confers advantages for the advancement of treatment engagement work. First, such an analysis helps to specify practice elements to address the myriad of presenting concerns related to engaging clients. For example, a clinician may be treating a client who struggles to attend therapy and perceives treatment to be irrelevant. The treatment protocol may be further compromised by transportation challenges and childcare issues. This new common elements of treatment engagement framework provides a language and construct system to more broadly conceptualize possible practices to consider when addressing the multiple treatment engagement challenges of a client (in this case, *accessibility promotion* and *psychoeducation about services* might be indicated). Conceptually, the elements may also represent important indices of engagement. For example, to increase positive attitudes at the preparatory stages of treatment, one might consider using *psychoeducation about services* or *eliciting change talk* as engagement strategies. Or, to enhance behaviors associated with treatment use once a client has initiated a course of treatment (i.e., a continuous enhancement strategy), one might consider using *therapist reinforcement* or *behavioral contracting* as engagement strategies. In similar fashion, the elements point to plausible engagement strategies (i.e., the independent variable) to achieve an engagement outcome (e.g., the dependent variable) and are the focus of a companion study (Becker et al. 2013). Indeed, future work in this area may even point to engagement elements that can be targeted to address a client's presenting concerns, i.e., what strategies should be targeted to engage low-income families who present with child who has an internalizing behavioral disorder?

Second, as a literature analysis strategy, the common elements framework provides a clear understanding of the state of science regarding treatment engagement in child mental health services. For example, our findings suggest a

few important themes regarding this literature: (a) the most frequently used engagement practice elements are primarily deployed to target facilitative (i.e., access) and behavioral dimensions of engagement, even though engagement is also conceptualized as having attitudinal and social dimensions (Nock and Ferriter 2005; Staudt 2007); (b) the most frequently used engagement practice elements have mostly been utilized in the early phases of treatment with the goal of not just impacting early engagement (e.g., attendance at the initial appointment), but engagement over time (e.g., number of sessions attended over the course of treatment); and (c) caregivers have mostly been the target of the engagement elements we coded, corroborating an earlier review by Kim et al. (2012). Many questions remain concerning the efficacy of engagement interventions targeting adolescents due to varying conceptualizations of engagement and the limited application of experimental studies of engagement with this group (Kim et al. 2012). This issue and whether engagement elements might be differentially deployed vis-à-vis youth versus adult (i.e., caregiver) engagement may be the subject of future research.

To our knowledge, there have been no meta-analyses of treatment engagement in child mental health services. Oldham et al. (2012) completed a recent meta-analysis of interventions to increase attendance at psychotherapy based on the adult literature, but no such meta-analysis exists in the child literature. A meta-analysis examining attendance as an outcome appears feasible, given that 75 % of the studies in our review included attendance as an outcome. That approach would provide information about the effect size of engagement interventions as a whole on attendance outcomes. This would be informative, yet at the same time it would likely raise questions about what are the characteristics of effective engagement interventions. It is likely that there are an insufficient number of studies implementing the same protocol to be able to calculate separate effect sizes to determine the comparative effectiveness of various engagement interventions. Among the "packaged" engagement protocols, for example, only 10 such protocols appeared among the 89 study groups (e.g., the Mary McKay engagement intervention appeared in 5 study groups, brief strategic family therapy appeared in 3 study groups, and motivational interviewing appeared in 2 study groups). Even these packaged protocols do not implement the same engagement strategies across them. Thus, while our method is not intended to replace a meta-analysis of this literature, it can serve as a complementary approach by providing a summary analysis of the engagement elements in aggregate across fully integrated intervention packages and strategies, including their frequency of appearance in winning treatment groups.

In summary, this study extends the field's knowledge of treatment engagement in the child mental health services literature. Across all identified RCTs for engagement outcomes, the practices most commonly associated with winning interventions included *assessment* and *accessibility promotion* and to a lesser degree *psychoeducation about services* and *homework assignment*. Future research may seek to capitalize on these findings by examining which combinations of practices work best for which outcomes and, ultimately, by considering logically indicated new intervention designs and combinations of these elements that have yet to be tested. New designs and prospective examination of the engagement elements may also facilitate greater opportunities to complete complementary reviews (e.g., meta-analyses).

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