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ORIGINAL ARTICLE

Stakeholder-Generated Implementation Strategies to Promote Evidence-Based ADHD Treatment in Community Mental Health

Margaret H. Sibley[1,2] · Mercedes Ortiz[2] · Alexandria Rios-Davis[3] · Courtney A. Zulauf-McCurdy[1] · Paulo A. Graziano[3] · Leonard Bickman[3]

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Abstract

Community implementation of evidence-based practices (EBPs) for Attention Deficit/Hyperactivity Disorder (ADHD) is greatly lacking. A recent randomized community-based trial of an EBP for ADHD (Supporting Teens' Autonomy Daily; STAND) demonstrated suboptimal implementation and effectiveness outcomes. In the present study, we conducted an Innovation Tournament (IT) with agency staff stakeholders ($N=26$) to identify barriers to successful implementation of STAND and implementation strategies for a revised service delivery model. We conducted member-checking of agency staff-generated ideas with parents ($N=226$) and subsequent querying of additional parent ($N=226$) and youth-generated ($N=205$) strategies to improve care. Go-Zone plots were utilized to identify strategies with the highest feasibility and importance. Practical barriers (i.e., transportation, scheduling difficulties) and parent/youth engagement were the most commonly cited obstacles to successful implementation of STAND in community contexts. Eighteen "winning" implementation strategies were identified that survived member checking. These were classified as train and educate stakeholders ($n=5$; e.g., train agency supervisors to deliver supervision, digitize treatment materials and trainings), engage consumers ($n=9$; e.g., begin treatment with rapport building sessions, increase psychoeducation), provide interactive assistance ($n=2$; e.g., add group supervision, increase roleplay in supervision), and use of evaluative/iterative strategies ($n=2$; e.g., perform fidelity checks, supervisor review of session recordings). Parents and youth desired longer duration of treatment and increased focus on maintenance. Strategies will be developed and tested as part of a pilot effectiveness trial designed to refine STAND's service delivery model.
Trial Registration NCT02694939 www.clinicaltrials.gov

Keywords ADHD · Community mental health · Behavior therapy

In the field of child and adolescent mental health, the last two decades witnessed a wave of dissemination and implementation initiatives designed to replace underperforming usual care services (Garland et al., 2010) with evidence-based practices (EBPs; Hoagwood et al., 2014; Nakamura et al., 2011; Southam-Gerow et al., 2014). At the center of this movement, effectiveness trials evaluated whether patient outcomes in community-based care could be improved by training community-based practitioners to deliver EBPs (e.g., cognitive behavioral therapy for anxiety and depression, behavior therapy for conduct problems; Southam-Gerow et al., 2010; Weisz et al., 2006, 2009). Initial study results indicated that EBPs often did not outperform Usual Care (UC), prompting a call to reexamine and reconfigure EBPs for community contexts (Weisz et al., 2013). More recent initiatives include stakeholder-driven protocol adaptation, prioritizing user acceptability, creating flexible intervention features, and managing contextual barriers. In a subsequent round of trials, these revised, EBP protocols demonstrated promise, producing superior effectiveness compared to standard EBPs (e.g., Chorpita et al., 2017; Weisz et al., 2012).

✉ Margaret H. Sibley
margaret.sibley@seattlechildrens.org

[1] Department of Psychiatry & Behavioral Sciences, University of Washington School of Medicine, Seattle, WA, USA

[2] Seattle Children's Research Institute, Seattle, WA, USA

[3] Florida International University, Miami, FL, USA

Community-Based Care for ADHD

Research on community-based treatments for Attention Deficit/Hyperactivity Disorder (ADHD) is greatly lacking. Approximately 10% of U.S. children and adolescents have received a lifetime diagnosis of ADHD (Danielson et al., 2018) with ADHD afflicting over 63 million youth globally (Polanczyk et al., 2015). Although stimulant medication is the most common and recommended treatment for pediatric ADHD (American Academy of Pediatrics, 2019; Danielson et al., 2018), psychosocial treatment for ADHD (i.e., behavior therapy that often incorporate skills training or cognitive components) also has a strong evidence base (Evans et al., 2018) and significantly complements the effects of stimulant medication (Conners et al., 2001; MTA Cooperative Group, 1999). In older youth, behavior therapy for ADHD demonstrates greater patient acceptability and impairment reduction than medication (Brinkman et al., 2018; Bussing et al., 2011; Sibley et al., 2014). Yet, compared to medication, evidence-based behavior therapy for ADHD is rarely implemented in community contexts (Bussing et al., 2011; Epstein et al., 2014)—likely because it is more burdensome to administer than medication (Jensen et al., 2005) and requires adaptation to reduce delivery barriers in under-resourced settings (Sibley, et al., 2016b; Wright et al., 2015). Unfortunately, without initiatives to adapt ADHD EBPs to community settings, families will continue to face access difficulties when seeking effective non-pharmacological care for ADHD.

Delivering Supporting Teens' Autonomy Daily (STAND) in Community Contexts

In recognition of this research to practice gap, our team recently conducted a randomized community-based effectiveness trial ($N = 278$) of an EBP for adolescent ADHD (Sibley et al., 2020b). Supporting Teens' Autonomy Daily (STAND; Sibley, 2016; Sibley et al., 2016a) is a 10-session, parent-teen collaborative behavior therapy that targets academic and family impairment through skills training. STAND is blended with Motivational Interviewing (MI; Miller & Rollnick, 2013) to promote parent and teen engagement and skill generalization to naturalistic contexts. Therapists at four community mental health agencies were randomly assigned to receive training and supervision in STAND or to deliver UC services to youth (ages 11–17) with ADHD. Adolescents were randomly assigned to receive therapy from STAND or UC clinicians.

At the outset of the community-based STAND RCT, a series of meetings were held with agency stakeholders (supervisors, leadership, therapists) to integrate stakeholder feedback in to the structure of STAND's community-based model. Based on community-stakeholder feedback that the university-based model was too resource-intensive for the community setting, STAND was initially scaled down for its community debut (Sibley et al., 2020b, c). To promote external validity, we reduced weekly supervision from two hours of feedback, coaching, and treatment planning to 30 min of case discussion. We retained a traditional three-day training model but removed the requirement that therapists demonstrate MI competency prior to STAND delivery (Sibley et al., 2016a) due to feedback that agency policies would not permit them to withhold clients from staff based on meeting competency benchmarks. STAND therapists were provided with a treatment manual and workbook for each case. Supervision was provided at the agency by one of two licensed clinical psychologists from the research team. The content of treatment was unchanged when introduced to the community mental health context. Treatment differentiation analyses indicated low evidence of contamination between the STAND and UC groups; thus, adolescents in the STAND and UC groups received significantly different forms of treatment (Sibley et al., 2020c).

Results indicated that therapists successfully engaged in training and weekly supervision, rating STAND as an acceptable treatment to deliver. STAND group therapists demonstrated higher MI competence and skill application than the UC group. However, most did not meet MI proficiency benchmarks and treatment fidelity was lower than in university clinic-based trials. During sessions, therapists commonly omitted weekly review of goals, did not assign therapy homework, and followed a pace and sequencing of therapy tasks that was different from the manual. Fidelity was particularly affected when sessions were delivered at home or in school (rather than the office) and in later sessions (Sibley et al., 2020b). STAND only outperformed UC when delivered by licensed therapists (versus unlicensed therapist who made up ~ 80% of the workforce), who may be more skilled and open to EBPs than typical community mental health providers (Nakamura et al., 2011; Schoenwald et al., 2008). Parent engagement and satisfaction was higher for STAND than UC, but lower than in university trials of STAND (Sibley et al., 2020c). Secondary analyses indicated that low treatment fidelity predicted poorer adolescent functional outcomes (Sibley et al., 2020a). Overall, we concluded that improving parent engagement and treatment fidelity may be critical future directions for STAND's community-based implementation model.

Identifying Implementation Strategies

At the conclusion of the STAND effectiveness trial, we engaged intervention stakeholders (i.e., agency staff, parents, adolescents) to generate ideas for revision to STAND's community-based implementation model. We conducted these efforts through an implementation science lens. A core aspect of the practice of implementation science is the selection and tailoring of implementation strategies to address the barriers present within a given service setting (Powell et al., 2017). In other words, in order to tailor implementation strategies to promote the uptake of the desired practice or intervention, one must first assess potential determinants (i.e., barriers, enablers, facilitators, problems and needs, or disincentives or incentives) that are likely to influence implementation outcomes in the desired setting (Flottorp et al., 2013). To understand potential determinants and barriers to the service delivery of STAND in community-based settings, we sought to understand stakeholder perspectives on barriers and facilitators by engaging them in generation of original solutions to implementation problems. Engagement of multiple levels of stakeholders (e.g., parents, youth, agency staff and leaders) is an important ingredient in the advancement of implementation science to promote collaboration between researchers and stakeholders as well as shared decision-making between the two interests (Goodman & Sanders Thompson, 2017).

In order to tailor implementation strategies to a desired setting it is recommended that determinants are assessed and understood within the desired context, change methods to address those determinants are identified, and implementation strategies that utilize the change methods to address the desired determinants are chosen (Bartholomew et al., 2006; Kok et al., 2016). The assessment of determinants can help guide decisions about the types of implementation strategies that may be appropriate and match the needs of the setting (Damschroder et al., 2009; Nilsen, 2015). Once implementation strategies are identified a compilation of implementation strategies is used to support the systematic reporting of identified strategies, such as the Expert Recommendations for Implementing Change (ERIC; Powell et al., 2015). The specific intervention and the implementation context inform which implementation strategies to consider based on identified determinants.

Present Study

To this end, we conducted a study to systematically elicit stakeholder suggestions for and feedback on a revised community model for STAND, with broader implications for community-based ADHD treatment. The first phase of our study was an Innovation Tournament (IT; Terwiesch & Ulrich, 2009) with 26 agency staff stakeholders to generate original ideas for improving therapist implementation of behavior therapy for ADHD in community mental health contexts. In the second phase of this study, we performed member checking with 226 parents of adolescents with ADHD who participated in the community-based trial of STAND. In the third phase of the study, we elicited an additional set of ideas for community-based implementation of behavior therapy for ADHD from parents ($N = 226$) and youth ($N = 205$) who participated in the community-based STAND trial. Based on the results of this study, we provide recommendations for the implementation of STAND and other behavior therapies for ADHD in community mental health contexts.

Method

Overview of Research Context and Trial

The present study was conducted in Miami-Dade County, FL in partnership with four community mental health agencies that serve children and youth with diverse mental health needs. Agency 1 and agency 4 served children, adolescents, and adults who are largely Medicaid recipients from low income families throughout the county. Agency 2 was a private, not-for-profit community mental health center that served demographically diverse families who are almost exclusively funded through public sources (50% Medicaid). Agency 3 was a sliding scale fee for service agency with three clinics that served a broad spectrum of uninsured and insured youth with mental health challenges. Annual patient volume ranged from 600 to 30,000 clients across the four agencies. Workforce size ranged from 20 to 450. The population of Miami-Dade County is 69.4% Latinx, 17.7% Black or African-American, 53.3% foreign-born, and 16.1% below the federal poverty line. A language other than English is spoken in 74.3% of Miami-Dade County households. The region is characterized as a large pan-Latinx and pan-Caribbean urban center.

Therapists who participated in the original community-based trial ($N = 82$) at the four community agencies were randomly assigned to provide UC to study cases or to receive training and supervision in STAND during this trial. Adolescent clients in the original community-based trial ($N = 278$) were randomly assigned to STAND or UC (double randomization). Full study design and CONSORT diagram from the original community-based trial are available in the trial's primary outcome paper (Sibley et al., 2020c). At agency intake, agency staff provided study information to parents of 6th–12th grade students with attention,

organization, motivation, or behavior problems. At a full diagnostic assessment conducted by the research team, participants were required to meet DSM-5 ADHD criteria based on information provided during parent structured interview and teacher ratings of symptoms and impairment using evidence-based assessment procedures for ADHD. Study interventions were provided by agency employees using typical billing sources (i.e., Medicaid, private insurance, sliding scales). Treatment procedures are described at length elsewhere (Sibley et al., 2020b). Adolescents and parents were assessed at baseline, post-treatment, and four-month follow-up to evaluate treatment outcome on primary measures that included ADHD symptom severity, grade point average, and parent-teen conflict. UC therapists were offered training in STAND after the completion of their study participation.

Participants

Phase I: Innovation Tournament

In the current study, we recruited 26 agency stakeholders from a pool of 82 therapists (STAND or UC), seven clinical supervisors, four agency administrators, and four office staff members who were engaged as participants or support staff in the original community-based STAND RCT (Sibley et al., 2020c). All trial-affiliated therapists, supervisors, office staff, and leadership in the agencies were invited to participate. Twenty-two agency staff participated in the IT's initial idea generation step. Eighteen agency staff provided importance and feasibility ratings on the list of generated ideas. Agency staff participants (N = 26) were 69.2% therapists, 7.7% supervisor/therapist, 7.7% supervisor/administrator, 7.7% administrator, and 3.8% office staff. They were 68.0% Hispanic (any race), 16.0% Black or African-American, and 16.0% non-Hispanic White. Participating stakeholders were also 88.0% female and 88.0% held a master's degree. Stakeholder distribution across agencies was: 36.0% agency 1, 32.0% agency 3, 25.0% agency 4, and 12.0% agency 2. Participating stakeholders ($N = 26$) did not differ from non-participating stakeholders on race, ethnicity, gender, age, highest degree obtained, licensure status, years of experience, agency, or study group (all $p > 0.10$).

Phase II: Parent Member Checking

Of the 278 primary caregiving parents who participated in the original community-based STAND RCT (Sibley et al., 2020c), 226 (81.3%) consented to participation in the present study. Parents were 90.3% mothers, 7.1% fathers, and 2.6% other. 42.9% reported limited English proficiency, 46.1% held a bachelor's degree, and 33.2% were single parents. 49.1% were originally assigned to STAND and 50.9% to UC. In the present study, there were no significant differences between participants in STAND and UC groups on any parent or participant demographic variables ($p > 0.05$). Parents with limited English proficiency were assessed by bilingual staff, received assessments using instruments that were translated into Spanish, and were paired with a Spanish-speaking community therapist.

Phase III: Parent and Adolescent Idea Generation

The same parent sample ($N = 226$) that participated in phase II member checking participated in phase III idea generation. From this pool of parents, we obtained parental permission to contact the teen and solicited youth assent (under age 18) or consent (18 or older) to participate in the present study. Using this method, we recruited 205 adolescents to participate in phase III idea generation (90.7% of those approached). The adolescent sample was 68.3% male, 80.5% Latinx, and 13.7% Black/African-American. At phase III data collection, average participant age was 16.90 ($SD = 1.67$).

Procedures

Phase I: Innovation Tournament

Data collection for the original RCT concluded in August 2018. Analysis of the RCT's primary implementation and patient outcomes was completed in July 2019. In October 2019, all agency staff stakeholders who were a part of the community-based STAND RCT were contacted by email with an invitation to attend a presentation of study results and agency appreciation luncheon. After the luncheon, staff were invited to remain and participate in the IT (Terwiesch & Ulrich, 2009). Participating staff provided informed consent for the study and were provided an explanation of the IT's purpose. Staff were informed that IT winners would be selected based on the three ideas with the highest agency staff ratings of importance and feasibility on a forthcoming idea-ranking survey. Ideas were generated in writing based on five prompts that queried various aspects of agency staff implementation specific to target areas for improvement (e.g., fidelity, parent engagement; see "Measures"). Agency staff was instructed to "list as many ideas as you can come up with for each of the prompts below."

All ideas generated by agency staff were subsequently listed on a rating scale. Redundant ideas were combined into single items. The investigators contributed additional ideas that were not generated by agency staff to ascertain stakeholder feedback on hypothesized investigator implementation strategies. The resulting survey was sent by email to the original IT participants ($n = 22$), plus four additional agency stakeholders who could not attend the IT but wished to participate in the idea ranking phase of the tournament. The

winners of the IT were announced over email with results of how ideas on the survey ranked in terms of importance and feasibility. Agency staff received $20 for participation in the IT. Generated ideas were sorted into implementation strategy categories by researchers using ERIC framework (Powell et al., 2015; Waltz et al., 2015).

Phase II: Parent Member Checking

A parent version of the IT survey was constructed by extracting IT ideas that fell within the ERIC framework's "consumer engagement" category, as well as items falling in other categories that suggested a modification to parent or youth treatment procedures. Items representing ERIC constructs that were unrelated to family members' experiences during service delivery were not relevant for inclusion on the parent survey. The parent survey was emailed to all parents who participated in the original RCT, along with a digital consent form. Parents were informed that "Agency staff gave us some suggestions on how we could make the services you received better for families. Please rate your level of agreement with these suggestions." See "Measures" for more information on the parent member checking survey.

Phase III: Parent and Adolescent Idea Generation

Parents who completed the member checking survey were asked to provide the adolescent's email address and/or phone number for adolescent recruitment into the present study. Interested adolescents received a digital assent/consent and brief survey. The parent and adolescent idea generation surveys solicited open-ended responses about strategies to support successful delivery of adolescent ADHD therapeutic services in community settings. Parents and teens received $50 for completing the assessment (which also included the parent member checking survey, a demographic survey, updated ADHD symptom ratings, and questions about current impairment and service utilization).

Measures

Phase I: Innovation Tournament

The IT's first step was to elicit agency staff responses to five open-ended prompts. For each prompt, agency staff were asked to list "as many (ideas) as you can think of." To prime respondents to generate solutions to implementation barriers, the first prompt asked respondents to list observed barriers to implementing STAND in the agency. Following this prompt, agency staff were asked to generate ideas "to make STAND easier for clinicians to deliver," "to make STAND more effective for adolescents," "to better engage parents in STAND," and "to help therapists develop and maintain STAND therapy delivery skills (e.g., Motivational Interviewing)."

Generated ideas were listed on an IT survey. Respondents rated each idea's importance on a scale from −2 = relatively unimportant to 2 = very important. Feasibility was rated from −2 = not at all feasible to 2 = extremely feasible. Structure of this survey was based on methodology from the ERIC study (Powell et al., 2015; Waltz et al., 2015).

Phase II: Parent Member Checking

Parents received a survey that included IT-generated ideas within relevant ERIC categories. To assess parents' perspectives on IT-generated solutions, parents were asked "How much would this suggestion improve you or your teen's experience in therapy?" Parents rated each item on the importance scale dimension (−2 = relatively unimportant to 2 = very important).

Phase III: Open-Ended Parent and Adolescent Idea Generation

Following the parent member checking survey, parents were asked "Do you have any suggestions of your own? List as many ideas as you can come up with to the question below: One idea to make the treatment I received from the agency a better fit for my family is…." Youth completed a similar question which read: "One idea to make the treatment I received from the agency a better fit for me and my family is:…".

Analytic Plan

Phase I: Innovation Tournament

As a first step, barriers elicited from the IT's first prompt were coded qualitatively by two research team members. Responses were coded using a constructivist coding procedure outlined by Merriam (1998). Research staff segmented responses into distinct units of data that represented the smallest possible pieces of information that were relevant to the question (i.e., when a respondent generated multiple ideas). Two coders reviewed unique subsets of the data to create categories that were relevant, exhaustive (place all data into a category), and mutually exclusive. The coders gave each category a name that matched its content. Following independent category construction, coders compared the list of categories. The independent coders collaborated to create a final list of categories, each with an operational definition and key examples. In a final step, coders were tasked with reviewing the full set of data and sorting each response using the finalized list of categories and their definitions.

Twenty percent of codes were double coded to assess inter-rater agreement, which was 100%.

Second, agency staff-generated ideas were listed descriptively and labeled by ERIC category (categories were oblique, meaning that more than one category could be assigned to each response). Two research team members independently sorted each solution into categories using the nine ERIC implementation strategies (e.g., adapt and tailor to context, train and educate stakeholders; Powell et al., 2015; Waltz et al., 2015). Inter-rater agreement for category sorting was 90.9%. Mean agency staff-rated importance and feasibility ratings for each IT idea were calculated and graphed on a scatterplot that was divided into four regions (i.e., Go-zones; Waltz et al., 2015) that showcased the relative strength of each idea as rated by agency stakeholders. The Go-zone plot's x-axis and y-axis were crossed at the mean value for each dimension, creating four quadrants: Zone I = high feasibility, high importance; Zone II = high importance, low feasibility; Zone III = low feasibility, low importance, Zone IV = high feasibility, low importance.

Phase II: Parent Member Checking

Within each Go-zone, ideas were ranked by mean parent importance rating for parents in the STAND group to determine the relative potential impact of ideas across stakeholder categories. UC parent importance ratings were also provided. One-way analysis of variance (ANOVA) models were conducted to identify group differences in consumer engagement strategies that might improve implementation of STAND specifically versus ADHD behavior therapy more generally. We did not impose a family-wise error correction (i.e., $\alpha = 0.05$) due to the exploratory nature of this analysis.

Phase III: Parent and Adolescent Idea Generation

Ideas were coded qualitatively by two coders (one with Spanish language fluency) using the procedures described for agency staff-reported barriers coding. Coders were masked to participant study group. Parental responses generated in Spanish were coded by the Spanish speaking research coder. Double coding was performed for 20% of responses. Kappa was 0.70, indicating "good" agreement. Prevalence rates for qualitatively coded parent and youth ideas were presented descriptively. Combining parent and adolescent report using an "or rule," chi-square analyses were conducted to evaluate group differences (0 = UC, 1 = STAND) in the prevalence of each parent/adolescent idea to improve service delivery. Odds ratios were calculated. We did not impose a family-wise error correction (i.e., $\alpha = 0.05$) due to the exploratory nature of this analysis.

Role of Researchers

The first, second, third, and fifth authors of this paper contributed to data coding. As researchers in the field of child and adolescent mental health, they may possess presuppositions about the constructs of interest that may influence the lens through which they view the data. They may have biases to classify certain informant statements in ways that support these presuppositions, which may lead to blind spots or a priori judgments. Validity enhancing procedures included independent coding of participant responses, linking codes to direct quotations (see **Results**), and recoding responses to ensure full saturation of data.

Results

Phase I: Innovation Tournament

During the IT, agency staff generated 57 barriers to successful implementation of behavior therapy for ADHD. Barriers were classified into the following categories: (a) patient practical barriers (e.g., "transportation," "availability"; 28.1%); (b) low parent desire to participate (e.g., "willingness of parents to participate in process"; 14.0%); (c) low patient desire to participate (e.g., "teenager defiance"; 10.5%); (d) family lack of skill application outside of session (e.g., "not implementing techniques correctly or consistently"; 7.0%); (e) duration of treatment (either too short or too long; e.g., "length of intervention"; 5.3%), and (f) treatment inconsistent with patient needs or values (e.g., "co-occurring disorders"; 5.3%); (g) family disorganization (e.g., "family had trouble managing time"; 5.3%); (h) agency workforce challenges (e.g., "turnover of staff"; 5.3%); (i) patient attendance difficulties (e.g., "cancellations and no shows"; 5.3%); (j) competing demands on therapists (e.g., "demands that clinicians have for compliance requirements"; 3.5%); (k) cost of treatment (e.g., "cost of program"; 3.5%); (l) family conflict (e.g., "conflictual relationship between parents"; 3.5%), and (m) therapist disinterest (e.g., "inconsistency on part of therapist"; 3.5%).

Table 1 displays each unique idea that emerged from the IT with information about the source of the idea and corresponding implementation strategy category. Agency stakeholders generated 85 total responses to the IT prompt, with 39 unique ideas generated. Investigators added six ideas that were not generated by stakeholders but were hypothesized strategies to improve treatment fidelity. Thus, the final list of strategies included 45 ideas. Means and standard deviations for therapist ratings of each idea are provided in Table 1. Go-zone plot (see Fig. 1) indicated high therapist-perceived importance and feasibility for 23 ideas.

Table 1 Results of agency staff innovation tournament

	Source	Implementation strategy category	Feasibility *M* (*SD*)	Importance *M* (*SD*)	Go-Zone
1. Make treatment materials simpler	A	Adapt and tailor to context	0.94 (0.87)	0.44 (.84)	IV
2. Offer more days of training at beginning	A	Train and educate stakeholders	0.78 (0.65)	1.11 (0.64)	I
3. Increase compatibility with clinician's treatment modality	A	Adapt and tailor to context	0.83 (0.99)	0.72 (0.96)	IV
4. Listen to session audio in supervision	A	Use of evaluative/iterative strategies	0.56 (0.98)	0.33 (0.97)	III
5. Minimize paperwork	A	Change infrastructure	0.78 (0.73)	0.83 (0.71)	IV
6. Emphasize discussion of concrete program goals with families	A	Engage consumers	1.50 (.62)	1.61 (.61)	I
7. Add group supervision	A	Provide interactive assistance	0.83 (0.99)	1.11 (0.98)	I
8. Improve user manual	A	Adapt and tailor to context	0.56 (0.86)	0.50 (0.84)	III
9. Increase structure of sessions	A	Adapt and tailor to context	0.50 (0.71)	0.50 (0.70)	III
10. Increase role-playing in supervision	A	Provide interactive assistance	1.28 (0.67)	1.06 (0.67)	I
11. Improve training materials	A	Adapt and tailor to context	0.72 (0.67)	0.67 (0.64)	IV
12. Provide therapist with deeper background info on client	A	Change infrastructure	0.33 (0.84)	0.28 (0.84)	III
13. Make available incentives to offer families	A	Engage consumers	0.44 (0.78)	0.67 (0.77)	III
14. Include several rapport building sessions prior to starting manual	A	Engage consumers	1.22 (0.88)	1.17 (0.88)	I
15. Put STAND materials online to access during sessions	R	Support clinicians, Engage consumers	1.11 (0.83)	1.28 (0.83)	I
16. Offer additional training days throughout the year	A	Train and educate stakeholders	1.44 (0.70)	1.50 (0.61)	I
17. Make an app for clinicians and families with worksheets and tips	R	Train and educate stakeholders, Engage consumers	1.17 (0.99)	1.22 (0.98)	I
18. Require therapists to meet MI proficiency before delivering treatment	R	Use of evaluative/iterative strategies	0.94 (1.00)	1.11 (1.00)	I
19. Have beginner therapists shadow experienced therapists	A	Train and educate stakeholders	0.39 (1.20)	0.83 (1.19)	III
20. Offer online refresher trainings	A	Train and educate stakeholders	1.33 (.59)	1.44 (.59)	I
21. Have fidelity checks where supervisors review audio tapes and give feedback on MI skills	A	Use of evaluative/iterative strategies	0.83 (0.79)	1.06 (0.73)	I
22. Make supervision longer (i.e., two hours a week)	R	Provide interactive assistance	−0.39 (.78)	0.00 (0.77)	III
23. Increase homework assignments given to parents	A	Engage consumers	−0.06 (0.87)	0.44 (0.87)	III
24. Provide separate, individual, emotional support sessions to parents	A	Engage consumers	0.83 (0.79)	1.11 (0.76)	I
25. Provide separate, individual, parenting skills sessions to parents	A	Engage consumers	1.33 (0.69)	1.61 (0.68)	I
26. Offer rewards to families if they complete all STAND sessions	A	Engage consumers	0.38 (0.77)	1.28 (0.78)	II
27. Share the positive research on the program with families	A	Engage consumers	1.56 (0.51)	1.67 (0.49)	I
28. Ask parent to keep track of the youth's progress	A	Engage consumers	1.00 (1.14)	1.44 (1.11)	I
29. Spend more time talking about the importance of the family unit in changing the child	A	Engage consumers	1.22 (0.73)	1.28 (0.67)	I
30. Spend more time explaining the benefits of activities to families	A	Engage consumers	1.00 (0.84)	0.94 (0.80)	I
31. Increase psychoeducation about appropriate parental involvement	A	Engage consumers	1.61 (0.61)	1.67 (0.46)	I

Table 1 (continued)

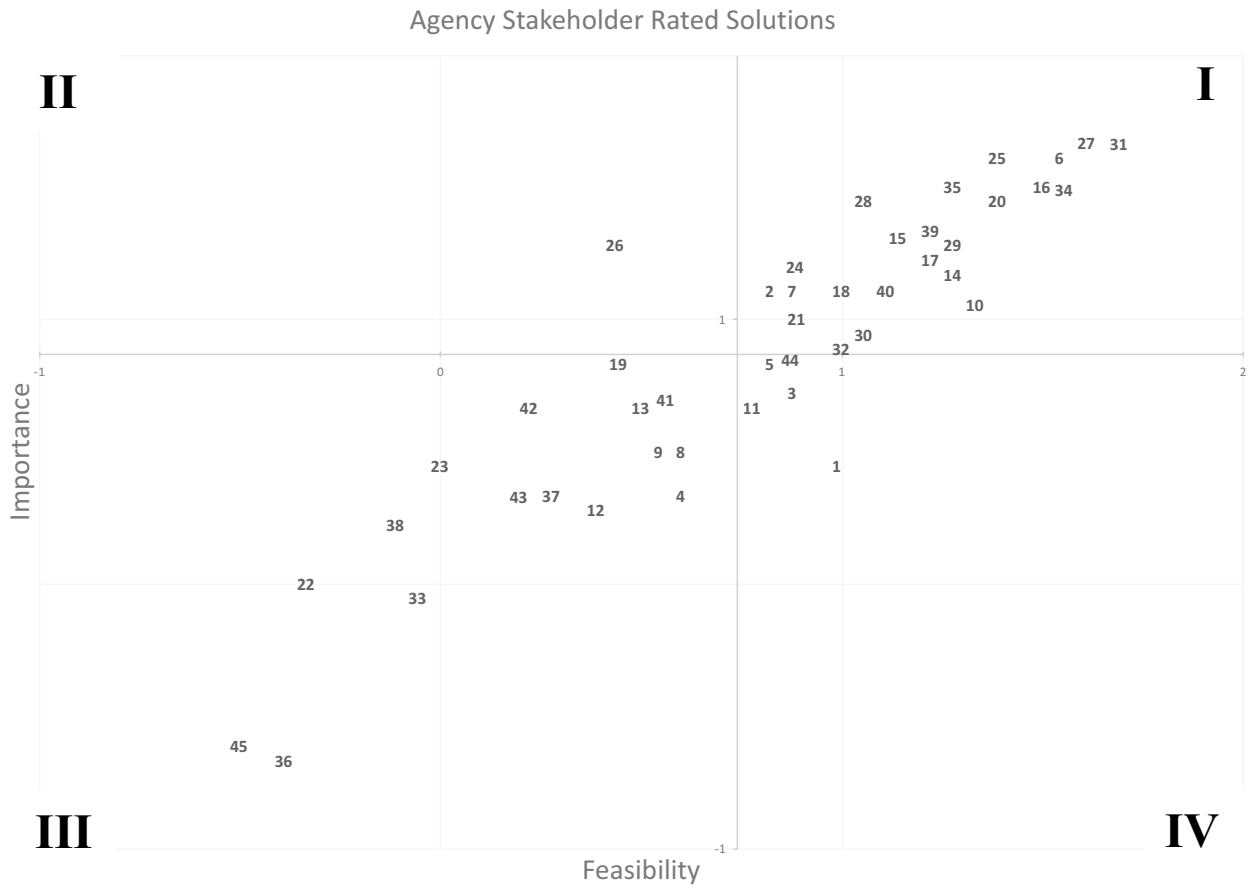
	Source	Implementation strategy category	Feasibility *M* (*SD*)	Importance *M* (*SD*)	Go-Zone
32. Give more attention to early successes in therapy	A	Adapt and tailor to context	0.94 (0.64)	0.89 (0.64)	I
33. Only offer STAND when there are no comorbidities	A	Adapt and tailor to context	−0.11 (0.96)	−0.06 (0.92)	III
34. Incorporate games or art projects into therapy	A	Adapt and tailor to context, Engage Consumers	1.44 (0.62)	1.50 (0.60)	I
35. Increase use of visual progress monitoring tools with families	A	Engage consumers	1.22 (0.55)	1.50 (0.55)	I
36. Make sessions shorter (30 min)	A	Adapt and tailor to context	-0.44 (1.04)	-0.67 (1.04)	III
37. Provide rewards for participating in session	A	Engage consumers	0.22 (0.81)	0.33 (0.81)	III
38. Only deliver treatment if parent is present	A	Engage consumers	−0.17 (1.15)	0.22 (1.02)	III
39. Increase emphasis on building positive relationships with family members	A	Engage consumers	1.17 (0.62)	1.33 (0.62)	I
40. Train agency supervisors to supervise STAND	A	Train and educate stakeholders	1.06 (0.80)	1.11 (0.80)	I
41. Create peer supervision groups with other therapists (without formal supervisor)	A	Support clinicians	0.44 (1.15)	0.67 (1.41)	III
42. Get a weekly email summarizing your MI fidelity on an audio taped session	R	Use of evaluative/iterative strategies	0.17 (0.99)	0.67 (0.96)	III
43. Obtain weekly family ratings on their satisfaction with STAND	R	Use of evaluative/iterative strategies	0.17 (1.25)	0.33 (1.23)	III
44. Break down material into smaller pieces per session	A	Adapt and tailor to context	0.78 (0.94)	0.83 (0.94)	IV
45. Only offer STAND at beginning of school year	A	Adapt and tailor to context	−0.56 (0.86)	−0.61 (0.84)	III

A = agency staff, R = research team; Zone I = high feasibility, high importance; Zone II = high importance, low feasibility; Zone III = low feasibility, low importance, Zone IV = high feasibility, low importance

Category sorting indicated that generated ideas for intervention revision (see Table 1) were categorized as: adapt and tailor to context (24.4%), change infrastructure (4.4%), engage consumers (42.2%), provide interactive assistance (6.7%), support clinicians (6.7%), train and educate stakeholders (13.3%), and use of evaluative/iterative strategies (11.1%). Ranked in terms of highest cumulative feasibility and importance (see Table 1), the top ten ideas rated by agency staff were: (#31) increase psychoeducation about appropriate parental involvement (engage consumers), (#27) share the positive research on the program with families (engage consumers), (#6) emphasize discussion of concrete program goals with families (engage consumers), (#34) incorporate games or art projects into therapy (adapt and tailor to context, engage consumers), (#16) offer additional training days throughout the year (train and educate stakeholders), (#25) provide separate, individual, parenting skills sessions to parents (engage consumers), (#20) offer online refresher trainings (train and educate stakeholders), (#10) increase roleplaying in supervision (provide interactive assistance), (#35) increase use of visual progress monitoring tools with families (engage consumers), and (#29) spend more time talking about the importance of the family unit in changing the child (engage consumers).

Phase II: Parent Member Checking

Table 2 displays mean importance rating for 26 agency staff-generated consumer-oriented strategies that were submitted to parents for member checking. Among the Zone I strategies, parents in the STAND group rated nine as demonstrating high importance: (#39) increase emphasis on building positive relationships between family members, (#27) have the therapist share more about research on ADHD therapies with you and your child, (#24) receive parent emotional support sessions from the therapist without your child, (#31) receive more education from therapist about appropriate parenting for ADHD, (#29) spend more time talking about the importance of the family unit in changing the child, (#14) include several "getting to know you" sessions with the therapist prior to working on problems, (#28) have parents be responsible for keeping track of the youth's progress, (#6) more discussion of concrete program goals, and (#17) get an app with worksheets and tips. Two Zone III therapist-rated



Note. The x-axis and y-axis cross at the mean value for each dimension. Zone I= high feasibility, high importance; Zone II=high importance, low feasibility; Zone III=low feasibility, low importance, Zone IV=high feasibility, low importance.

Fig. 1 Go zone plot for agency staff rated implementation strategies

strategies (low importance, low feasibility) were also rated with high importance by parents in the STAND group: (#25) receive parenting skills sessions from the therapist without your child and (#45) always start ADHD therapy at beginning of school year.

Four strategies were perceived as significantly more important for parents who received UC versus STAND: (#31) receive more education from therapist about appropriate parenting for ADHD (Zone I; STAND $M = 1.05$, $SD = 0.77$, UC $M = 1.27$, $SD = 0.86$; F (1,224) = 4.27, $p = 0.040$, $d = 0.27$), (#30) therapist spends more time explaining why you should do parenting or teen therapy activities (Zone I; STAND $M = 0.60$, $SD = 1.04$, UC $M = 0.96$, $SD = 1.05$; F (1,224) = 6.48, $p = 0.012$, $d = 0.34$), (#23) receive more "parenting homework assignments" from the therapist (Zone III; STAND $M = 0.65$, $SD = 1.01$, UC $M = 0.96$, $SD = 1.03$; F (1,224) = 5.17, $p = 0.024$, $d = 0.30$), and (#1) make treatment materials simpler (Zone IV; STAND $M = 0.61$, $SD = 1.29$, UC $M = 0.98$, $SD = 1.07$; F (1, 224) = 5.55, $p = 0.019$, $d = 0.31$).

Phase III: Parent and Adolescent Idea Generation

Parents and adolescents provided a range of responses to the idea generation survey resulting in 28 categories of ideas (see Table 3). The most common ideas contributed by parents were emphasizing maintenance (e.g., "smoother transition with the therapist when the program ends"; 12.8%), reducing practical barriers (e.g., " (offer) after hours or weekend availability"; 7.1%), and increasing the dose of treatment (e.g., "make sessions longer," "more sessions"; 11.1%). The most common ideas contributed by adolescents were improving therapist quality (e.g., " (therapist should) show more empathy for me"; 6.3%), increasing focus on the parent-teen relationship (e.g., "open communication between the parent and the child"; 5.4%) and reducing practical barriers (e.g., "make therapy

Table 2 Parent perspectives on agency staff-generated consumer engagement strategies

	Parental importance	
	STAND *M* (*SD*)	UC *M* (*SD*)
Zone I (high importance, high feasibility)		
39. Increase emphasis on building positive relationships between family members	1.40 (0.83)	1.37 (0.83)
27. Have the therapist share more about research on ADHD therapies with you and your child	1.19 (0.86)	1.29 (0.87)
24. Receive parent emotional support sessions from the therapist without your child	1.14 (0.99)	1.22 (1.05)
31. Receive more education from therapist about appropriate parenting for ADHD*	1.05 (0.77)	1.27 (0.86)
29. Spend more time talking about the importance of the family unit in changing the child	1.03 (1.00)	1.19 (0.94)
14. Include several "getting to know you" sessions with the therapist prior to working on problems	1.02 (1.04)	1.14 (1.08)
28. Have parents be responsible for keeping track of the youth's progress	0.97 (0.94)	1.17 (0.85)
6. More discussion of concrete program goals	0.96 (0.91)	1.18 (0.97)
17. Get an app with worksheets and tips	0.96 (0.99)	1.03 (1.01)
34. Incorporate games or art projects into therapy	0.90 (0.95)	1.04 (0.94)
35. Increase use of visual progress monitoring tools	0.87 (0.82)	1.04 (0.87)
32. Receive more positive feedback from therapists at the beginning of therapy	0.80 (0.88)	1.03 (0.99)
15. Put therapy materials online to access during sessions	0.79 (1.05)	1.01 (0.98)
30. Therapist spends more time explaining why you should do parenting or teen therapy activities*	0.60 (1.04)	0.96 (1.05)
Zone II (High Importance, Low Feasibility)		
26. Receive a reward if your family completes at least 10 sessions	0.59 (1.25)	0.57 (1.24)
Zone III (Low Importance, Low Feasibility)		
25. Receive parenting skills sessions from the therapist without your child	1.12 (.91)	1.12 (1.03)
45. Always start ADHD therapy at beginning of school year	0.98 (1.09)	1.03 (1.02)
9. Increase structure of sessions	0.82 (.94)	1.00 (1.07)
43. Fill out weekly ratings on your satisfaction with the therapy	0.77 (1.10)	1.03 (0.96)
13. Receive incentives for attending treatment	0.68 (1.12)	0.68 (1.16)
23. Receive more "parenting homework assignments" from the therapist*	0.65 (1.01)	0.96 (1.03)
37. Provide rewards for participating in session	0.60 (1.11)	0.71 (1.10)
38. Only deliver treatment if parent is present	0.37 (1.26)	0.57 (1.07)
36. Make sessions shorter (30 min)	0.13 (1.22)	0.38 (1.21)
Zone IV (Low Importance, High Feasibility)		
44. Therapist breaks down material into smaller pieces per session	0.76 (0.99)	0.81 (1.02)
1. Make treatment materials simpler*	0.61 (1.29)	0.98 (1.07)

Parental importance ratings are on a scale from −2 = relatively unimportant to 2 = very important *$p < 0.05$. STAND group parent importance ratings that exceed the importance dimension's mean are highlighted in gray

closer to my house"; 5.4%). Based on combined parent-adolescent report, two strategies were suggested significantly more by the STAND vs. UC group: calmer setting [e.g., "a place where it's not a lot of distractions, quiet, therapy outside of the home and school"; STAND: 3.6%, UC: 0.0%; X^2 (1) = 4.22, *OR* 1.04] and group therapy [e.g., "kids over 12 may benefit from the group so they don't feel like the problem child"; STAND: 3.6%, UC: 0.0%; X^2 (1) = 4.22, *OR* 1.04].

Discussion

The goal of this study was to identify stakeholder-generated implementation strategies for continued adaptation of STAND and other ADHD EBPs to low-resource community contexts. This work included identifying both determinants and strategies to support implementation. Across phases of our study, agency staff, parents, and adolescents identified implementation and effectiveness determinants that largely reflected practical barriers and sources of parent/adolescent engagement challenges. To address these barriers, eighteen high importance, high feasibility strategies that were generated collectively by agency stakeholders and researchers survived member checking by families. We review these strategies below in consideration of the research on STAND and community-based treatment for ADHD.

A wide variety of determinants of treatment engagement and response were identified by agency stakeholders; most notably, low parent and/or patient desire to engage in treatment and practical barriers such as transportation and

Table 3 Parent- and adolescent-generated implementation strategies

Code	% Endorsed	Definition
Reduce practical barriers	P: 7.1; A: 5.4; C:11.5	Difficulties with access, scheduling, communication
Increase teen engagement	P: 4.0; A: 2.0; C: 5.3	Therapy should be more hands on, engaging, or interactive for teen
Alternative therapies	P: 4.4; A: 2.0; C: 6.2	Alternative therapies incorporated such as art, music, exercise
Incentivize attendance	P: 1.3; A: 0.5; C: 1.8	Provide incentives for families to attend therapy sessions
Maintain same therapist	P: 1.3; A: 0.0; C: 1.3	Keep the same therapist for the full course of therapy
Patient–therapist match	P: 3.1; A: 0.5; C: 3.5	Match therapist and patient by age, race, language, sex
Therapist quality	P: 1.3; A: 6.3; C: 7.1	Therapist with more skills (e.g., experience, empathy, training)
Calmer setting	P: 1.3; A: 0.5; C: 1.8	Conduct therapy in settings with fewer distractions
Telehealth	P: 1.3; A: 1.5; C: 2.7	Offer online or over the phone sessions
Case management	P: 1.7; A: 1.0; C: 2.7	Assist parents and teens with non-mental health matters
Increase focus on academics	P: 1.3; A: 2.9; C: 4.0	Increased emphasis on academics during therapy sessions
School communication	P: 3.1; A: 0.0; C: 3.1	Therapist should directly communicate with school
Individual teen session	P: 2.2; A: 2.0; C: 3.5	Increase one on one therapy sessions with teen
Teen emotional support	P: 0.8; A: 1.5; C: 2.2	Increase focus on teen's emotional well-being
Individual parent therapy	P: 5.8; A: 0.0; C: 5.8	Increase one on one therapy sessions between therapist and parent
Parental involvement	P: 4.4; A: 1.0; C: 5.3	Increase parental involvement in treatment
Parent–teen relationship	P: 1.3; A: 5.4; C: 6.2	Therapy should focus on improving the parent-teen relationship
Involve more family	P: 4.9; A: 2.4; C: 7.1	Including household and family members other than parent
Skills training	P: 4.4; A: 2.4; C: 6.2	Increase the extent to which skills are taught during treatment
Group therapy	P: 1.3; A: 0.5; C: 1.8	Incorporate group sessions into treatment
Beginning of year	P: 1.3; A: 0.0; C: 1.3	Begin therapy at start of school year
Lower dose of therapy	P: 3.1; A: 1.5; C: 4.4	Decrease length or quantity of sessions
Increase dose of therapy	P: 11.1; A: 4.4; C: 14.2	Increase length or quantity of sessions
Not age appropriate	P: 1.3; A: 0.0; C: 1.3	Content of the program should better fit the age of the teen
Emphasize maintenance	P: 12.8;A:2.4; C:14.2	More tools to help continue progress after termination
Reduce cost	P: 1.3; A: 0.5; C: 1.8	Reduce cost of receiving care
Greater psychoeducation	P: 2.2; A: 1.5; C: 3.5	Greater information surrounding ADHD and treatment
On-call support	P: 0.8; A: 1.0; C: 1.8	Desire for on-call support from therapists

P parent, *A* adolescent, *C* combined

scheduling issues. Reducing practical barriers also was a parent/adolescent-generated strategy for improving treatment engagement, indicating concordance between agency staff and family perspectives. These findings are consistent with existing research, which also points to parent/patient desire for change and practical barriers as top obstacles to successful behavioral and pharmacological treatment for adolescents with ADHD (Bussing et al., 2011, 2012). Low motivation to engage may be particularly relevant in the adolescent developmental period, when parents may resist requests for active involvement in treatment and adolescents typically do not self-refer for treatment. Although STAND's MI approach is designed to simultaneously address parent and patient desire for personal change, MI fidelity scores were below standard benchmarks in this trial (Sibley et al., 2020b). Ongoing efforts are needed to generate strategies to increase MI fidelity and parent/patient therapy engagement when delivering STAND in community contexts. More broadly, community-based adolescent ADHD treatments should consider embedding parent and patient engagement strategies as a standard care component.

Eighteen Go-Zone I (high importance, high feasibility) implementation strategies survived member checking by parents. These strategies were classified as train and educate stakeholders (n = 5), engage consumers (n = 9), provide interactive assistance (n = 2), and use of evaluative/iterative strategies (n = 2). With respect to training and educating stakeholders, respondents endorsed training agency supervisors to supervise treatment (versus researchers), embedding treatment materials in a phone application for families and providers, offering online refresher trainings, lengthening the initial training, and increasing frequency of booster trainings. Consumer engagement strategies included emphasizing concrete program goals, beginning treatment with rapport building sessions, increasing emphasis on family relationships, providing separate emotional support or parenting skills sessions to parents, asking the parent to keep track of the youth's progress, and increased psychoeducation on

evidence-based ADHD treatments, ADHD, and parenting strategies. Interactive assistance strategies included adding group supervision and increasing role-playing in supervision. Evaluative/iterative strategies included requiring therapists to meet MI proficiency before delivering treatment and performing fidelity checks in which supervisors review audio recordings and offer feedback and coaching to therapists. These latter suggestions are consistent with best practices in motivational interviewing training (Frey et al., 2017).

Though a large variety of solution were offered, several themes emerged that may be valuable to future community-based ADHD treatment initiatives. For example, there was a strong endorsement of consumer engagement strategies as critical element of treatment as well as leveraging technology, providing active and ongoing support to clinicians, and retaining parent-directed elements of treatment. Though STAND's community-based model certainly possessed shortcomings, parent responses suggested that it may have improved upon UC by demonstrating a favorable emphasis on teaching parenting strategies and presenting treatment content in a user-friendly format (see Table 2). There were also discrepancies across stakeholder viewpoints. For example, parents rated receiving individual parent training sessions (without the teen) and starting treatment at the beginning of the school year with high importance. However, agency staff rated these strategies as having low feasibility in their setting. Future work might investigate methods to increase the feasibility of strategies by understanding perceived barriers to their implementation.

In addition to the strategies offered above, a variety of additional implementation strategies (28 total) were offered by families. Aside from reducing practical barriers (11.5% endorsed), most commonly endorsed strategies related to increasing the dose of treatment (14.2%) and strengthening focus on post-treatment maintenance (14.2%). On average, adolescents in this trial received approximately 14 to 17 sessions of treatment (Sibley et al., 2020c). STAND's full content is designed to be delivered in 10 sessions but was delivered at a slower pace in community settings (Sibley et al., 2020b). Furthermore, fidelity was lowest in the final STAND sessions, which focus on promoting long-term maintenance (Sibley et al., 2020a). Thus, future work should improve fidelity in the final sessions of STAND to ensure that families receive the full treatment—including closing activities that address maintenance. Given the chronicity of ADHD, time-limited treatments may be insufficient to effectively manage long-term symptoms in some cases (Jensen et al., 2007). Although this study suggests that some families desire long-term behavior therapy, booster sessions are often poorly attended by parents and adolescents with ADHD (Sibley, Graziano, et al., 2016, b, 2018). As with pharmacological treatment of ADHD, behavioral treatments for ADHD may require chronic care models to promote long-term effects. However, strategies to build long-term engagement in care will be an important component of these models.

Following an idea generation study, researchers must turn to developing and testing winning implementation strategies. To this end, we are currently conducting a pilot effectiveness trial to test a revised implementation strategy for STAND. This initial modified protocol includes eight of the 18 winning strategies with a goal of improving therapist fidelity using methods that minimize barriers detected in this study (i.e., lowering burdens and increasing supports for agency therapists and supervisors while targeting patient engagement). Whereas the need to improve patient engagement emerged in the present investigation, our aim to improve fidelity stems from previous findings that STAND fidelity was lower in community versus university settings and significantly linked to patient outcomes (Sibley et al., 2020a, b). The research team will train agency supervisors to supervise STAND and will leverage machine learning technology (www.lyssn.io; Atkins et al., 2014; Imel et al., 2019; Tanana et al., 2016) to provide fidelity feedback on audio recorded tapes that therapists and supervisors can review each week. This method is intended to provide high quality, ecologically valid, fidelity feedback to therapists using low cost and low burden procedures. In addition, all treatment materials will be placed online through a clinical dashboard that can be accessed by therapists and online booster sessions will be provided to therapists monthly. It is hoped that these methods will facilitate therapist delivery consistency and on-demand access to materials with families. Finally, therapists will also deliver an initial rapport building session with the family before manualized STAND content begins and psychoeducational content will be increased in STAND's first session (i.e., information about research results and ADHD). It is hoped that this strategy will increase patient engagement and participation in skill application out of session.

The current study has several limitations. First, the idea generation activities occurred approximately 15 months after the conclusion of the RCT; as a result, stakeholders reported retrospectively on their experiences. The generated strategies were bound by the prompts that elicited them; a broader set of questions might have expanded the scope of solutions. Similarly, voting on winning strategies was influenced by the composition of the sample—over-representation of therapists (versus administrators and supervisors) in the stakeholder group may have biased our results toward solutions prized by this subgroup of stakeholders. The study was conducted in a unique cultural context in a single U.S. city and was specific to just one of several evidence-based behavior therapy packages for ADHD. As a result, some

winning solutions may be specific to the STAND treatment or the context in which the study was conducted.

Agency staff also may possess attributional biases (Miller & Ross, 1975) that may prevent them from attributing negative events (i.e., fidelity failures) to internal causes (i.e., their own disinterest or lack of skills). These biases may have influenced barriers and solutions generated by agency stakeholders. Similarly, parents and adolescents may not attribute their difficulties with treatment engagement to internal causes such as low desire to change or poor follow-through. Thus, stakeholder-generated barriers and solutions are likely to represent only a subset of viable implementation strategies. Furthermore, strategies that required greater effort or accountability on the part of the stakeholder tended to be undesirable to respondents (see Table 1; e.g., increasing supervision, receiving performance feedback from families, fidelity monitoring); thus, our findings may under-represent solutions that place increased demands or oversight upon therapists. Ultimately, these more invasive solutions may be most effective at improving standards of care. Stakeholder perspectives should be viewed as just one source of information about possible implementation strategies—and may not represent the most accurate or effective ideas. Nonetheless, stakeholders did not suggest major overhauls of the treatment, indicating that the requirements of STAND were generally acceptable to therapists and families. Novel parent- and youth-generated strategies were not submitted back to agency staff for member checking. This is a future direction for research.

Despite these limitations, our idea generation study reveals that stakeholders possess valuable knowledge about barriers to and implementation strategies that may promote successful community-based treatment of ADHD like STAND. Although they are effective, behavioral treatments for ADHD can be burdensome to receive and deliver (Jensen et al., 2005). Innovative solutions are needed to improve availability of non-pharmacological treatments in community settings (Epstein et al., 2014). This study suggests that a focus on context-specific consumer engagement strategies, clinician training and education (e.g., leveraging digital technologies), interactive assistance from supervisors (e.g., roleplaying and group supervision), and use of evaluative/iterative strategies (e.g., fidelity measurement and feedback) could be promising strategies to improve implementation of and engagement in effective care. Continued application of implementation science methods in the field of child and adolescent ADHD treatment (beyond STAND) is needed.

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