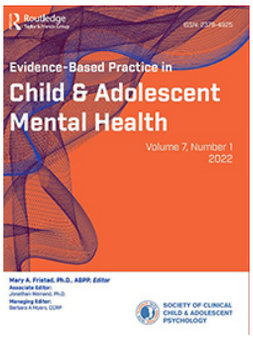

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Judy Reaven[a], Allison T. Meyer[b], Katherine Pickard[b], Richard E. Boles[b], Lisa Hayutin[b], Caitlin Middleton[b], Nuri M. Reyes[b], Susan L. Hepburn[c], Tanea Tanda[b], Aubyn Stahmer[d], and Audrey Blakeley-Smith[a]

[a]JFK Partners, Department of Psychiatry and Pediatrics, University of Colorado Anschutz Medical Campus, Aurora, Colorado, USA; [b]Department of Pediatrics, University of Colorado Anschutz Medical Campus, Aurora, Colorado, USA; [c]Department of Human Development and Family Studies, Colorado State University, Fort Collins, Colorado, USA; [d]Department of Psychiatry and Behavioral Sciences, MIND Institute, University of California, Davis, Sacramento, California, USA

ABSTRACT

Youth with Autism Spectrum Disorder (ASD) are at high risk for experiencing clinical anxiety, interfering with friendships, family functioning, and school performance. Many children with ASD and anxiety have difficulty accessing appropriate mental health care and schools are often the ideal location to receive services. The implementation of evidence-based practices to manage anxiety in students with ASD in schools is just beginning. The primary purpose of the current study was to train interdisciplinary school providers to effectively deliver a 13 session evidence-based, group cognitive behavioral therapy (CBT) program adapted for schools [Facing Your Fears – School-Based program (FYF-SB)], to students with anxiety and ASD, or suspected ASD, using a quasi-experimental design. Provider CBT knowledge, feasibility, and effectiveness of FYF-SB were examined. Twenty-five interdisciplinary school providers, from nine elementary/middle urban public schools were trained to deliver FYF-SB. Twenty-nine students (aged 8–14), with clinically significant anxietyASD, or ASD characteristics, participated. Provider CBT knowledge significantly improved following FYF-SB training. Six of 9 school teams exceeded the minimum standard for acceptable treatment adherence (80%) and 8 of the 9 participating teams delivered adequate intervention dosage for student sessions, although parent attendance was more variable. School providers indicated that FYF-SB was feasible, acceptable, and appropriate for participating students. Parents and students reported significant reductions in student anxiety following program participation. Implementation and treatment outcomes are encouraging and suggest that traditionally underserved students with ASD or ASD characteristics may be able to access much needed mental health interventions in their own communities.

Introduction

Anxiety disorders are very common childhood mental health conditions, as the lifetime prevalence for typically developing children and adolescents is between 10% and 20% (Ginsburg et al., 2012). Youth with Autism Spectrum Disorder (ASD) are at particular risk for developing clinically interfering anxiety; that is, as many as 50% of youth with ASD may develop significant anxiety symptoms (Ung et al., 2015). Anxiety (e.g., worry about making mistakes, using school bathrooms, managing unpredictable sensory stimuli, initiating and sustaining social interaction) can be debilitating and frequently impact peer and family relationships, as well as functioning across home and community environments. Anxious symptoms can exacerbate the core deficits of ASD, and negatively affect school performance and extracurricular participation (Adams et al., 2018; Syriopoulou-Delli et al., 2018).

More than 14 randomized trials have examined the efficacy and effectiveness of modified Cognitive Behavior Therapy (CBT) for youth with ASD and anxiety (see Weston et al., 2016). Both individual (Storch et al., 2013; Wood et al., 2020) and group approaches (Chalfant et al., 2007; Reaven et al., 2012) have proved efficacious in significantly reducing clinical anxiety in children and adolescents with ASD. However, the majority of intervention studies have occurred in controlled University settings; thus, many families may experience difficulties accessing evidence-based mental health treatment in their own

CONTACT Judy Reaven Judy.Reaven@cuanschutz.edu Department of Psychiatry, JFK Partners, University of Colorado Anschutz Medical Campus, 13121 E. 17th Avenue, Aurora, CO 80045

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communities. These challenges in access have yet to be addressed

Numerous obstacles exist for families of youth with ASD seeking evidence-based interventions (EBI), including mental health treatment such as CBT. Common barriers include lack of trained providers, financial limitations, lack of insurance coverage, proximity to clinic location, and balancing demands of work with securing time-off to attend appointments (Elkins et al., 2011). Further exacerbating these challenges are sociocultural determinants of health that include socioeconomic status (SES), race, ethnicity, and English language literacy (Huey & Polo, 2008). Poverty has been linked to increased psychiatric problems in youth with and without ASD (Flouri et al., 2015), and youth with ASD from low SES and/or traditionally underserved backgrounds receive fewer intervention services than their White and more affluent peers (Magaña et al., 2013; Pickard et al., 2018).

The value of school-based interventions for students with ASD

One potential solution to the gap in access to care is to provide EBIs to children with ASD in their own communities. For many families, school-based interventions are the best possible option, as many children with ASD regularly attend and receive services within schools (Zablotsky et al., 2015), and may demonstrate interfering behaviors in that setting. Providing EBIs in schools can reduce common barriers to accessing mental health and ASD specific interventions and importantly, deliver treatment in the very environment where social and academic opportunities exist, and interfering symptoms occur. The use of school providers as intervention agents can reduce the burden on parents to access, attend, and implement EBIs for their child; furthermore, school providers may be best positioned to implement EBIs that support social interactions in naturalistic settings, thus expanding the number of youth with ASD served (Laugeson et al., 2014). Generalization of skills acquired through EBI interventions, such as the Unstuck and on Target program, is reported to be optimized in naturalistic school settings, with meaningful changes for students with ASD observable in the classroom (Kenworthy et al., 2014). Additionally, schools are uniquely positioned to address disparities in access to care for students from low-income and/or traditionally underserved backgrounds, and for some, may represent one of the only consistent resources available (Mandell & Novak, 2005; Zablotsky et al., 2015).

School-based interventions for students with anxiety

CBT has been successfully implemented in schools for students with anxiety without ASD (e.g., Chiu et al., 2013; Ginsburg et al., 2012). In fact, the presence of interfering anxiety symptoms is not unique to students with ASD, as there is evidence that many students with learning disabilities experience significant anxiety (Nelson & Harwood, 2011). School-based CBT programs have varied across a number of dimensions, including delivery in individual and group contexts, session length (generally 8–16 sessions), level of caregiver participation (limited participation to no participation), age of the students (5–17 years old), and type of treating school provider (e.g., special educators, school psychologists). Results are generally promising and have demonstrated significant reductions in anxiety for participating students (Chiu et al., 2013).

Four studies have examined the effectiveness of CBT for students with ASD and anxiety in school settings. Two programs in the United Kingdom delivered the 6-week intervention *Exploring Feelings: Cognitive Behavioral Therapy to Manage Anxiety* (Attwood, 2004; Clarke et al., 2017; Luxford et al., 2017). Preliminary results from these randomized trials indicated that positive changes in anxiety occurred according to multi-informant measures. A third study used the *Facing Your Fears (FYF)* program (*Facing Your Fears: Group Therapy for Managing Anxiety in Children with High-Functioning Autism Spectrum Disorders* (Reaven et al., 2011) to manage anxiety in students ages 13–15 years with ASD in schools in Singapore (Drmic et al., 2017). Results of this pilot study indicated that significant decreases in youth and parent reported anxiety occurred following participation in the school-based FYF program. A fourth study examined the effectiveness of CBT for students with ASD and anxiety in Kenya (Ireri et al., 2019). Results of the randomized trial

indicated that students in the experimental condition (*The Multimodal Anxiety and Social Skills Intervention)* (White et al., 2010) demonstrated significant reductions in anxiety and improvements in autism severity relative to the control condition.

Community, engagement, implementation, and sustainability strategies

Although schools may be an appropriate setting to deliver EBIs for anxiety in students with ASD, the majority of studies referenced above used research personnel to deliver the interventions, thus limiting long-term sustainability. Like other EBIs for children with ASD, CBT has not been consistently or effectively implemented within routine care and procedures likely need to be adapted for use by school personnel (Brookman-Frazee et al., 2010; Drahota et al., 2014). Even when school providers are aware of EBIs for ASD and attempt to use them, they often do not do so with high levels of fidelity, and rarely continue to use EBIs over time (Suhrheinrich et al., 2013). Importantly, the context in which EBIs are used affects the quality by which they are implemented and sustained (Locke et al., 2019; Suhrheinrich et al., 2019).

Therefore, it is imperative to adapt CBT for school contexts to enhance impact and sustained use. It is equally important that this process be guided by frameworks explicitly designed to enhance the translational impact of the intervention. The RE-AIM framework (Glasgow et al., 1999) is one such framework that identifies factors that influence the contextual fit and implementation success of EBIs. RE-AIM refers to the following: 1) **Reach** – Does the program reach individuals most in need? 2) **Effectiveness** – Will the intervention significantly improve target symptoms? 3) **Adoption** – Is the intervention feasible for the setting and can it be successfully delivered by providers? 4) **Implementation** – Can the intervention be consistently implemented as intended? 5) **Maintenance** – Can the intervention be sustained over time without additional resources?

In addition to the utilization of the RE-AIM framework, the effective adaptation and implementation of EBIs to schools necessitates partnership with key stakeholders and potential end users. Engaging stakeholders in planning and program adaptation can maximize the fit of EBIs within schools (Drahota et al., 2017), and may address barriers that can ultimately impede the reach, effectiveness, and maintenance of the EBI once external resources are removed. In fact, careful adaptations to clinic-based treatments must occur in partnership with providers and address issues unique to schools to positively impact school provider "buy-in" and eventual student success (Kasari & Smith, 2013).

One example of how models of community partnership were used to adapt a CBT program for youth with ASD in schools comes from work by Drmic et al. (2017), who engaged in a systematic process of stakeholder engagement to implement *FYF* (Reaven et al., 2011) in Singapore schools. The Traffic Light model (used in the Drmic et al. study) helps program developers, in partnership with stakeholders, identify types of adaptations based on the likelihood that they may compromise intervention outcomes (Centers for Disease Control and Prevention, Division of Reproductive Health & ETR Associates). For example: 1) *green light* changes are unlikely to impact intervention effectiveness (e.g., vocabulary substitutions); 2) *yellow light* changes need to be approached cautiously (e.g., alternative content appropriate for culture); and 3) *red light* changes should be avoided because they may compromise intervention effectiveness (e.g., changes in dosage).

Based on the initial promise of using FYF to address anxiety in schools and the potential to increase access to EBIs for underserved populations, FYF was adapted for US public schools. To maximize the program's acceptability, contextual fit, and eventual sustainability, a research-community partnership model was used to adapt FYF for public schools in Colorado (Gomez et al., 2021). Key stakeholders including potential end-users of the school-based program (e.g., interdisciplinary school providers), as well as parents of children with ASD and anxiety, provided feedback regarding use of FYF in schools (Reaven et al., 2019). Stakeholders confirmed that anxiety is a significant problem for many students with ASD and highlighted the need for intervention programs to address these interfering symptoms. They generally agreed that the ideal frequency and duration of FYF-SB would be 13 weeks, for approximately

45 minutes each session. A train-the-trainer approach was suggested as a way to enhance sustainability.

Current study

This study represents the pilot feasibility phase of a larger implementation-focused trial of FYF-SB within US public schools. This pilot was guided by the RE-AIM framework to proactively consider both the preliminary effectiveness of FYF-SB, as well as factors that may impact the program's ability to be adopted, implemented, and maintained over time within public schools. Specifically, there were three aims of the current study: 1) to train school providers to deliver FYF-SB to students with ASD or suspected ASD and anxiety and assess treatment fidelity; 2) to examine feasibility of FYF-SB; and 3) to examine intervention effectiveness. It was hypothesized that training school providers to deliver FYF-SB would be feasible for public schools, as evidenced by: improvements in provider CBT knowledge, strong adherence to the FYF-SB intervention, good program acceptability ratings, and high rates of treatment completion. It was also hypothesized that students with ASD or suspected ASD and anxiety would demonstrate significant reductions in anxiety from baseline following participation in FYF-SB.

Method

Research design

This pilot feasibility study is a single arm, pre- and posttest research design. A non-randomized, controlled design was chosen for this stage of research as the primary objectives were to establish feasibility and identify preliminary effectiveness.

Participants

Three groups of participants entered the study: interdisciplinary school providers (n = 34), students (n = 29) who participated in FYF-SB, and teacher informants (n = 30). Participants were recruited from three large public school districts in the Denver Metro area through the Colorado Institutional Review Board approved study announcements, school administration and provider referral, and word of mouth. School administrators recruited school providers for this study, with the understanding that they would serve as "trainers" in the second year of the project (see below). School providers and other administration personnel understood that the intent of the study was to work with students with ASD. Even if a student did not have a known diagnosis or educational identification of ASD, providers were encouraged to refer students with suspected ASD. Informed consent and assent were obtained for all participants prior to data collection.

School providers

Thirty-four interdisciplinary school providers were identified by school administrators across the three districts. Administrators selected the providers because they were considered seasoned professionals in their disciplines (working at least 3 years in their field) with the interest and ability to serve as trainers in a second implementation trial (i.e. "train the trainer" phase). Providers were asked to make a two-year commitment to the project. School providers were required to: (1) have a degree in special education, speech/language pathology, occupational therapy, physical therapy, school psychology, social work, counseling or behavioral consultation; (2) currently work with students with ASD and anxiety; and (3) attend the training workshop, participate in ongoing phone consultation and facilitate at least 80% of FYF-SB sessions. Providers were excluded from participation if they were a paraprofessional, could not commit to the parameters of study participation, and/or did not actively work with students with ASD and anxiety. See Table 1 for school provider demographic information.

Students

Twenty-nine students between the ages of 8–14 years (and their parents) currently being served on an Individualized Education Program (IEP) under any educational identification or 504 Plan through their school districts, participated in the study. Students also had: (1) no indication of IQ below 70; (2) clinically significant anxiety symptoms according to either student (e.g., SCARED-C), parent [(SCARED-P (Birmaher et al., 1999)

Table 1. School provider characteristics.

Interventionist	M (SD)	Range	Percent
Age (years)	38.6 (9.5)	26–61	
Years of experience	11.4 (8.0)	1–34	
Gender (female)			97
Education			
Bachelors			3
Some Graduate/MS			61
Professional/PhD			36
Race (Caucasian)			96
Profession			94
Psychologist			26.5
Special Education Teacher			26.5
Speech Pathologist			20.6
Social Worker			11.8
Occupational Therapist			5.9
Counselor			5.9
Behavior Consultant			2.9

(SCARED Total score >25; OR exceeding threshold on any of the 5 subscales of the SCARED) or PRAS-ASD (exceeding score of 44) (Scahill et al., 2019)]; or teacher report [(School Anxiety Scale; Lyneham et al., 2008)]; (>17 Total Score) and (3) clinically significant deficits in reciprocal social behavior (T-Scores above 60) (Social Responsiveness Scale – Second Edition; Constantino & Gruber, 2012). A medical diagnosis of ASD or educational identification of ASD was not required for participation, although students had to present with significant characteristics of ASD.[1] Fourteen of the 29 students had a prior ASD diagnosis according to parent report. Notably, all of the students exceeded the designated cutoff for social impairments, and 25 of the 29 students demonstrated the presence of significant restricted and repetitive behaviors (above 60) on the SRS-2.

Medications

Ten of 29 students (37.93%) were prescribed one or more psychotropic medications at the start of treatment according to parent report. Seven of these 10 students were prescribed a stimulant medication, 4 students (40%) were prescribed an SSRI, and 3 students (30%) were prescribed an atypical antipsychotic. At the beginning of the study, families were asked to keep the dosage of medication consistent throughout the study period, although information was not obtained at the end of the study to determine whether medications had changed.

IEP eligibility

All students were on IEPs, although data could only be obtained for 18 of 24 students who completed FYF-SB. Six of 18 (33.33%) had a primary educational identification of Autism Spectrum Disorder (ASD), and five of the six also had a parent-reported medical diagnosis of ASD. Three students (16.67%) had a primary identification of Specific Learning Disability, 3 students (16.67%) had an identification of Other Health Impairment, and 2 students each (11.11%) had primary identifications of Speech or Language Impairment, Developmental Disability, or Severe Emotional Disability.

Students were excluded if they had: (1) significant behavioral challenges that prohibited participation in a small group setting (e.g., serious and frequent aggression); (2) a serious psychiatric condition that warranted an alternative intervention and/or a more intensive treatment program; (3) a known diagnosis or educational identification of Intellectual Disability; or (4) parents who did not consent for the student to participate in the study. Consultation between school providers and the research team, and in some cases the family, occurred when there were question about inclusion/exclusion. See Table 2 for student participant information.

Table 2. Student participants (N = 29) intent to treat.

	M (SD)	Range	Percent
Gender			
Male			72.4
Female			27.6
Age	10.31 (1.83)	7–13	
Parent-report ASD diagnosis			48.3
SRS-2 Total T-Score	77.55 (9.76)	59–92	
SCI T-Score	76.45 (9.32)	61–90	
RRB T-Score	78.45 (13.60)	49–102	
Ethnicity			
Hispanic or Latino			27.6
Non-Hispanic			72.4
Race			
Caucasian			66.7
Asian			11.1
Black/African American			6.8
Multiple race			22.2
Not reported			3.4
Consenting Parent Education			
Some high school/HS graduate			31.0
Some college/associate degree			27.5
College undergraduate			17.2
Some graduate/terminal Master's			10.3
Professional degree (JD, PhD, etc.)			13.8

[1]The intent of the current study was to recruit students with ASD; however, low-income and/or traditionally underserved students are often under diagnosed or misdiagnosed. If eligibility was limited to only those students with medical diagnoses of ASD or an educational identification of ASD, students who could benefit from the program may have been missed. There were no significant demographic differences between children with or without an ASD diagnosis at baseline.

Setting

FYF-SB was delivered in elementary and middle schools across three large public school districts in the Denver Metro area. All districts had economically and ethnically diverse student bodies (e.g., schools with high rates of free and reduced lunch, and high rates of traditionally underserved racial/ethnic minority students such as those from Hispanic/LatinX or African-American backgrounds). Because all of the districts also have schools with students from higher SES backgrounds, the research team directly requested that district administrators select schools in the district located in low-income and racially/ethnically diverse communities. District administrators also had to consider whether there were school providers at the schools who met experience criteria and were willing to participate in the current study. Once schools were selected, it was up to the school providers to select the students who they thought were appropriate for the study given eligibility criteria. Educators were told that the emphasis of the project was on recruiting students of color, particularly given the known disparities in access to mental health care. All students had to meet inclusion criteria (see below). Between two to five students were recruited per school.

Colorado's minority enrollment across elementary and middle schools is currently 47%. Of the 11 schools that participated in FYF-SB, the average minority enrollment was 61.09%. Participating schools' average enrollment of students from the Hispanic/LatinX community was 37.82% (state average 32%) (Public School Review, n.d.). The average enrollment of students from the African American community was 18.5% (state average 13%). The average rate of students from participating schools that were eligible for free or reduced lunch was 44% and 7.82%, respectively, with a state average of 34% and 8%, respectively.

Facing Your Fears – School-Based Program (FYF-SB)

FYF-SB is derived from FYF, an evidence-based outpatient clinic program for youth (and their parents) with ASD between the ages of 8–14 years. The original FYF program is a 14 week, 90 minute, group CBT intervention focused on the management of clinically significant anxiety symptoms and emotion dysregulation in participating youth (Reaven et al., 2011). The first half of the program includes psychoeducation (e.g., identification of anxious symptoms; somatic management strategies, and targeting automatic negative thoughts via positive self-statements known as "helpful thoughts"). The second half of the program is focused on graded exposure practice. Youth and their families create hierarchies of feared events/stimuli and are encouraged to face fears in session, in school activities, as well as in community contexts. In the clinic-based program, parents are actively included and required to attend all 14 sessions (see Reaven et al., 2012, 2018).

As stated above, FYF was recently modified for school settings (Reaven et al., 2019). The resulting program, FYF-SB, includes a facilitator manual, a student workbook, and parent handouts in English and Spanish, and is highly similar to the original FYF with regard to core CBT content. Worksheets were carefully designed to include visuals, paired with clear written directions, multiple choice lists, and brief "hands-on" activities to enhance the accessibility of CBT content for different learners. Culturally appropriate representations of students from diverse racial and ethnic backgrounds are incorporated throughout the materials. Key differences between FYF and FYF-SB include changes in program duration (13, 45-minute sessions), limited parent involvement (3 face-to-face group sessions offered), and group facilitators included interdisciplinary school teams, rather than clinical psychology graduate students/Ph.D. level clinicians. Prior to adaptation, treatment developers reviewed all core components and activities of FYF to accommodate the shortened FYF-SB sessions. Using the Traffic Light model of adaptation, core CBT components were maintained, albeit shortened, and some activities that had been designated as optional in the clinic-based FYF, were eliminated in the school-based program. FYF-SB groups consisted of between 2 and 5 students and a minimum of two providers per group. Student goals reflect school-based fears (e.g., fear of making mistakes, talking to students/teachers, handling the fire alarm and using the school bathroom). In efforts to enhance communication among the student's school team as well as home/school communication, a brief written

weekly handout was provided to each student's school team as well as to their families following each session. Parent handouts were translated into a parent's primary language as needed (e.g., Vietnamese, Spanish).

Procedure

The study was completed in compliance with the Colorado Multiple Institutional Review Board (COMIRB), through the University of Colorado Anschutz Medical Campus and through each of the school districts' internal research review boards. Approval was obtained from each district prior to the recruitment of any participants.

Thirty-four school providers from 11 schools were identified by their district administrators for participation. Once consented, all school providers participated in a 12-hour training workshop delivered on-site by several of the study authors. Three separate but identical workshops were held in each of the school districts. All participating school providers were required to attend the workshop. If scheduling difficulties arose, school providers could choose to attend a workshop in one of the other two districts. The workshop content was comprised of didactic presentations on the identification of anxiety in students with ASD, a broad overview of CBT for anxiety and an overview of FYF-SB, including a session-by-session review. The workshop was highly interactive and included videotaped examples of core concepts, small group activities, and experiential exercises. All providers completed pre- and post-workshop measures (see Measures section).

Following the completion of the workshop, providers identified 2–5 students within their school for participation in the study. They were asked to identify students who had known ASD (either via medical diagnosis or educational identification) or suspected ASD, and interfering anxiety symptoms. Providers were also asked to identify students who were verbally fluent and without known Intellectual Disability. Once students were identified, the providers communicated directly with the students' parents (one parent per student; n = 29) and obtained permission for the research team to contact the families directly to obtain informed consent and pre-treatment paperwork. All families completed an initial pre-screening phone call with the research team to determine initial eligibility and interest in the program. Formal questionnaires were not completed at this stage, but families briefly described their child's level of functioning, history of social challenges, and provided some examples of fear or worry. Families were also asked if their child had any formal diagnoses. If families provided information about their child that appeared to meet eligibility criteria and expressed interest in having their child complete FYF-SB, informed consent and pre-treatment measures were completed. Pre-treatment measures were completed via Redcap, an electronic platform, for families who had internet and computer access. For families who did not have access to a computer, pre-treatment measures were completed in-person or paperwork was sent home with the child by their school team. For Spanish-speaking families, a bilingual clinical psychologist on the research team completed informed consent and pre-treatment measures in Spanish by phone or in person, depending on the preference of the family.

Following parental completion of pre-treatment paperwork, a member of the research team met with each student at the student's school, obtained assent for study participation and completed student pre-treatment measures. Teacher informants completed pre-treatment measures via Redcap after parent completed informed consent. Once the school had enough students for a group (i.e., minimum of two students) they could begin delivering FYF-SB.

School teams were asked to record each session and upload these videos to a HIPAA-compliant shared drive so that adherence to the program could be coded. School providers participated in twice-monthly phone consultations from two of the study authors (JR and ABS) throughout the duration of the intervention. Phone calls were typically between 20 and 30 minutes and at least one school team member was asked to attend the consultation calls. Each school team had between 4 and 6 consultation calls. Videos of sessions were viewed prior to the phone consultation. Consultation format was very similar across school teams and included a question and answer period about the implementation of FYF-SB, provision of direct feedback about intervention delivery, including

missing elements and/or incorrect delivery of the program, and planning for upcoming sessions.

After the program was completed, research team members contacted each child's family and teacher informants to collect post-intervention measures within 2–6 weeks of the final session. Members of the research team met with students at their school to complete post-intervention measures. Post-intervention measures for students included all anxiety measures. School providers also completed post-intervention measures including an implementation survey and exit interview.

Compensation: Parents were given 20 USD gift cards for completion of pre-post measures. Teacher informants were similarly compensated for completion of pre-post measures. School providers were compensated ($150 gift cards) for attending the training workshop if the workshop was held on non-work days (e.g., at the beginning of the semester prior to the beginning of school). School providers were also compensated for consultation calls with the research team, because these activities were considered to be above and beyond expectations for work.

School provider measures[2]

Demographic questionnaire

A brief questionnaire was developed to obtain information regarding the providers' educational background, years of experience, training specific to working with students with ASD, and experience working with children with anxiety. A similar demographic questionnaire has been used in other studies (e.g., Reaven et al., 2018).

Assessment of CBT knowledge

A 20-item multiple-choice test similar to assessments used in other studies (Reaven et al., 2018) was used to examine school providers' knowledge of CBT. Unlike the previous versions of CBT Knowledge (Reaven et al., 2018), the current version of the CBT knowledge test was specific to FYF-SB (i.e. adding items pertinent to the school-based program). Two nearly identical versions of the test were developed; minor word changes and item order distinguished the two versions. Half the providers received version A and half the received version B pre/post workshop. *(Adoption)*

Workshop evaluation

School providers completed a brief evaluation following the 2-day workshop to obtain information regarding the quality of the training. Providers used a 6-point Likert scale to rate the extent to which the workshop addressed stated training objectives, how satisfied they were with the format of the workshop (e.g., didactic presentations, small group activities, videotaped examples, etc.), and level of knowledge and comfort using FYF-SB. *(Adoption/Maintenance)*

Treatment fidelity

Similar to the fidelity measure used in previous FYF studies (Reaven et al., 2012, 2018), a checklist format was used to assess treatment adherence by noting the presence or absence of core treatment components on a session-by-session basis. In addition, a global rating of quality was assigned at the end of every session and based on a Likert scale ranging from (1) poor (e.g., provider handled activity poorly and demonstrated lack of understanding or expertise); to (3) adequate (e.g., provider delivered the activity in a "good enough" way); to (5) excellent (e.g., provider delivered the activity with exemplary skill) quality. The global quality rating encompassed therapist competence in delivering core treatment components (adapted from Yale Adherence and Competence Scale (YACS-II) Guidelines; Nuro et al., 2005). Both measures of fidelity (i.e., adherence and quality) were examined for the providers as a whole since all group leaders worked together to deliver the intervention; this approach was in keeping with previous research (Reaven et al., 2018). Two of the study authors (JR/ABS) coded the measures of treatment fidelity. Both raters were clinical psychologists, co-developed FYF-SB, and created the treatment fidelity measure together. Adherence to protocol was included as a part of an ongoing feedback loop (e.g., constructive comments from the consultants were provided to the school providers via phone consultation; providers conducted FYF-SB sessions, consultants viewed the sessions, and again provided feedback, etc.). *(Implementation)*

[2]Examples of how the RE-AIM Framework informed the selection of instruments for both school providers and students are included in measurement descriptions.

FYF implementation survey

This survey is a 36-item survey (Likert Scale 1–5) that was adapted from several different sources (e.g., Halliday-Boykins et al., 2005) and was designed to examine intervention acceptability, appropriateness for the school setting and feasibility. An adapted version of this survey has been used in other studies examining the feasibility of interventions for youth with ASD (Vivanti et al., 2014). Providers offered responses based on a 5-point Likert scale and completed this measure once they had finished a full cohort of FYF-SB. This data was collected post-treatment to inform both the workshop as well as the FYF-SB intervention. (Implementation/Maintenance)

Exit interview

A 20–30 minute exit interview was conducted with each school team by a member of the research team (not directly involved in training), within 2–4 weeks of the conclusion of FYF-SB. The interview consisted of semi-structured questions focused on the feasibility and acceptability of FYF-SB. Providers were asked to offer their impressions of FYF-SB, the feasibility of implementing FYF-SB within their school, and suggestions for adaptations to FYF-SB to improve fit within underserved public school settings. Providers were asked to comment on the length of intervention, provide recommendation for components that could be added or omitted, and suggestions for how to include parents in the program. *(Reach/Adoption/Implementation/Maintenance)*

Student measures

Child information

Basic demographic information was obtained regarding school information, age, grade, race/ethnicity, gender, developmental and psychiatric diagnoses, current medications, and IEP classification.

Screening for cognitive abilities

No formal cognitive measures were administered to the participating students due to logistical challenges. However, students with known school identification of intellectual disabilities were excluded from the study. In addition, IEPs were obtained for 62.07% (N = 18) of participating students. Of the available IEPs, 55.56% (N = 10) had IQ assessments completed within 3 years. A total of N = 7 IEPs reported Full Scale IQ standard scores that ranged from 76 to 111 (M = 95.71).

Social Responsiveness Scale, Second Edition (SRS-2; Constantino & Gruber, 2012)

The SRS-2 is a parent-reported 65-item questionnaire that uses a 4-point Likert scale to identify the presence and severity of ASD-related behaviors. It includes five subscales: awareness, cognition, communication, motivation, and autistic mannerisms. SRS-2 scores are highly heritable, stable over time, continuously distributed in the general population, and have distinguished ASD from non-ASD populations (Bolte et al., 2008; Frazier et al., 2013). T-scores above 60 reflect mild autistic symptoms and were used as a cutoff for inclusion, because previous research indicated that using this cutoff identified 90% of children diagnosed with ASD (Constantino et al., 2007). The test-retest reliability is r = .88 after 3 months and r = .83 after 27 months. Within a special education setting the SRS-2 demonstrated adequate predictive validity, with a sensitivity and specificity of .78 (Charman et al., 2007). Additionally, adequate internal consistency (Cronbach's alpha ranged from .94 –.96) and content validity (via confirmatory factor analysis supporting good fit for the 2-factor model) have been reported (Constantino & Gruber, 2012). Finally, the SRS-2 has been successfully used in other school-based intervention studies to identify students with ASD (Clarke et al., 2017). The SRS-2 was completed by parents at pre-treatment only.

Anxiety outcome measures

Several measures of parent-, child-, and/or teacher-reported anxiety were completed at pre- and post-treatment to evaluate the effectiveness of FYF-SB.

Screen for Child Anxiety and Related Emotional Disorders – Parent/Child (SCARED-P/C; Birmaher et al., 1999)

The SCARED-P/C is a 41-item inventory comprised five anxiety subscales (Panic, Generalized Anxiety, Separation Anxiety, Social Anxiety, and School Anxiety) and a Total Score. Increased scores are indicative of more anxiety-related symptoms. Parents reported on symptoms over the past two weeks. The SCARED demonstrates excellent psychometric properties in typically developing youth

(Birmaher et al., 1999; Hale et al., 2011). Results from a previous study confirm the 41-item measure's five-factor structure and suggest good sensitivity (.71) and specificity (.67), strong Cronbach's alpha scores for the child total (.92) and parent total (.90), and strong convergent validity with a gold-standard clinical interview among parents of youth with ASD (Stern et al., 2014). (*Effectiveness)*

Parent-Rated Anxiety Scale for ASD (PRAS – ASD; *Scahill et al., 2019)*

The PRAS-ASD is a 25 item, parent report measure to assess anxiety in youth with ASD. This measure provides a total score for anxiety with possible scores ranging from 0 to 75. It has good test-retest reliability of 0.88 and 0.86, established content validity via focus groups, internal reliability (coefficient alpha = .93), adequate structural fit via exploratory and confirmatory factor analysis, and strong convergent validity with other anxiety measures (.83). *(Effectiveness)*

The School Anxiety Scale – Teacher Report (SAS-TR; *Lyneham et al., 2008)*

The SAS-TR is a 16-item teacher-reported measure of anxiety designed to assess the behavior of children at school from 5 to 12 years of age. Items are answered on a 4-point scale. The measure provides a total score for anxiety (scores ranging from 0 to 48). It includes two subscale scores (reflecting social anxiety and generalized anxiety). Teacher informants (n = 30) completed this measure pre/post intervention. Parents or school providers designed informants as someone with direct knowledge of the participating student (e.g., general education teacher). None of the teacher informants served as group facilitators. Research examining the psychometric properties of the SAS has demonstrated that the measure has strong internal reliability with a Cronbach's coefficient of .93 for Total scores. This research has also shown appropriate test-retest reliability and convergent and divergent validity with similar or unrelated measures, respectively (Lyneham et al., 2008) . Intraclass correlations over an 8-week period were as follows: Total Score ICC = .78; Social Anxiety subtest ICC = .81; and Generalized Anxiety subtest ICC = .73 (Lyneham et al., 2008). *(Effectiveness*)

Data analysis plan

Aim 1

Training school providers and assessing treatment fidelity. The effectiveness of the school training and the providers' ability to deliver FYF-SB was assessed in several ways. First, the providers' knowledge of CBT was compared before and after the workshop with paired-sample t-tests. Second, descriptive statistics were used to assess participant satisfaction with the training. Finally, fidelity to the FYF-SB protocol was assessed in three ways: (a) by calculating the percentage of the core treatment components that were completed in the coded sessions (i.e., adherence), (b) by calculating the inter-rater reliability for treatment fidelity [16% of sessions were randomly selected and double-coded similar to other studies (Wood et al., 2020)], for the overall quality of treatment in which agreement was defined as being within 1 point between raters on a 5-point Likert scale (similar to previous studies, Reaven et al., 2018), and (c) by calculating descriptive statistics of the global quality rating. The classification of Kappa followed recommended guidelines indicating .81 to 1.0 = outstanding, .61 to .80 = substantial, .41 to .60 = moderate, .21 to .40 = fair, and less than .21 = poor agreement (Landis & Koch, 1977)

Aim 2

Examining feasibility. Feasibility of the FYF-SB program was assessed by number of treatment sessions completed. In addition, acceptability was determined via descriptive statistics obtained from the implementation survey completed by school providers. Similar to other studies examining acceptability, a rating of 3 or higher was considered "good" acceptability (Walsh et al., 2018). Exit interviews were recorded and inductively coded using content analysis to identify broad themes that emerges across interviews. Content analysis was used to analyze qualitative data obtained from school team exit interviews (Hsieh & Shannon, 2005). Consensus coding was used throughout the analytic process to expedite the development and application of a codebook to exit interview transcripts. After the codebook was applied to transcripts, codes were grouped into overarching themes directly related to the implementation of FYF-SB.

Aim 3

Examining intervention effectiveness. Participants were characterized by age, race, ethnicity, SRS-2 scores, consenting parent's education and IEP eligibility. The participants' anxiety was assessed prior to the intervention and after completion of the FYF-SB program using linear mixed model analyses. Tests for significant differences from pre- to post-treatment were conducted, in which separate models were run for the SCARED parent and child report, PRAS-ASD, and SAS-TR. Linear mixed models have a strength of including all available data from participants with partial missing data. The main effect of time was the primary test, in which fixed model effects included the intercept while time was repeated (no random effects). For each analysis, two tailed tests with p values < .05 were considered statistically significant. Statistical analyses were conducted using SPSS Version 26 (IBM).

Results

Aim 1. Training school providers and assessing treatment fidelity

Assessment of CBT knowledge

Providers demonstrated significant improvements in CBT knowledge after participating in the 12-hour workshop. Out of the 34 trained providers, 25 delivered the FYF program, and 24 completed pre/post CBT knowledge tests. Results of a paired-sample t-test indicated significant improvements in providers' CBT knowledge from pre-training (M = 15.87/20 correct, SD = 2.29) to post-training (17.12/20 correct, SD = 1.87), $t(23) = 2.26$, $p = .033$. Average percent of correct responses at pre-training was 79% and average percent of correct responses at post-training were 86%.

Evaluation of the training workshop

Providers responded to a series of statements across three main sections: 1) the extent to which the workshop met the stated training objectives; 2) the extent to which providers were satisfied with the training materials and activities; and 3) the providers' knowledge and comfort regarding FYF-SB. The providers rated each question using a 6-point scale (1 = "strongly disagree," 6 = "strongly agree"). Overall, the providers' ratings indicated that they viewed the workshop favorably. Ratings for the *met training objectives* section were: M = 5.6; 4.8–6.0; ratings for the *satisfaction with training materials and activities* section were: M = 5.5; 4.6–6.0; and ratings for the *knowledge and comfort with FYF-SB* were: M = 5.1; 4.0–6.0.

Treatment fidelity

Nine groups of FYF-SB across the three school districts participated in the study (see consort diagram). Eight of the nine school teams completed at least 10/13 sessions. Across all schools, one hundred and three total sessions were completed and 49% of these sessions were coded for the two fidelity measures (i.e., adherence and quality). Adherence was calculated based on the percentage of core components that the school providers implemented per session across the 13-week intervention. Adherence percentages ranged from 63% to 100% (M = 84.11%) across the nine group cohorts (Group 1– 63%; Group 2– 72%; Group 3– 74%; Group 4– 80%; Group 5– 82%; Group 6– 89%; Group 7– 97%; Group 8– 100%; and Group 9– 100%). Six groups exceeded the minimum standard for acceptable treatment fidelity (80%).

In addition to collecting data regarding absence/presence of core components, global ratings of quality for each session were obtained. As noted above, the quality rating encompassed therapeutic competence in delivering core components of FYF-SB. Quality ratings (Likert 1–5) across the eight school teams that completed the intervention ranged from 2.5 to 4.5 (M = 3.64). Eighty-seven percent of the sessions viewed yielded a quality rating of 3 or above, indicating that the session content was delivered in an adequate or "good enough" manner. A kappa statistic was calculated and classified as substantial agreement for the presence of core treatment components, $\kappa = 0.62$, $p < .001$, while the percent agreement for quality ratings was considered excellent at 87.5%.

Aim 2. Examining feasibility

Recruitment of school providers, student participants, and intervention completion

Thirty-four providers from 11 elementary and middle schools across three public school districts were initially trained and participated in the workshop. Of the 11 schools, one school did not begin recruiting students for the study because they stated that

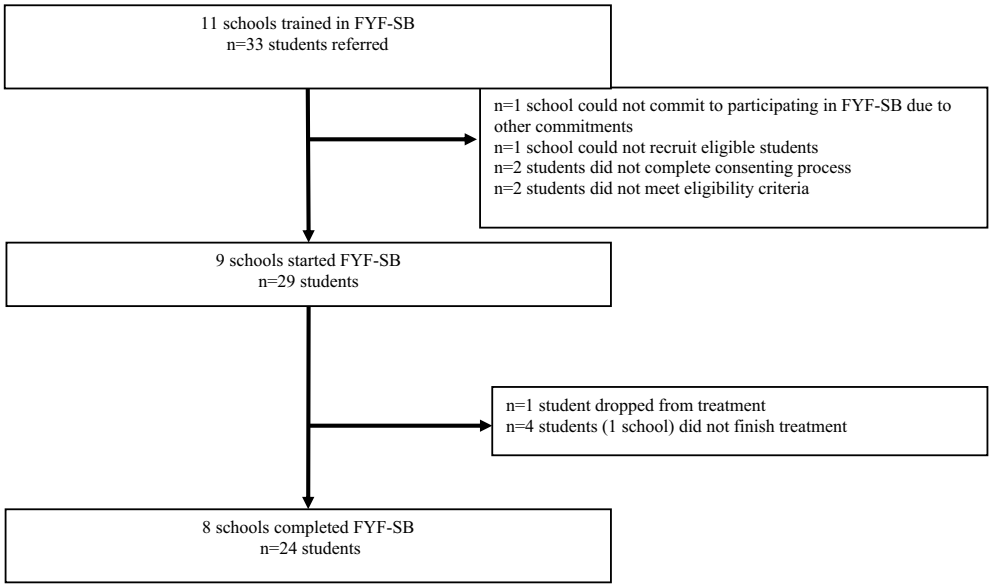

Figure 1. Consort table.

they did not have enough time/resources to participate in the study. Another school began the recruitment process and referred several students for participation, although none of these students met inclusion criteria so this school did not participate. Nine schools comprised 25 school providers recruited eligible students and began to deliver FYF-SB. Eight of the nine schools completed at least 10/13 sessions (considered adequate dosage for student sessions). One school delivered 5 sessions and did not complete FYF-SB. This school experienced a school tragedy (unrelated to FYF-SB) , which significantly affected their ability to deliver FYF-SB and participate in the research.

Twenty-nine students comprised the intent-to-treat sample. Of the 29 students, 4 students attended the school that did not finish FYF-SB and were dropped. One additional student dropped because he did not want to participate, leaving a total of 24 students who completed FYF-SB (83% completion rate). School providers said that when students were absent they made every effort to connect with the absent student prior to the next session so that they would be "caught up" prior to receiving new material. Students who completed treatment attended an average of 12.17 session (SD = 1.47, range = 8–13 sessions). This includes instances where students were "caught up" outside of the official group session. The five students that did not complete treatment attended an average of 4.6 sessions (SD = .89, range = 3–5 sessions). See Figure 1 for Consort Table.

Parent sessions

FYF-SB included three face to face group parent sessions. Each school team was asked to schedule three parent meetings (beginning, middle, and at the end of the program). Of the nine school teams who delivered FYF-SB, two teams did not hold any parent sessions; one team held one parent meeting; five teams held two parent sessions, and only one school team was able to hold all three parent sessions. Although seven teams were able to have at least one parent session, and six teams were able to have at least two parent sessions, it appears that including three face to face parent sessions as part of the school-based intervention was not feasible. School providers cited scheduling difficulties (for both providers and parents) as the primary barrier to having the parent sessions.

FYF implementation survey

Seventeen of 25 implementing school providers completed the FYF Implementation Survey and rated their perceptions of FYF-SB across three primary domains (i.e., acceptability, feasibility, and appropriateness) using a 5-point Likert scale. Mean ratings for each of the three domains are presented. Overall, providers reported FYF-SB as acceptable (M = 3.58; SD = 0.37; Range = 3.00–4.27), feasible (M = 3.63;

SD = 0.54; Range = 2.44–4.67), and appropriate (*M* = 3.40; *SD* = 0.46; Range = 2.80–4.50).

Exit interviews

All nine school teams who started FYF-SB completed exit interviews. Qualitative data from exit interviews indicated that, overall, school teams perceived FYF-SB as easy to implement and met the needs of their participating students. School providers stated they felt well trained to implement the program and indicated that a number of their students appeared to benefit from program participation. Given the ease of using the program and the perceived benefit for students, many school teams indicated that they were either currently running additional FYF groups or were planning to run them in during the next school year.

In addition to the benefits of implementing FYF-SB, school teams also described some barriers to implementing FYF-SB. These barriers included: 1) fitting FYF-SB within a school schedule; 2) communicating with parents and teachers throughout the program; and 3) managing the competing demands for mental health staff implementing the program. Adaptations were suggested to address these barriers, including having fewer parent sessions or greater flexibility in how parent sessions were delivered, having more support to implement exposure, and shortening of sessions (e.g., not including optional activities).

Aim 3. Examining the initial effectiveness of FYF-SB

Intervention effectiveness

Results of the intent-to-treat sample indicated the following: SCARED-P/C: Significant reductions in anxiety symptoms were reported in the Total SCARED scores from pre- to post-intervention by parent report $F(1, 15.69) = 4.61$, $p = .048$, $\omega^2 = .17$; and student self-report $F(1, 17.15) = 7.18$, $p = .016$, $\omega_p^2 = .10$. While there was not a significant difference in changes for both the intent-to-treat and completer samples on the PRAS-ASD, the effect size was moderate for the decrease in anxiety symptoms on this measure for youth who completed the intervention, $F(1, 17) = 3.69$, $p = .07$, $\omega_p^2 = .12$ (Cohen, 1988). There were no significant differences according to teacher report on the SAS-TR Total score, or SAS-TR Generalized Anxiety/Social Anxiety subscale scores. See Table 3 for student outcomes.

Discussion

The purpose of this study was to examine the effectiveness and feasibility of training interdisciplinary school providers to deliver FYF-SB to students with ASD or ASD characteristics and anxiety, and to examine the feasibility and initial effectiveness of FYF-SB. The current study is one of the first to implement a manualized group CBT intervention (FYF-SB) with students with ASD, or suspected ASD, and anxiety in public schools in the US. Notably, interdisciplinary providers were trained to deliver FYF-SB, thus capitalizing on the presence of natural change agents and expanding the number of providers who can deliver CBT to students with ASD and anxiety in low resource settings. Both implementation and intervention outcomes were examined and initial hypotheses were generally confirmed.

Implementation outcomes (Reach, adoption, implementation, maintenance)

School providers demonstrated significant improvements in CBT knowledge following the training workshop. Given that the majority of providers were not mental health providers, these gains in CBT knowledge are important to highlight. In addition, school providers viewed the training workshop quite favorably. Their responses indicated that they were satisfied with the training and associated materials, workshop objectives were met, and they perceived having increased knowledge and comfort with delivering FYF-SB. These results reflect the potential for adoption and perhaps sustained use of FYF-SB. Importantly, session adherence across school teams was generally high, with the majority of school teams exceeding the 80% threshold for completion of FYF-SB activities. However, the variability in adherence across schools is important to consider for future CBT implementation studies as it may be impacted by facilitator, student, and organizational factors in addition to assessment challenges tied to evaluating treatment fidelity in school settings. Several school teams, for example, voiced concern that certain professionals' time may be more variable (i.e.,

Table 3. Student outcomes.

	Baseline M (SD)	Post-intervention M (SD)	*F*-value	*p*-Value	Effect size (ω_p^2)
SCARED-P total	32.24 (16.55)	29.07 (15.45)	4.61	.048*	.17
Panic	6.89 (5.04)	5.29 (3.41)	4.54	.048*	.15
Generalized anxiety	10.11 (5.05)	9.86 (5.45)	2.00	.18	.05
Separation anxiety	6.68 (4.86)	5.07 (4.70)	6.07	.03*	.23
Social anxiety	6.68 (3.60)	6.57 (3.80)	3.74	.07	.14
School avoidance	2.57 (1.89)	2.29 (2.01)	2.17	.16	.05
SCARED-C total	28.83 (15.48)	24.15 (15.83)	4.28	.016*	.10
Panic	7.38 (5.74)	5.96 (5.38)	2.60	.12	.05
Generalized anxiety	6.76 (4.58)	5.52 (4.45)	2.79	.11	.06
Separation anxiety	5.90 (4.20)	5.37 (4.18)	.99	.33	.0003
Social anxiety	6.10 (3.46)	4.96 (3.40)	3.15	.09	.07
School avoidance	2.69 (1.76)	2.33 (2.08)	.95	.34	.002
PRAS-ASD (ITT)	32.83 (15.43)	32.79 (15.93)	1.51	.24	.03
PRAS-ASD (treatment completers)	36.39 (14.46)	30.78 (14.69)	3.69	.07	.12
SAS-TR total	14.86 (9.82)	14.58 (5.23)	0.18	.67	.04

*$p < .05$.
SCARED-P: Screen for Child Anxiety Related Disorder-Parent/Child.
PRAS-ASD: Parent Anxiety Scale for Autism Spectrum Disorder; ITT: Intent-to-treat; SAS-TR: School Anxiety Scale-Teacher Report.

mental health professionals), resulting in the need for rotating facilitators in group, or gaps in timing of sessions. which may have impacted implementation consistency. Conversely, some school teams were able to extend exposure practices beyond the group setting to include more naturalistic practices within daily class routines. This may have positively affected generalization of skills, yet could not be captured and observed by research coders, as they occurred outside of recorded group sessions. Thus, while school providers were largely able to implement FYF-SB as intended, the variability across schools may reflect the dynamic nature of the school environment and the need for further refinement of our understanding of who is best positioned to implement CBT in schools and how to best assess treatment adherence in this complex, naturalistic environment.

Eight of the nine participating school teams provided an adequate dose of the intervention with regard to student sessions (10 of 13 sessions), 80% of students initially enrolled in FYF-SB completed the group, with excellent attendance. There was, however, variability in the school teams' contact with parents. Seven of the eight school teams that completed FYF-SB held at least one face-to-face parent meeting, and six teams held at least two parent sessions. Only one team was able to complete all three parent sessions. School providers indicated that a primary challenge in scheduling parent meetings was finding a time that could work for both parents and school providers. The variability in parent participation, as well as lack of information regarding parent attendance, may have implications for the generalization of skills from the school to home environment. It would be important for future studies to examine the role and feasibility of parent involvement in school-based interventions.

School providers indicated that FYF-SB was a feasible, acceptable, and appropriate interventions for students with ASD and anxiety within public schools. Importantly, providers noted that FYF-SB was easy to implement and they felt well trained to implement FYF-SB. School providers also reported that many of their students appeared to benefit from participation in the program and that they planned to continue to use the program with additional students in the upcoming academic year. These results suggest the positive potential for reach, adoption, and sustainment of FYF-SB. Further, there is evidence that when teachers and other school providers receive trainings that support children with ASD, stress and burn out can be decreased (Boujut et al., 2016). Given the extent to which anxiety manifests in school settings (Adams et al., 2018), a manualized program specifically designed for youth with ASD and anxiety has the potential to be well received by school teams.

Student outcomes (Effectiveness)

It was hypothesized that students with ASD or suspected ASD and anxiety would demonstrate

significant reductions in anxiety following participation in FYF-SB. In fact, both parents and students reported significant reductions in anxiety following program completion for the intent-to-treat sample. These findings are encouraging because the dosage of FYF-SB is substantially less than the clinic-based program. Furthermore, the results also suggest that parents have noticed changes in their child's anxiety and behavior at home, indicating that generalization from school to home may have occurred. This is particularly noteworthy given limited parent involvement in the program.

Notably, teachers did not report significant reductions in anxiety for participating students (as assessed by the SAS-TR). This is somewhat surprising given the anecdotal information that school providers shared when discussing student success within classroom settings. These findings may suggest that student progress was not robust enough for teachers to have noticed change, that the anxiety symptoms affected were internalizing and not visible to others, and/or that the anxiety symptoms were not fully observable in a classroom setting to begin with (e.g., fear of using a public bathroom). Additionally, it is possible that the students' social communication challenges made reporting on anxiety symptoms and changes more difficult for teachers. The SAS-TR was not normed for children with ASD; thus, the measure may have limited sensitivity to change as it may fail to capture the unique fears or symptoms experienced by this population. Finally, although teacher informants were designated as someone with direct knowledge of the participating student, it may be that in this sample, teachers had more limited contact with their student, preventing them from having a full appreciation of the student's symptoms before and after FYF-SB participation

Implications

Overall, the results of this study are promising, as they contribute to only a handful of studies that have implemented interventions in public schools to students with ASD and co-occurring anxiety. One important aspect of this study is that it allowed for participation from anxious students with known medical diagnoses of ASD, educational identifications of ASD, or suspected ASD. Casting a wide net of inclusion may be particularly important when working in underserved communities, as research suggests that youth and families from marginalized backgrounds have more limited access to comprehensive diagnostic evaluations (Harris et al., 2019). If eligibility was limited to only students with known medical diagnoses of ASD, feasibility and adoption of school-based programs for ASD could potentially be limited because of the relatively small number of students served, particularly in traditionally underserved communities.

Additionally, the focus on training natural change agents to deliver the intervention is not only innovative in this context, but critical for sustainability. Training interdisciplinary school providers to deliver FYF-SB at high fidelity has laid the foundation for these providers to train their colleagues (in the second phase of the project). This train-the-trainer model may be particularly powerful, as school providers will be able to support their colleagues in delivering the components of FYF-SB, and can give meaningful guidance on the factors that make FYF-SB successful within school settings. Given that there is a dearth of providers with expertise in ASD within schools, it is encouraging that non-mental health professionals may be able to learn and implement what has long been perceived as specialized mental health interventions (CBT) to a highly vulnerable population.

FYF-SB was implemented in public schools with high rates of free and reduced lunch, and with students from traditionally underserved backgrounds. Importantly, many of these underserved students may have lacked access to quality mental health care. Providing EBIs in schools potentially increased access to care for the students directly involved in this study. Notably, other anxious students (with or without ASD) in these schools may have indirectly benefited (e.g., Harstad et al., 2013; Magaña et al., 2012), as school providers reported that they had begun to deliver aspects of FYF-SB to students not directly enrolled in the study.

Limitations

The small sample size and quasi-experimental design are limitations of this study, as parent and child report could have been subject to a placebo effect. In addition, more than 66% of students identified as Caucasian in spite of recruitment

targeted toward students of color, and thus limits generalizability of the findings. The majority White sample may reflect long-standing disparities in access to diagnostic evaluations for ASD and/or mental health concerns. Intervention outcome measures included parent/child/teacher measures and some of these measures were not normed in children with ASD. Although the multi-informant approach was a relative strength of this study, it would be important to consider gold standard semi-structured interviews designed for individuals with ASD and anxiety (e.g., ADIS-ASA; Kerns et al., 2017), as well as functional and/or behavioral outcomes that could provide more robust information regarding the impact of the program.

Although all students presented with clinically interfering anxiety symptoms and significant characteristics of ASD, a medical diagnosis of ASD was not confirmed for all students, and gold standard autism diagnostic instruments were not administered, thus limiting the interpretation and generalizability of the results. In addition, even though all students were on an IEP, not all IEPs could be obtained (6 of 24 were unavailable), limiting information about the students. Additionally, 17 of the 25 school providers completed the FYF implementation survey regarding acceptability and feasibility of the intervention. One of the eight providers did not complete the survey because she was on maternity leave; however, it is possible that the remaining seven providers who did not complete the survey would have had more negative perceptions of FYF-SB, indicating that these results should be interpreted with caution.

Future directions

Future research should continue to explore the implementation of EBI in "real-world" contexts for children with ASD and co-occurring mental health conditions, particularly given the inequities that children from traditionally underserved communities experience when attempting to access care. More rigorous methodologies such as randomized designs, independent evaluation, more comprehensive measurement, and use of instruments specifically developed for youth with ASD, would also be important. Future studies would also benefit from having well-characterized samples to the extent that that is possible in a community sample.

School providers offered a number of suggestions for how to improve FYF-SB and reduce implementation barriers. For example, school providers suggested adaptations to more easily fit FYF-SB into a typical school day (e.g., reducing amount of time per session), and to manage provider staffing to account for the unpredictable schedules and demands on mental health providers in schools. Providers also indicated that although parent involvement was important, the feasibility of FYF-SB would improve if fewer face-to-face parent meetings were required.

Conclusion

This study is one of a handful of studies focused on the implementation of EBIs in public schools for students with ASD and anxiety. Implementation and treatment outcomes are encouraging and signal the potential for traditionally underserved students with ASD to access much needed mental health interventions in their own communities from providers who can support their anxiety management in an ongoing way. The RE-AIM framework guided the implementation of FYF-SB. Training interdisciplinary school providers to deliver EBI allowed for school teams to generalize their experience with FYF-SB to other students in schools, potentially increasing reach to students in need of services. This study laid the foundation for a train-the-trainer model in which school providers are able to train their colleagues in FYF-SB, further enhancing reach of the program. Initial results suggest that FYF-SB has the potential to be effective, as significant reductions in anxiety occurred according to parent/student report; however, randomized controlled trials will need to be conducted to better understand FYF-SB effectiveness. Providers found FYF-SB to be appropriate, acceptable, and feasible to deliver in schools, thus increasing potential for program adoption. Positive provider feedback may be due, in part, to the previous involvement of key stakeholders in the adaptation of FYF-SB (Reaven et al., 2019). Session adherence was relatively strong, indicating that the providers generally implemented FYF-SB as intended. However, variable parent participation was notable and the potential role of parent involvement should be explored in future work. In addition, administrative support (e.g., release

time for providers and trainers) will need to be a consideration in further implementation studies. Maintenance or sustainability is the critical final element of RE-AIM, and will be examined in the next research phase (e.g., train the trainer design).

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