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Streamlined pediatric anxiety program for school mental health services

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ABSTRACT

There needs to be serious transformation of evidence-based interventions (EBIs) into real-world solutions; otherwise, EBIs will never achieve the intended public health impact. In a randomized trial, we reported effects of a redesigned anxiety program. Herein, we described the redesign process that led to the program. Survey data revealed provider preferences for school mental health anxiety services. Focus groups and prototype feedback sessions revealed service barriers to uptake, implementation, and sustainability along with corresponding enabling strategies. Prototype feedback sessions also focused on refinement and fine-tuning of the redesign. In the end, traditional EBI strategies were transformed and packaged into six lessons, lasting 20–30 minutes each, and amenable to delivery in small-group format. The redesign achieved the intended purpose of retaining elements from cognitive and behavior therapy and social skills training for the target population of the intervention (e.g., 3rd to 5th graders with heterogeneous anxiety problems - identified and referred). The streamlined EBI is accessible from PBS LearningMedia™ - a service that hosts public, research-based, and school-ready materials.

Evidence-based interventions are not reaching U.S. youth, not even in settings staffed to respond as a primary source of care (Fagan et al., 2019; O'Connell et al., 2009). Pediatric anxiety, for instance, is among the most prevalent problems in youth. Disorder rates range from 5% to 12% in children and are as high as 31% in adolescents (Merikangas et al., 2010). High anxiety is associated with school absenteeism, academic failure, and interpersonal challenges with family and peers (Angold et al., 1999; Costello et al., 2005; Nail et al., 2014). Anxiety symptoms often persist into adulthood and are prospectively linked to depression, suicidality, and substance use (Kessler et al., 2005; Kessler et al., 2010). Yet, youth almost never receive EBIs for pediatric anxiety, and those with any anxiety are highly unlikely to seek mental health services (Langley et al., 2002; Radez et al., 2021).

Schools are well positioned to provide EBIs for pediatric anxiety because most youth attend school, 80% of U.S. schools employ mental health and/or wellness providers, and the Individuals with Disabilities Education Act requires services for students with emotional disturbances, including high anxiety (Individuals with Disabilities Education Act, 2004). Still, school mental health providers tend not to deliver EBIs, not even for pediatric anxiety (Boothroyd et al., 2017; Gonzales, 2017; Haegerich & Metz, 2009; Hicks et al., 2014; Proctor et al., 2009; Silverman et al., 2004). In the United States, EBIs are not delivered by school mental health providers because programs require too many sessions, sessions are too long, manuals too lengthy and overly scripted, and too much training plus in-depth supervision are required (Forman et al., 2009; Langley et al., 2010; Salloum et al., 2009). As such, some have advocated for EBI redesign (Boland, 1996; Coller et al., 2021; Lacombe et al., 2017; Williams et al., 2019).

School mental health providers explain that EBIs for youth anxiety in elementary school contexts fit best as small group interventions for students with similar social and emotional learning needs (i.e., tier-2 or targeted/secondary prevention [Pina et al., 2020]). Attributes believed to make tier-2 EBIs for pediatric anxiety suitable for school mental health practice include brief program length (e.g., six or seven short sessions), broad targets/skills (e.g., for various types of anxiety), brief trainings (e.g., as continuing education for school staff members serving as providers), and active learning strategies (e.g., game-based for students). No anxiety EBI with such attributes existed prior to the work we are presenting herein.

In the recent past, brief anxiety EBIs focused on single problems (e.g., five sessions for test anxiety [Weems et al., 2015]) and those for different types of anxiety problems have not been brief (i.e., 12–18 sessions,

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lessons last 60–90 minutes). Across programs, manuals ranged from 46 to 85 pages in length and 8–16 hours of provider training has been required. Thus, brief EBIs for school mental health practice have been non-existent (Hennessy & Tanner-Smith, 2015; Schleider & Mullarkey, 2020; Schleider, Dobias et al., 2020). To fill this gap, a few brief programs have emerged, but results have shown little to no clinical effectiveness (Calear et al., 2009; Calear, Batterham, et al., 2016; Calear, Christensen et al., 2016; García-Escalera et al., 2020; Ginsburg et al., 2021; Johnstone et al., 2018; Scholten et al., 2016; Schoneveld et al., 2016).

In Pina et al. (2020), we reported encouraging findings from testing a redesigned anxiety program for school mental health practice. Randomized controlled trial results showed that redesigning EBI strategies into a streamlined program achieved the intended goals of creating an efficient, effective, and attractive intervention for school delivery. Findings were consistent with the program's theory of change, per the "small theory" approach. This is a commonly used framework attributed to Lipsey (1990) and advocated in prevention science (Sandler et al., 1991). The small-theory approach translates into defining multiple factors to target for change via intervention, with the intention of maximizing impact on the outcomes as well as specifying the directionality of change. The "small theory" poses that program effects on the outcomes can occur by targeting putative mediational processes.

In effect, the outcome pattern in Pina et al. (2020) was consistent with the expectation of time lag from intervention to statistically significant and detectable effects. Specifically, youth in 3rd to 5th grade with anxiety symptoms were randomized to one of two arms: the brief program or active control. Process evaluation findings revealed high levels of student engagement with session activities, moderate levels of out-of-session skill practice, satisfaction with the program, and low levels of stigma from being in an anxiety program. Quality of implementation showed high fidelity and excellent clinical process skills; school staff who implemented the intervention reported nearly no content adaptations and high satisfaction from delivering the brief program. Program benefits became statistically significant over time compared to control. That is, the brief intervention yielded statistically significant improvements in self-efficacy for managing anxiety provoking situations, decreases in cognitive distortions, and gains in social skill competencies. The brief program also produced statistically significant anxiety symptom reductions for higher risk students.

Thus, this article describes the process used to create what we now know is an efficient, effective, and attractive intervention for school delivery. First, we specify the foundational science and the theory of change. Second, we identify the community collaborators along with the methods utilized during the design and redesign process. Third, we explain the rationale for the program's dosage, its targets, and the implementation strategies leveraged. Fourth, we describe the session-by-session lesson guide (i.e., the manual) and the need for branding. In the Discussion, we emphasize lessons learned and potential opportunities for further development of the streamlined indicated prevention and early intervention program for school mental health practice.

1. The redesign process and its deliverables

1.1. Foundational science for a brief pediatric anxiety program

Cognitive and behavioral procedures have been the foundation for psychosocial interventions (treatment and prevention EBIs) targeting pediatric anxiety disorders for decades (Fisak et al., 2011; Moreno-Peral et al., 2020; Silverman & Hinshaw, 2008; Stoll et al., 2020). Most frequently, EBIs for pediatric anxiety involve a model that delivers psychoeducation, relaxation training, cognitive restructuring, exposures (in-vivo, imaginal), and relapse prevention (Chorpita & Daleiden, 2009; Silverman & Kurtines, 1996). This basic and efficacious model has been enhanced over the past decades, by adding caregiver training, social skills training, and peer involvement (Beidel et al., 2000; Chavira & Stein, 2002; Silverman et al., 2009). By drawing on this model, we launched the redesign process that led to the brief program we validated in Pina et al. (2020).

1.2. The program's theory of change

To derive the brief program, we adhered to our "small theory" of change that integrates Lang's (1968) taxonomy of the fear response system and Barlow's (2000) emotion model of anxiety. According to our small theory, cues demanding performance or arousal awareness can become anxiety provoking for some vulnerable youth. This occurs, in part, with a shift in attention from the cues to a self-evaluation of coping ability (or rather lack of) and even a realization of uncontrollability. With a perceived lack of coping ability, negative affect, and somatic arousal increase, this sets the stage for distortions in information processing and apprehension. When that occurs, anxiety manifests itself as subtle or gross avoidance and as persistent central nervous system arousal. Thus, to disrupt anxiety disorder development, the brief program aims to increase the capacity to cope with such cues. Conceptually, this means that changes in the relations among distortions in information processing, central nervous system arousal, and avoidance attenuate the risk for distal mental health outcomes (i.e., anxiety symptoms/disorders) vis-à-vis the program's ability to increase coping self-efficacy for managing anxiety provoking situations (e.g., reading in front of the class).

1.3. The collaborators in the redesign

For the redesign process, we collaborated with 93 school psychologists and 42 social workers involved in delivering interventions to elementary school students with social and emotional difficulties. These individuals served one of five public school districts located in semi-urban, middle-low to middle income communities in the Southwest U.S. They were mostly female (81%), about 41 years old ($SD = 10.83$), and self-identified as White (83%), Latinx (9%), Asian/Pacific Islander (2%), African American/Black (2%), Native American Indian (2%), or other (2%). Their experience working with students averaged 9.77 years ($SD = 8.05$) and employment permanence in the school district averaged 7.22 years ($SD = 8.05$). We organized school psychologists and social workers into two categories based on their roles within the schools/districts. One, *decision maker*: the person who determines program uptake such as those who coordinate student services at the district level or serve as school psychologist lead, school social worker lead, or prevention specialist lead. Two, *user*: the person who delivers interventions to students, including those who show social and emotional difficulties.

1.4. The redesign process

Starting with the users, we conducted surveys, focus groups, and prototype feedback sessions. The surveys asked open-ended questions about preferred program length, length of each session, session frequency, materials to deliver, and training for high quality implementation. The focus groups (5–7 users each) asked for strategies to overcome barriers to uptake and for sustainability. For example, we asked: "What types of barriers are anticipated to come up when trying to get buy-in from teachers; then, what can be done to overcome such barrier(s)?" Similar questions sought the same information about principals, district level administrators, parents/caregivers, and students. The prototype feedback sessions (5–7 users each) asked about strategies to overcome barriers to high quality implementation. For example, we presented a prototype for Lesson 1; then, we asked, "What types of barriers are anticipated to interfere with high quality implementation; then, what can be done to overcome such barrier(s)?" Similar questions sought the same information about student engagement, skill practice, and satisfaction. Feedback sessions were then followed by prototype iteration sprints, another set of prototype feedback sessions, and so on

until saturation. Saturation, which is the point in the research process when there is redundancy and lack of meaningful information such that data collection may cease (Tracy, 2019), was variable and occurred for the entire brief program after the completion of 35 focus groups or feedback sessions. This process is consistent with qualitative, user-centered product design, and agile science practices (Hekler et al., 2016; IDEO, 2015; Knapp, 2017; Lyon & Koerner, 2016; Tracy, 2019).

1.5. Decision-maker engagement

We created content to introduce the anxiety program to decision makers. By decision makers we mean individuals who coordinate student services at the district level or serve as school psychologist leads, school social worker leads, or prevention specialist leads; principals, and parent/caregivers. Users in the focus groups indicated that district administrators, principals, teachers, and parents/caregivers might not agree to the student missing instruction. As solutions, focus groups suggested emphasizing the relation between high anxiety and school non-attendance (Allen et al., 2010; Maynard et al., 2018), which in turn leads to financial costs for the district. Focus groups also suggested emphasizing the relation between high anxiety and low academic achievement, which in turn leads to greater instructional time for academic remediation. For parents/caregivers, focus groups emphasized reminding parents that the program is implemented outside of core instruction time. From these reports, we created a psychoeducational brochure. During the prototype feedback sessions, users were highly enthusiastic about the content in the brochure. They agreed on the main points included in the brochure:

- Anxiety interferes with academics and can be costly
- Anxiety is highly prevalent, is linked to depression, illegal substance use, and unemployment in adulthood
- Anxiety fails to remit without intervention
- Students can learn skills they can use to overcome anxiety and for life
- The small groups are fun and use games to teach core skills
- Students gain skills that are useful at school, at home, and with peers

1.6. The program's dosage

Data from the surveys, focus groups, and prototype feedback sessions guided the redesign and development of materials corresponding to a brief intervention for school mental health practice. The process resulted in 6 lessons amenable to delivery in 20–30 minutes each. The reasons are that the nearly 100 users we surveyed reported that each lesson needs to be no longer than one class period; more than 7 lessons would make it difficult to implement sequentially given designated testing days, holidays, and term-breaks; and extra time might be necessary for reviews or make-up meetings (e.g., if a student missed school). The focus groups validated this 6 lesson / 20-to-30-minute package (3 hour brief program). For example, users reported that teachers, principals, and parents/caregivers are likely to accept the brief program, whereas a longer one would raise concerns about students missing instruction and decreases in academic achievement. A brief program also lends itself to more than one opportunity for implementation during each academic year and reaching more students. The program being brief also means providers, such as school psychologists, guidance counselors, and other mental health staff having time for other responsibilities such as conducting educational and psychological assessments, crisis intervention, and engaging in continuing education.

1.7. The targets for change

The specific targets in the brief program draw on the taxonomy of the anxiety/fear response system traditionally viewed as physiological, behavioral, and cognitive, are adapted from Kendall (1994) and Silverman et al. (1999), are rooted in the operant behavioral and cognitive perspectives, and use of concepts such as self-evaluation, self-talk, approach behavior, and positive reward. Details about each Lesson are in Table 1. Illustratively, students learn physiological arousal typologies common in anxiety provoking situations and then modify them via relaxation (Lesson 1). Turning to cognitive aspects, students identify distortions in information processing (self-talk) and then learn to modify them (i.e., what are other thoughts? what if the concern really happens?) (Lesson 2). In terms of avoidance, behavioral approach strategies are adapted from Beidel et al.'s (2000) social effectiveness training for children. The concept of a "fear hierarchy" is introduced, refined, and performed in terms of starting and maintaining conversations (Lesson 3) and assertiveness (Lesson 4) in-session with peers; with additional anxiety provoking situations introduced and performed out-of-session (Lessons 5 and 6). Thus, exposures start as early as Lesson 3 and span over the course of 4 weeks. Lastly, positive reward in the form of praise comes from the implementer, other group members, and the student themselves. There are no tangible rewards.

1.8. Creation of materials to support intervention delivery

In this section, we explain the process to develop the products for delivering the program. We introduce the *products*. Herein, the term *products* refers to decks of cards, board games, worksheets, and a manual. We also summarize feedback received from stakeholders about the products.

The design process resulted in adapting well-established EBI strategies common in the treatment of pediatric anxiety into strategies for tier-2: indicated prevention and early intervention. More specifically, we developed relaxation scripts and worked with a voice professional to produce audio recordings of three standardized relaxation techniques: diaphragmatic breathing, progressive muscle relaxation, and guided imagery. We did not use commercially available relaxation tools (MP3s or a similar digital collection) because those were either culturally dissonant, too long, or both (e.g., I Can Relax! A Relaxation for Children; Pincus, 2007). Further, using commercially available relaxation tools would have created uptake and sustainability barriers in terms of licensing costs and copyright limitations (https://www.copyright.gov/dmca/).

We created content for four decks of cards by mining and adapting items from psychometrically robust self-report measures (e.g., The Penn State Worry Questionnaire for Children, Chorpita et al., 1997; The Childhood Anxiety Sensitivity Index, Silverman et al., 1991; The State-Trait Anxiety Inventory for Children-State Anxiety Scale, Spielberger et al., 1973). One deck consists of 28 cards that illustrate states corresponding to the taxonomy of the fear response system: physiological, behavioral, and cognitions. Another deck consists of 38 cards whereby a step-by-step structure is used to exhibit examples of distortions in information processing. Consisting of 20 cards, a third deck contains social cues to practice conversations whereas the fourth and last deck contains 16 situational cards to practice assertiveness. The reasons for voice recording and card decks emerged from users who participated in focus groups and prototype feedback sessions. For instance, there were two concerns: lack of time to prepare for the lessons and fidelity deviations. Users reported that programs are more implementable and sustainable when materials are simple and consistent across lessons; consistent with diffusion of innovations theory (Rogers, 2003). During the prototype feedback sessions, users reported that the format for the relaxation activity would save time and ensure consistency. Generally consistent across prototype feedback sessions, users reported that the card decks would facilitate high program fidelity. Users also found the cards attractive because students might see them as games; thus, we subsequently packaged implementation strategies into familiar game-based formats based on gamification theory and game-based elements (e.g., storytelling, visualizations, problem solving; Kapp, 2012; Pretti-Frontczak & Bricker, 2004).

Several games were adapted or created to leverage the card decks.

Table 1
Streamlined Synopsis for Interventionists.

Goal #1: Introduce Anxiety and Relaxation	Lesson Outline 1
• *Elicit youth's view of anxiety and key concerns.* • *Focus on the youth's own way of understanding the anxiety.* • *Use the term, expression, or brief description elicited to refer to the anxiety (e.g., "nervous" or "thinking too much").*	1. Let's talk about goals for our time together. Sometimes we feel nervous, anxious, or scared when taking tests, talking to new people, when we are away from our parents. Sometimes, when these things happen, we miss out on things that can be really fun and exciting. Does that make sense? 2. During our time together, we want to work as a team to learn ways to feel less nervous, anxious, and scared. Does that sound good? 3. How would you talk about it when you feel nervous, anxious, and scared? *IF FEW DETAILS ARE GIVEN, PROBE:* Sometimes people have different ways of describing their feelings to different people, is that true for you? Tell me more. What troubles you the most about these feelings?
• *Elicit information about feelings of anxiety, situations that are anxiety provoking, and ways anxiety interferes with everyday life. Can probe,* e.g., *school and friendship problems, age-gender-race problems.* • *Describe and demonstrate relaxation.* • *Engage in practice during session and train for generalization.* • *Encourage practice, identify barriers to practice and corresponding enabling strategies. Can probe,* e.g., *what can get in the way of practice* • *Share the skill and emphasize the importance of practice to supports,* e.g., *teacher(s), parent/guardian.* *	1. To feel less nervous, anxious, and scared, we want to figure out how we can best use some tools to uncover the courage within you and help you be calmer, braver, and have more fun. Okay? Let's start by doing a couple of fun activities. Both activities are about these feelings and tools to be calmer, braver, and have more fun. Okay? 2. We're going to play a game that teaches ways that anxiety, worry, or fear *[USE THEIR OWN WORDS]* shows itself. 3. We are going to learn ways to relax, even when you when you're feeling *[USE THEIR OWN WORDS]*. Let's listen and follow the instructions. *MINIMIZE DISTRACTIONS, LISTEN WHILE SEATED OR LYING ON THE FLOOR, MODEL RELAXATION STRATEGIES.*
Goal# 2: Introduce Worries	**Lesson Outline 2**
• Elicit information about the nature of worries, situations that provoke worries, and ways worry interferes with everyday life. Can probe, e.g., school and friendship problems, age-gender-race problems. • Describe and demonstrate cognitive restructuring. • Engage in practice during session and train for generalization. • Identify barriers to out-of-session practice and corresponding enabling strategies. Can probe, e.g., what can get in the way of practice? • Share the skill and emphasize the importance of practice to supports, e.g., teacher(s), parent/guardian.	1. Can anyone tell me what worrying is? Worrying is when you keep thinking about things over and over and it is hard to stop thinking about it. And the things you're thinking about make you feel nervous or afraid. Everyone worries, but sometimes students worry so much it begins to bother them. Does that make sense? 2. I am going to share with you a tool to help you solve your worries: S.W.A.P. whereby S=Situation (notice the situation that makes you worry, scared or nervous); W= Worry (notice the worry that pops into your head); A= Action, Thought, or Plan (What else can happen? How can you solve that worry?); P = Practice (the action thought or plan; practice SWAP).
Goal# 3: Introduce Conversations	**Lesson Outline 3**
• Elicit information about when and how to start and maintain a conversation. Can probe, e.g., conversations with adults (at home, school), talking with other youth (new or known ones). Can probe, e.g., about eye contact, asking questions, etc. • Describe, demonstrate, and practice conversations with other youth, e.g., use what, when, and how questions – not closed-ended questions. Train for generalization. • Encourage practice, identify barriers to practice and corresponding enabling strategies. Can probe, e.g., what can get in the way of practice? • Share the skill and emphasize the importance of practice to supports, e.g., teacher(s), parent/guardian.	1. An important part of making friends and keeping friends is talking with them and listening to them. By talking and listening, we make conversations happen. Let's work together to come up with tips for conversations. 2. When could you start a conversation? How could you start a conversation? 2.1 When: Do they look at you? Do they smile at you? Do they say something first? Do they ask you a question? Do you want to say something? Do you want to ask a question? 2.2 How: Make eye contact, smile, and greet them in a friendly way (introduce yourself if it's a new person). Comment on something you have in common or something that they're doing. Ask "What" and "How" questions: How do you play that game? What are you doing? *THIS IS THE FIRST OPPORTUNITY FOR EXPOSURES; HEREIN SOCIAL/INTERPERSONAL.*
Goal# 4: Introduce Assertiveness	**Lesson Outline 4**
• Elicit situations that may be conducive to assertiveness. Can probe, e.g., situations with peers or teachers. Can probe, e.g., what if your teacher says you did not turn in your homework, but you know you did? • Describe, demonstrate, and practice being assertive with other youth, e.g., use the S.A.F.E. tool. Train for generalization. • Encourage practice, identify barriers to practice and corresponding enabling strategies. Can probe, e.g., what can get in the way of practice? • Share the skill and emphasize the importance of practice to supports, e.g., teacher(s), parent/guardian.	1. What do you think it means to be assertive? It means to stand up for one's rights without violating another's rights. This might mean standing up for yourself or someone else. Even when you are assertive, things don't always turn out the way you want. However, what is most important is that you speak you mind. Does that make sense? 2. I am going to share with you a tool named: S.A.F.E. here is what we mean: S= Speak your mind, A=Ask nicely, F=Firm but kind voice, E= Eye contact. *THIS IS THE SECOND OPPORTUNITY FOR EXPOSURES; HEREIN SOCIAL/INTERPERSONAL.*
Goal# 5: Introduce Avoidance	**Lesson Outline 5**
• Elicit situations that may be anxiety-provoking at school and conducive to in-vivo exposures. Can probe, e.g., situations with peers or the principal. Can probe, e.g., what if you have to read aloud in front of the class? • Describe and demonstrate the situation broken down into small steps, e.g., reading one sentence, just with the teacher; reading five sentences, just with the teacher; reading one paragraph with the teacher and two students present, etc. Train for generalization. • Prepare for the exposure. If necessary, identify barriers to the exposure and corresponding enabling strategies. • Conduct the exposure, in-vivo followed by self-evaluation or processing of the exposure. • Share the skill and emphasize the importance of practice to supports, e.g., teacher(s), parent/guardian.	1. *Let's talk about situations you might find difficult maybe because you feel "worried". USE THE TERM, EXPRESSION, OR BRIEF DESCRIPTION ESTABLISHED EARLIER TO REFER TO THE ANXIETY (*e.g., *"NERVOUS" OR "THINKING TOO MUCH").* 2. *Using the "Yikes! Thermometer", let's work on figuring out a situation that is difficult for you at a 4 or 5 on the thermometer.* 3. *Okay; now, let's role play the situation.* 4. *Now, let's try it again, but more real. Let's do it. Okay?* *THIS IS THE THIRD OPPORTUNITY FOR EXPOSURES; HEREIN ASSORTED*

Note. When preparing an exposure, have the youth rate their anxiety about the situation (before completing and after completed). Have the youth stay in the situation for a good amount of time to help with the rating going down. Try it multiple times and demonstrate self-evaluation. * =There is suggested content such as "Dear teacher, this week we covered three relaxation strategies. Elicit teach-back on the relaxation. Be alert to classroom situations that could be conducive to applying the relaxation strategies. Encourage skill practice, offer feedback, clarify, and praise." To view materials visit: https://az.pbslearningmedia.org/collection/asu-compass-for-courage/

Briefly, the one deck consisting of cards to illustrate physiological, behavioral, and cognitive states underwent gamification, or the application of game-design elements and principles in non-game contexts to encourage activity responsiveness. In this game, students take turns matching the word card (e.g., headache) to a character illustrating the state. The deck, consisting of cards whereby a cognitive schematic structure shows distortions in information processing, was also gamified. Using a standard roll-play-move board, students take turns to roll a dice, draw a card containing a situation and worry thought, use a schematic structure to replace the worry thought with more neutral thoughts or actionable plans (S=situation, W=worry, A=action/alternative, P=plan), and (when correct) move the number of spaces shown on the dice. We organized the third card deck such that students would use it as social cues to role-play situations around starting and engaging in conversations with peers. The fourth deck was gamified such that students would use it in a bingo-type game designed to role-play being assertive in situations with peers, teachers, and parents/caregivers. The role-play and bingo-type games help introduce, refine, and perform plausible anxiety-provoking situations common in two social domains: conversations and assertiveness.

The reason for packaging these specific games is that during the prototype feedback sessions, users advocated for familiar games so as to save valuable in-session time, limit explanations of game instructions, and more easily engage students. Users were highly enthusiastic about our brain-shaped game-board because it aligned with today's academic emphases on science. Users also found that the program's emphasis on school situations that are anxiety provoking offered strong face validity from the contributions made by those implementing social and emotional programs. This was particularly relevant to exposures.

The concept of the "fear hierarchy" was not gamified – instead the concept of in-vivo exposures was packaged into a poster-board guide. In this activity, formally packaged in Lessons 5 and 6, the goal is to introduce, refine, and perform situations rated by the students as anxiety provoking. Performance of situations are prescribed in-session and assigned for out-of-session skill practice. Every out-of-session performance or exposure can occur on the school campus. We mined situations from the Anxiety Disorders Interview Schedule for Children (ADIS-IV: C/P; Silverman & Albano et al., 1996). The activity uses the ADIS-IV: C/P's fear-thermometer to rate situations that are anxiety provoking to students. Ratings from the fear-thermometer also help refine the situations prior to performance and re-rate the situation after performed. Conceptually, the latter is crucial to increase self-efficacy and capacity to cope with the cues, as articulated in the program's theory of change.

The brief program has a manual that serves as the lesson-by-lesson guide. There is no training content in the manual. In the manual, each lesson appears within one page (front and back); thus, the entire program is contained within six pages. Three symbols guide the interventionist: (1) speech-balloons to signal didactics, (2) exclamation-bubbles to signal clinical processes, and (3) play-symbols to signal games or activities. Each lesson has a unique color scheme with a consistent organizational structure to enhance usability and support interventionist navigation: overview, review, didactic, skill application, and wrap-up. Each lesson has timestamps (e.g., 12 minutes for skill application or "games") derived from systematic bench testing. Post-session instructions for teachers and parents/caregivers appear at the end of each lesson plan. The reasons for this manual design emerged from the focus groups. Users reported a preference for manuals that are not overly scripted. Users reported that when manuals involve training content and content to help guide delivery of the lessons, sessions are awkward, manuals become difficult to navigate, and deviations from the protocol are likely to occur. During prototype feedback sessions, users were most enthusiastic about the manual being concise, organized in the form of typical instruction curriculum, and not overly scripted. Users reported that because the manual included post-session deliverables for teachers and parent/caregivers, the brief program would face validate their efforts with teachers, parents, and the principal.

1.9. The branding

We branded the brief intervention Compass for Courage. The reason for this branding is that focus groups advocated for packaging the brief program not as a deficit model (e.g., fear, anxiety, and stress) but instead as a positive and strength-based resource. Furthermore, the program offers the option of leveraging a narrative whereby courage already resides within the student and the skills are a compass to reveal such attribute; thus, Compass for Courage. Also, we leveraged a gender/race neutral and animated character in the form of a blob. For example, the blob appears in the deck consisting of cards to illustrate physiological, behavioral, and cognitive states associated with anxiety. Consistent with the brand, the blob character facilitates the narrative that by learning and using the program's skills, the blob can reveal its inner courage and evolve into a superhero. Other features include the use of gender-neutral proper names (e.g., Alex, Drew, Taylor, and Jordan) in the role-play games. Users validated the branding and gender-neutral packaging in the feedback sessions indicating, for example, the benefit or anticipated good was salient from the brand's name and theme. Focus groups said the brand is easy to use in "word of mouth" recommendations, with users viewing the brand as non-stigmatizing, yet conducive to problem awareness (reduce anxiety; improve courage).

2. Discussion

In the present article, we described the process that led to a brief program. The design followed best practices from qualitative, user-centered product design, and agile science methodologies. We relied on survey data from school mental health providers who reported on preferences relevant to interventions or practices targeted at ameliorating student anxiety. We gathered focus group data largely in terms of EBI barriers to uptake, implementation, and sustainability along with corresponding enabling strategies. We identified three broad areas that required meaningful redesign: dosage, manual, and implementation strategies. We collaborated with school mental health providers during prototype feedback sessions to co-create, refine, and finalize the brief anxiety program. In the end, traditional EBI strategies for pediatric anxiety were transformed and packaged into six lessons, lasting 20–30 minutes each, and amenable to delivery in small-group format (tier-2). Yet, at its core, the brief program remained a cognitive and behavioral intervention with social skills training for children.

In this redesign experience, we found that school stakeholders were genuinely interested in being collaborators. Decisions about whether to redesign were pragmatic. For example, should an existing program be adapted or a new program be created? Stakeholders considered several factors, including cost and availability of existing programs that offered the closest fit for remediating barriers to EBI uptake, implementation, and sustainability. In all, it was collectively determined that a "fresh" program be created. Here *fresh* meant using a theory-based approach to redesign (or adopt) strategies from well-established EBIs. We relied on the small theory approach and leveraged strategies from exposure-based cognitive and behavioral therapy and from social effectiveness training for children (Beidel et al., 2000; Silverman & Kurtines, 1996). School stakeholders brought diversity in opinions and expertise, worked in groups (focus groups, prototype feedback sessions), and mutually searched for understanding, solutions, and meanings toward the creation of "fresh". This process was not easy; however, it offered the advantage of being faster, more efficient, and effective than other alternatives (e.g., a new program).

Our redesign approach and findings are not unique to pediatric anxiety interventions or school mental health services (Beames et al., 2021). However, documenting this redesign and the resources it required can strengthen future capacity to transport and sustain EBIs in the intended public health setting. We found stakeholder collaborations to be most critical to the redesign process. We know there are well-documented benefits of community partnerships in cultural

adaptation of programs (Arora et al., 2021); still, our collaborations with school stakeholders were essential and responsible for high satisfaction with the brief program, including its manual focusing only on the core elements, with each element being relatively easy to understand, implement, and differentiate (Rogers, 1995, 2002, 2003). The success of the redesign process is perhaps an extension of user-centered design, where EBI research is no exception.

Documenting this redesign is important because it is often the case that community members trained in some way to deliver an intervention - but with no formal professional or paraprofessional certificate or tertiary education degree - undertake EBI adaptations. The problem with some stakeholders undertaking EBI adaptations is that core program components and implementation strategies are changed in ways that diminish outcome effectiveness (Berkel et al., 2011; Hasson et al., 2020). By illustrating the intricacies of successful EBI adaptation, we hope to assist decision makers who advocate for redesign.

Whereas redesign of EBI strategies and programs may be a promising step toward transporting prevention and treatment science into service delivery settings, it is incumbent on investigators to validate the redesign because outcome effectiveness is not guaranteed. For instance, research reporting redesigned EBI strategies for pediatric anxiety have shown discouraging clinical results. In the digital health arena, e-programming like Mindlight and Dojo are no better than control, MoodGYM experienced poor youth engagement (only completed by 33%), and e-Couch had no significant effects on any anxiety measure (Calear et al., 2009; Calear, Batterham, et al., 2016; Calear, Christensen, et al., 2016; Scholten et al., 2016; Schoneveld et al., 2016).). Moreover, there are three other programs, redesigned by Ginsburg and colleagues for school mental health practice (i.e., TAPES, CALM, STARS). TAPES is delivered by teachers, nurses deliver CALM, and school clinicians deliver STARS (Ginsburg et al., 2021; Ginsburg, Tein, & Riddle, 2020; Piselli et al., 2022). Despite being nearly identical in CBT procedures, two of Ginsburg's programs showed little to no advantage over control (i.e., CALM vs. relaxation, STARS vs. usual care). TAPES was evaluated in an open pilot trial (pretest to posttest, with no control) such that program effects cannot be ascertained.

We do not know why our redesign process "worked" in terms of resulting in a program that demonstrated statistically significant benefits whereas others have not been successful. One possibility is that other programs like Mindlight, Dojo, and MoodGYM might distract away from core CBT strategies by incorporating sophisticated videogame-like elements (e.g., Gary et al., 2017). Another possibility is that other programs have been said to have very low doses of exposures (e.g., Ginsburg et al., 2019) whereas we view exposures as a principal CBT strategy (Pina et al., 2003; Pina et al., 2012).

Limitations of the study are at least threefold. First, the redesign cycle (i.e., feedback sessions, iterations, feedback…) ended at saturation. Ceasing at saturation is indicative of validity. We aimed toward sampling representative stakeholders, but as is the case with all qualitative research, findings may vary with a different sample of participants. Second, process evaluation findings revealed high in-session engagement by students, satisfaction with the program, and low levels of stigma from being in an anxiety program. However, out-of-session skill practice was moderate. Youth involvement in the redesign process could have made the out-of-session skill practice more attractive in ways that improve compliance. Perhaps, future studies can examine if youth participatory action research, for example, yields better solutions that improve out-of-session skill practice compliance (Wilhelm et al., 2021). Third, there was no direct teacher or parent involvement in the redesign process. In addition, most sampled participants were White. Regarding the first, focus group and feedback session users received the teacher and parent content with high enthusiasm but it is unclear in what ways, if any, the parent/teacher materials could be better from systematically involving parent and teachers in the redesign (Eisman et al., 2020). Regarding the latter, greater involvement from non-White participants could have resulted, for example, on greater attention to explanatory models of anxiety (cues originating from micro-aggressions, overt discrimination, stereotyping) (Lewis-Fernández & Kirmayer, 2019).

Even when taking into consideration the enumerated limitations, practicing school staff members who deliver interventions to improve student's social and emotional development to support academic learning, are anticipated to find the brief program for student anxiety highly usable and fitting for the provision of school mental health services. This was true in our study comprised of 3rd to 5th graders with high levels of anxiety. With robust and independent replication of outcome effectiveness findings, the brief pediatric anxiety program might even become an essential resource in school mental health service practice. However, we know that Kreuter and Bernhardt (2009) have argued that many evidence-based programs are not worth disseminating. Thus, an important next step for Compass for Courage is to identify and evaluate marketing and distribution channels now that there is initial evidence that the redesign achieved its objectives. Future research questions could uncover whether specific aspects of Compass (e.g., ease of use, gamified structure) are viable candidates for social media advertising with uptake and sustainment being the target outcomes. Continuing with these same outcomes, future research questions could uncover the comparative effectiveness of targeted social media versus dissemination field agents (e.g., promotoras). In fact, we are gathering passive data on Compass's uptake and sustainment via a Learning Media platform independently managed by PBS such that program content and materials are at https://az.pbslearningmedia.org/collection/asu-compass-for-courage/. Altogether, we hope the work and ideas we have described helps EBIs move closer to having public health impact. We know that redesign is not a cure-all to address the gap between EBIs and real-world implementation; nonetheless, it is a key ingredient toward improving child and youth well-being.

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Conflict of Interest

The authors declare that they have no conflict of interest.

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