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ORIGINAL ARTICLE

Preventive Intervention for Anxious Preschoolers and Their Parents: Strengthening Early Emotional Development

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Abstract The high prevalence and early onset of anxiety disorders have inspired innovative prevention efforts targeting young at-risk children. With parent–child prevention models showing success for older children and adolescents, the goal of this study was to evaluate a parent–child indicated preventive intervention for preschoolers with mild to moderate anxiety symptoms. Sixteen children (ages 3–5) and at least one of their parents participated in Strengthening Early Emotional Development (SEED), a new 10-week intervention with concurrent groups for parents and children. Outcome measures included clinician-rated and parent-rated assessments of anxiety symptoms, as well as measures of emotion knowledge, parent anxiety, and parental attitudes about children's anxiety. Participation in SEED was associated with reduced child anxiety symptoms and improved emotion understanding skills. Parents reported decreases in their own anxiety, along with attitudes reflecting enhanced confidence in their children's ability to cope with anxiety. Reductions in child and parent anxiety were maintained at 3-month follow-up. Findings suggest that a parent–child cognitive-behavioral preventive intervention may hold promise for young children with mild to moderate anxiety. Improvements in parent anxiety and parental attitudes may support the utility of intervening with parents. Fostering increased willingness to encourage their children to engage in new and anxiety-provoking situations may help promote continued mastery of new skills and successful coping with anxiety.

Keywords Child anxiety · Parent anxiety · Indicated prevention

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Introduction

Anxiety disorders are among the most common mental disorders during childhood and adolescence, with lifetime prevalence rates approaching 30% prior to age 18 [1]. Mean age of onset estimates range from 6 to 12 years [1, 2], making anxiety disorders among the earliest classes of psychopathology to develop. Children younger than 6 years can also exhibit significant anxiety symptoms [3, 4], which are linked to substantial impairment [5, 6] and increased anxiety symptoms in later childhood [7, 8]. Despite high prevalence and associated disability, over 80% of youngsters suffering from anxiety disorders do not receive mental health services [9]. When youth do receive treatment, it typically occurs many years following the onset of disorder, often in response to severe distress, impairment, and suicidal ideation [10].

Anxiety Prevention in Early Childhood

The early onset of childhood anxiety and its potential for long-term impairment have led to calls for the development of innovative prevention efforts [11–13]. Preventive interventions for preschool-age children may be particularly worthwhile given their potential for altering trajectories toward anxiety before the onset of significant distress, impairment, and secondary conditions, such as depression [14]. With parents more centrally involved in a child's life during the preschool period, preventive intervention may help steer parents away from maladaptive parenting attitudes and behaviors thought to increase children's vulnerability to anxiety [13]. Such programs are also potentially more cost-effective when compared to the current system of intervention services focused mainly on treating school-aged children and adolescents currently suffering from anxiety disorders [11].

Despite this rationale for intervening with preschoolers, most preventive interventions have been evaluated with older child and adolescent samples [15, 16]. To date, only four published studies (testing three different programs) have examined the efficacy of anxiety prevention programs for preschool-age children. These include one *universal* program (provided to all children regardless of risk) [17] and two *targeted* programs [14, 18–20], which provide preventive services to those at risk for anxiety disorders based on the presence of either mild/moderate anxiety (*indicated prevention*) or specified risk factors (*selective prevention*).

Universal Prevention Studies

In Dadds and Roth [17], parents of 734 children ages 3–6 were randomized to either a six-session group prevention program focused on building positive expectations and social competence in children or a monitoring-only control. At post-intervention, children in the intervention group exhibited greater reductions than controls in teacher-reported anxious-withdrawn behavior, though this difference was not maintained at 7-month follow-up. Attendance was low (only 34% of interested parents attended at least four sessions), particularly for parents who reported low parenting stress and rated their children as less shy. By suggesting a greater motivation to participate among parents of children at higher risk for developing anxiety disorders, these findings underscore the potentially stronger value of targeted prevention programs. This reasoning is consistent with evidence showing greater efficacy for targeted programs (including both selective and indicated programs) than universal programs in the prevention of depression [21–23].

Selective Prevention Studies

LaFreniere and Capuano [19] randomly assigned families of 43 preschoolers identified as anxious/withdrawn on the basis of teacher report to either a monitoring-only condition or a 20-week in-home program consisting of psychoeducation, parent training, and enhancement of social support. Relative to controls, parents in the prevention group reported lower stress and displayed increased warmth after intervention. Children were rated by teachers as more socially competent, though between-group differences in anxious-withdrawn symptoms failed to reach statistical significance. These mixed findings, along with the intensive nature (e.g., 20 weeks of in-home services) of the intervention, would appear to restrict the utility and sustainability of this particular prevention model.

As perhaps the most promising work thus far with young children at risk for anxiety, Rapee et al. [14, 20]. found positive effects from a selective prevention study for preschool-age children identified as behaviorally inhibited via parent report and observational assessment. Parents of 146 children were randomly assigned to either a monitoring-only condition or a six-session group-based parent education program addressing parent management skills, cognitive restructuring, and the principles and application of in vivo exposure. Children from the intervention group, in comparison with the control group, exhibited lower rates and severity of anxiety diagnoses, as well as reduced parent-rated anxiety symptoms, at both 1-year [20] and 3-year [14] follow-ups. An eight-session expanded version of this intervention was also linked to reductions in children's anxiety severity and interference in an at-risk sample of preschoolers with elevated inhibition and parents with an anxiety disorder [18].

Rationale for Indicated Prevention

Rapee's findings confirm the potential value of parent-based selective prevention in young behaviorally inhibited children at risk for anxiety. Recent studies also provide support for cognitive-behavioral treatment of young children with diagnosed anxiety disorders in family-based and parent–child group formats [24, 25]. To date, however, no studies have tested whether a parent–child group cognitive-behavioral approach can be applied successfully within an *indicated* prevention framework for young children with mild to moderate anxiety symptoms. Consistent with the "at-risk" population described by Dadds and colleagues in their indicated prevention study with older children [26], the present study featured a sample ranging from young children with subclinical anxiety symptoms to children meeting criteria for anxiety disorders with low severity. This indicated sample, thus, featured anxious children with greater severity and impairment than those in Rapee's selective prevention study while including children with milder symptoms than those typically found in treatment studies. Given that children with early anxious symptoms are at risk for anxiety disorders and impaired functioning later in childhood [6], an effective indicated prevention approach could have important implications for shifting the course of anxiety and minimizing disability.

Targeting Parent Anxiety and Attitudes

Moreover, prevention programs addressing important parental risk factors, such as parent anxiety and maladaptive parenting attitudes, may promote adaptive parenting that can have a long-term positive impact on children's ability to cope with anxiety. Of the aforementioned anxiety prevention studies targeting young children, only one study investigated the

impact of intervention on parent outcomes, and disappointing findings showed that the intervention was not associated with change in parent anxiety [18]. In the present study, however, we sought to evaluate an indicated preventive intervention that directly targets a wide range of maladaptive parenting attitudes and behaviors. As a result, we expected that parental worries and attitudes would improve following intervention. Changes in these parent outcomes would underscore the potential lasting benefits of conducting intervention with parents of young children with early anxious symptoms.

An Integrative Model for Indicated Prevention

Although the development of a sound indicated prevention model for young children is in its early stages, one starting point may rest in a dynamic transaction or bidirectional relationship between key child and parent risk factors [27] that may help explain why youth whose anxiety emerges in the preschool period are vulnerable to increased anxiety and impairment over the course of development [7].

In early childhood, some youngsters display certain vulnerabilities suspected of having at least partial genetic basis, such as temperamental inhibition to novelty and uncertainty [28] and the tendency to attend to and misinterpret threat [29, 30], both of which may contribute to increased fear and avoidance in the face of various environmental conditions. This may elicit a natural response in many parents to "protect" their young children from these anxiety-provoking stimuli and situations [31, 32]. In doing so, however, parents may unintentionally reinforce and promote their children's fear and avoidance, precipitating a cycle in which they continually respond in this manner or become increasingly frustrated as their children express more anxiety and seek more reassurance. Parents may also experience significant worries about their children's growing anxiety, its consequences for the future, and how it reflects on their parenting, all of which may be exacerbated by perfectionistic standards often held by parents prone to anxiety. These parents may model anxious behaviors [33] and engage in other parenting behaviors associated with child anxiety, such as high control, intrusiveness, and criticism [34, 35]. By subsequently restricting children's exposure to new situations, development of adaptive emotion regulation and coping skills, and opportunities for peer socialization, these early parent–child interactions may help set in motion a trajectory toward clinical anxiety and distress.

Based on this model, and in keeping with prevention programs applied successfully with school-aged children [26, 36], we developed an indicated prevention program for preschool anxiety that aims to successfully alter this cascading developmental trajectory by targeting child and parent risk factors and parent–child transactional processes. This program, Strengthening Early Emotional Development (SEED), incorporates cognitive-behavioral strategies for child anxiety into the child-parent group format used by *ParentCorps,* an efficacious preventive intervention shown to promote positive parenting practices and decrease behavior problems in at-risk preschoolers [37–39]. By teaching parents that their children can master emotionally arousing experiences and that new situations need not be feared, SEED aims to prevent the formation of cognitive biases, maladaptive parenting patterns, and anxiety-maintaining behaviors. SEED also promotes child coping strategies and social skills to foster appreciation for exploration as having positive social and emotional consequences, culminating in an increased sense of mastery and control.

This report describes the methods used in the SEED intervention and presents results from an open trial with anxious preschoolers. It was expected that SEED would be associated with changes in three main areas of functioning. First, following participation in SEED, children were predicted to exhibit decreases on clinician-rated and parent-rated

measures of anxiety severity. Second, in light of SEED's focus on building emotion knowledge and understanding, it was anticipated that children would demonstrate gains on a test of these skills. Third, it was expected that parents would benefit, namely with respect to reduced self-reported anxiety levels and increased positive and adaptive attitudes toward their children's anxiety.

Methods

Recruitment

Screening

Families with children between ages three and five were recruited via flyers mailed to approximately 300 preschool programs and pediatric practices in the greater New York City area. Additional families were recruited after receiving study information at talks given by project staff at local schools and mental health centers. Parents who contacted the research team ($n = 78$) were screened by telephone using the Spence Preschool Anxiety Scale (SPAS) [4], a parent-report questionnaire designed to assess anxiety symptoms in young children. Screens for attention-deficit/hyperactivity disorder (ADHD) and oppositional defiant disorder (ODD) were also conducted. Parents whose children scored above the SPAS cutoff for subclinical anxiety symptoms (score ≥ 34) and did not report primary complaints of externalizing problems, or whose children were recommended for assessment by their teachers, were invited to participate in an in-person diagnostic evaluation ($n = 41$). Children with primary difficulties related to externalizing problems were not included because the intervention did not feature strategies targeting these difficulties. A total of 34 families participated in the diagnostic evaluation to determine eligibility for the indicated prevention study.

Baseline Assessment

Diagnostic assessments were based on parent report and conducted with the Anxiety Disorders Interview Schedule for DSM-IV Parent Version (ADIS-P) [40]. The ADIS-P has previously exhibited good psychometric properties when used with parents of preschool-age children [14, 18, 20]. Interviewers assigned a clinician severity rating (CSR) between 0 (*not at all*) and 8 (*very, very much*) for each assigned diagnosis. A CSR of 4 or above is considered at or above the clinical level, whereas a CSR of 3 indicates a subthreshold severity level. Inclusion criteria for enrollment were impairing anxiety symptoms at either a subthreshold level or warranting a diagnosis. Anxiety also had to be the area of difficulty that most warranted clinical attention (most severe) for each child.

Of the 34 children who completed the assessment, four were excluded due to absence of impairing anxiety symptoms, and nine were excluded due to other more pressing clinical concerns (five with externalizing behaviors, three with pervasive developmental disorder concerns, and one with a significant family crisis). Of the 21 children who met study criteria, four families refused participation mainly due to scheduling conflicts and one family dropped out after the first intervention session, leaving a total of 16 families who participated in the study. None of these children received concurrent psychological or psychopharmacological treatment during the course of their participation.

Participants

The final sample consisted of 16 children (seven girls) between ages three and five ($M = 4.1$, SD = 0.8) and at least one of their parents. The majority of the children were Caucasian ($n = 10$; 62.5%), with the remaining children identified as Asian ($n = 2$; 12.5%) or of mixed ethnicity ($n = 4$; 25%). Median family income was over $120,000 per year.

Half of the children received a clinical anxiety diagnosis (all with CSRs between 4 and 6), while the remaining eight had anxiety symptoms at a subthreshold severity level. Social anxiety was the most frequent primary problem ($n = 8$; 50%), followed by separation anxiety ($n = 4$, including one of equal severity with social anxiety), specific phobia ($n = 3$), and anxiety disorder not otherwise specified ($n = 2$). Comorbid difficulties were identified in 56% of the sample, including three children with at least one additional clinical anxiety diagnosis and six children with a comorbid anxiety problem at a subthreshold severity level.

Intervention Development

The preventive intervention, SEED, is an adaptation of ParentCorps, an evidence-based group program for families of young children that helps parents learn and apply foundational parenting strategies which serve to promote child socioemotional and behavioral competencies. In a series of randomized controlled trials, ParentCorps has been shown to promote effective parenting practices and reduce child behavior problems in at-risk preschoolers [37–39]. SEED was developed by adding anxiety-specific content from other evidence-based group prevention (e.g. Preschool PATHS; Cool Kids Program) [41, 42] and child anxiety treatment programs (e.g. Coping Koala) [43] to the original ParentCorps model. SEED targets risk factors important to the etiology and maintenance of child anxiety, including both child characteristics (avoidant coping, emotion knowledge and regulation deficits, peer interaction skills deficits) and maladaptive parenting attitudes and practices (overcontrol, criticism, modeling of anxiety).

Similar to ParentCorps, SEED consists of 10 weekly separate but concurrent 60-min group sessions for parents and children. In the current study, groups were held at an outpatient clinic. Parent groups were co-led by a doctoral intern in clinical psychology with specialized training in cognitive-behavioral therapy (CBT) with children and a masters-level psychology graduate student. Child groups were led by a masters-level psychology graduate student and a co-leader with an undergraduate degree in psychology. The structured nature of the groups (e.g. utilization of scripted relaxation exercises) allowed for ease of administration by masters-level group leaders with less formal background in CBT. All group leaders followed the intervention manual and received weekly in-person supervision during implementation from the second author (Dr. Masia Warner), a doctoral-level clinical psychologist who also observed several group sessions. Supervision focused on detailed review of intervention components and issues related to implementation. The program was well-attended, with all families attending at least 80% of the group sessions.

Parent Groups

Through a collaborative approach where didactic learning is enhanced via group discussion and role play, parents are taught social learning principles (to promote parent modeling of approach behavior) and a variety of parenting skills, including emotion coaching,

reinforcement, attending, and ignoring. Groups also address parental beliefs and other factors (e.g. parental stress/anxiety) that may interfere with learning/maintaining new parenting skills and fostering adaptive child behavior. Furthermore, parents learn how to create a fear hierarchy and implement graduated exposure to encourage their children's approach behavior in new situations. Parents receive feedback from group leaders and other parents about how to address obstacles to any exposures they have implemented between sessions. In addition to receiving handouts expanding on each lesson and homework exercise, parents learn about skills taught to their children (e.g. relaxation) to facilitate practice at home. An outline of the parent group content is provided in Table 1.

Child Groups

Children are taught four sets of skills: general social (e.g. making eye contact, asking questions), relaxation (e.g. "belly-breathing"), emotion regulation (e.g. recognizing and labeling feelings), and peer interaction skills (e.g. making new friends). Children also participate in exercises to increase exposure to novel and fear-provoking situations (e.g. being the center of attention). Skills are learned through the use of puppets, songs, popular children's videos, group activities, and storybooks. Socialization with peers is encouraged via free play activities. An outline of the child group content is provided in Table 1.

Assessment Procedures

Assessments were completed at baseline and within 2 weeks following intervention. Prior to the initial assessment, parents were provided a thorough description of all study procedures, and written consent was obtained. Assessments were approximately 2 h in length and involved a formal diagnostic interview (using the ADIS-P) and completion of questionnaires by parents and assessments with children. Interviewers were advanced doctoral students in psychology who were not involved in intervention delivery but were aware that families were participating in an intervention. All measures described below were administered at baseline and post-intervention. At 3 months following intervention, 14 of 16 parents completed two questionnaires (SPAS and PSWQ) that were returned by mail.

Outcome Measures

Clinician-Rated Anxiety Severity

The Pediatric Anxiety Rating Scale (PARS) [45] is a clinician-rated scale featuring a 50-item anxiety symptom checklist completed from information gathered during a parent interview. Using a six-point scale (0 for none, 1–5 for minimal to extreme), endorsed symptoms are collectively rated on five dimensions: frequency, level of distress, avoidance, interference at home, and interference out of home. A total score is computed by summing these five severity/interference ratings. Scores of 10 and above indicate mild but clinically meaningful anxiety, while scores of 20 and above indicate extremely high levels of anxiety [44]. The PARS has satisfactory internal consistency, inter-rater reliability, and construct validity [45, 46].

Table 1 SEED parent and child group sessions

Session	Parent group	Child group
1	**Learning About Anxiety** • Introductions, orientation, and goals • Psychoeducation about anxiety (e.g. three component model)	**"Welcome!"** • Introductions and orientation
2	**Dealing with Feelings** • Learning and practicing emotion coaching/validation	**"I Have Feelings, Yes I Do!"—Part I** • Emotion identification • Connecting emotions to facial and body expressions
3	**Parent-Child Play** • PRIDE Skills (Praise, Reflect, Imitate, Describe, Enthusiasm) • Learning to let children take the lead • Making play time more enjoyable	**"I Can Relax"—Part I** • Belly breathing
4	**Promoting Positive Management of Child Anxiety** • Unhelpful parent strategies (e.g. reassurance, accommodation) • Helpful parent strategies (e.g. empathy, preventing avoidance)	**"I Have Feelings, Yes I Do!"—Part II** • Learning to communicate feelings
5	**Parent Beliefs, Attitudes, and Reactions to Child Anxiety** • Effects of parental overcontrol • Perfectionistic expectations: as parents and for children • Practicing challenging beliefs	**"All By Myself"** • Learning positive self-talk and developing self-esteem through puppets, books, and poems • Promoting independence
6	**Promoting Independence** • Review of developmental expectations • Validation, scaffolding, and praise	**"I Can Relax"—Part II** • More practice of belly breathing and other relaxation skills
7	**Parental Exposure I** • Parental beliefs and fears about exposure • Principles of exposure and developing fear hierarchies • Scheduling exposure practice	**"Being Brave: What To Do When I Feel Scared"** • Understanding what it means to be scared • Practicing exposure (e.g. singing in front of the group)
8	**Parental Exposure II** • Pitfalls to exposure • Scheduling exposure practice	**"Problem Solving: Step By Step and Talking About My Feelings"** • Connecting different feelings to different problems • Learning to work together to solve problems
9	**Relax, Reinforce, Review** • Relaxation techniques for children • Learning to reinforce brave coping	**"New Friends, New Things!"** • Practicing social skills through role play • Practicing being the center of attention
10	**Sustaining Progress** • Review; preparing for future challenges	**"Getting Ready for Kindergarten + Goodbye Party"** • Sharing favorite group experiences

Parent Ratings of Child Anxiety

The Spence Preschool Anxiety Scale [4] is a 28-item parent-report questionnaire designed to assess anxiety symptoms in young children. Each item is rated on a five-point scale from 0 (*not at all true*) to 4 (*very often true*). Scores of 34 and above indicate subclinical anxiety,

while scores of 41 and above indicate a clinical level. The SPAS has good reliability and validity [4, 47].

Emotion Understanding

Children were interviewed by a trained research assistant using the Preschool Emotion Interview (PEI) [48, 49], with procedures adapted by Brotman and colleagues and utilized successfully with over 1,000 preschool-age children. The PEI includes two eight-item subscales: *Emotion Knowledge* (the ability to identify and label emotions) and *Social Reasoning* (the ability to understand emotions from situational cues). In Emotion Knowledge, children complete an expressive language test in which they are asked to identify the emotions depicted in four pictures of different facial expressions (happy, sad, mad, and scared), followed by a receptive language test in which they are asked to select specified emotions among the same four pictures. In Social Reasoning, interviewers use a neutral tone to read eight stories about child characters in different situations and then ask participants how each character would feel in the given situation. For each item, children receive a score of 2 for a correct identification of the emotion, a score of 1 for an answer in the correct emotion valence (e.g. "sad" for angry) or conveying a behavioral manifestation of the emotion (e.g. "yelling" for angry), and a score of 0 when the emotion and valence are both misidentified.

Parent Anxiety

The Penn State Worry Questionnaire (PSWQ) [50] is a 16-item self-report questionnaire that assesses frequency and intensity of worry. Each item (e.g. "Once I start worrying, I can't stop") is rated on a five-point scale from 1 (*not at all typical of me*) to 5 (*very typical of me*). The PSWQ is widely used in research on worry and as a measure of change with treatment. It has been shown to exhibit good reliability and validity [50].

Parental Attitudes

Parents completed a 10-item questionnaire, Attitudes Toward My Child (ATMC) [51], to provide a measure of their attitudes toward their child's anxiety and perceived ability to cope in stressful situations. Each item (e.g. "My child is more emotionally vulnerable than other children") is rated on a 5-point scale from 1 (*agree*) to 5 (*disagree*). Higher scores on the ATMC represent more adaptive and positive parenting attitudes. The ATMC has previously shown sensitivity to a parent-based group intervention for older anxious children [51].

Intervention Acceptability

At post-intervention, parents completed a 10-item questionnaire to indicate their satisfaction with the SEED intervention. Items were rated on a 5-point scale and assessed parental perception of overall program quality, satisfaction with program length, and acceptability of demands placed on the family. Parents also answered open-ended questions about the most and least helpful aspects of SEED.

Data Analysis

We calculated descriptive statistics for each variable and conducted paired t tests to evaluate changes from pre- to post-intervention assessments. In addition, we calculated the Cohen's d statistic to provide an estimate of effect size for each comparison, with d around 0.2, 0.5, and 0.8 representing small, medium, and large effects, respectively [52]. All analyses were completed using IBM SPSS Statistics 19.0.

Results

Table 2 displays the mean values and standard deviations of all continuous outcome measures assessed at pre- and post-intervention.

Child Anxiety Symptoms

Clinician-Rated Anxiety Severity

As measured by the clinician-administered PARS, child anxiety severity significantly decreased from pre- to post-intervention ($t = 4.72, p < .001$). At pre-intervention, 15 of 16 children were above the PARS cutoff (score ≥ 10) suggestive of mild but clinically meaningful levels of anxiety. Following intervention, 9 of these 15 children received ratings below this cutoff. This is consistent with the overall reported change in the mean PARS score, which decreased from within the mild but clinically meaningful level at baseline to a normative range after intervention.

Parent Ratings of Child Anxiety

SPAS scores significantly declined from pre- to post-intervention ($t = 4.78$, $p < .001$), indicating that parents reported their children as having fewer anxiety symptoms following SEED. This improvement was maintained at 3-month follow-up ($t = 3.32$, $p < .001$). Of the ten children who scored above the subclinical SPAS cutoff (score ≥ 34) at baseline, six received scores below the cutoff post-intervention. Seven of ten children scored below the cutoff at 3-month follow-up.

Emotion Understanding

Children's performance in the PEI domains of emotion knowledge ($t = -3.80$, $p < .01$) and social reasoning ($t = -3.67$, $p < .01$) significantly improved following the program. At post-intervention, children were more accurate in identifying emotions based on both facial expressions (emotion knowledge) and situational cues featured in a series of short stories (social reasoning).

Parent Outcomes

Parent Anxiety

PSWQ scores showed a marginally significant decrease from pre- to post-intervention ($t = 1.76$, $p = .099$). When PSWQ scores were compared from pre-intervention to

Table 2 Scores for outcome measures at pre- and post-intervention ($n = 16$) and 3-month follow-up ($n = 14$)

Variable (range)	Pre-intervention mean (SD)	Post-intervention mean (SD)	p value* (post-intervention)	Effect size cohen's d	Follow-up mean (SD)	p value* (follow-up)	Effect size cohen's d
PARS (0–25)	12.13 (1.96)	8.25 (3.00)	<0.001	1.53	–	–	–
SPAS-total anxiety (0–112)	41.50 (18.15)	27.81 (15.98)	<0.001	0.80	26.29 (13.11)	<0.001	0.89
PEI-emotion knowledge + (0–16)	12.07 (2.55)	14.73 (2.05)	<0.01	−1.15	–	–	–
PEI-social reasoning + (0–16)	9.53 (4.87)	13.53 (2.48)	<0.01	−.1.04	–	–	–
PSWQ (16–80)	46.19 (7.70)	42.31 (7.59)	0.099	0.51	41.50 (7.29)	<0.05	0.63
ATMC + (10–50)	32.56 (5.37)	36.75 (6.80)	<0.01	−0.68	–	–	–

PARS Pediatric Anxiety Rating Scale, *SPAS* Spence Preschool Anxiety Scale, *PEI* Preschool Emotion Interview, *PSWQ* Penn State Worry Questionnaire, *ATMC* Attitudes Toward My Child

* Significant at $\alpha < 0.05$. + Higher scores represent better functioning

3-month follow-up, however, the difference was statistically significant ($t = 2.21$, $p < .05$), suggesting that parents' self-reported anxiety continued to decline following completion of the intervention.

Parental Attitudes

ATMC scores increased significantly from pre- to post-intervention, indicating that parents reported more positive and adaptive attitudes toward their child's anxiety after participating in the intervention ($t = -3.09$, $p < .01$). Parents expressed less need to monitor their children's anxiety and perceived their children to be less emotionally vulnerable and more capable of coping with stress.

Intervention Acceptability

All parents expressed satisfaction with the program, with 50% reporting being "satisfied" and 50% reporting being "very satisfied." All parents also indicated that the demands of the program on them and their children were acceptable. A majority of parents (75%) felt that the program's length was appropriate, while four parents noted that additional sessions might have been helpful. Many parents also expressed appreciation for the parent–child group format, noting perceived benefit of having contact with families experiencing similar difficulties as well as the opportunity for their children to learn important skills, practice separating from them, and socialize with same-age peers.

Discussion

The primary goal was to present results from an open trial of Strengthening Early Emotional Development, an indicated prevention program for families of preschool-age children experiencing mild to moderate anxiety symptoms. Overall, findings provide initial support for SEED as a potentially efficacious parent–child preventive intervention. After completion of the ten-session intervention, the average severity of child anxiety symptoms decreased from a clinically significant level to within the normal range, as measured by both clinician and parent ratings. Decreases in child anxiety as rated by parents were maintained at a 3-month follow-up. These preliminary findings are promising given that anxiety disorders often start early, are prevalent throughout childhood, and are linked to considerable functional impairment, depression, and other secondary problems during adolescence and adulthood.

As expected, children exhibited improvements following SEED in their emotion knowledge and social reasoning skills. The ability to identify emotional expressions and cues is critical to children's overall emotional development, as it enhances social functioning by promoting children's ability to recognize emotions in others and communicate their own feelings in reciprocal fashion. Children who can identify emotions in others may also be better equipped to label their own emotions and generate the emotional self-awareness necessary to adaptively modify their emotional reactions in a given situation. In contrast, delays in emotion understanding are linked to maladaptive coping and increased risk of childhood psychopathology, including anxiety disorders [53]. Preventive interventions, such as SEED, that aim to prevent and reduce anxiety symptoms in youth may, therefore, find success in targeting and hopefully strengthening children's emotion understanding, regulation, and coping skills. Future research should examine whether

promotion of emotion understanding skills in anxious preschoolers mediate changes in anxiety symptoms.

Parents also reported reductions in their own anxiety, along with more positive attitudes toward their children's anxiety, following the intervention. Initially, many of the participating parents expressed worries about their difficulties parenting an anxious child, their children's ability to cope with anxiety, and the negative consequences their children may experience as a result. Although any conclusions based on this uncontrolled, small open trial would be premature, SEED may help alleviate parental anxiety and improve parental attitudes in several ways. For example, by learning strategies and tools to manage their children's anxiety, parents may develop increased confidence in their parenting skills that translates to a decrease in their overall worry. SEED may also foster greater awareness and flexibility of maladaptive parenting attitudes by helping parents connect how their anxiety and parenting attitudes (e.g. catastrophizing their children's anxiety, perfectionistic expectations) precipitate greater use of maladaptive parenting behaviors, such as over-control and overprotection. Additionally, developing greater understanding of their children's anxiety and observing positive changes in their children throughout the intervention may give parents a sense of relief and, thus, reduce their own anxiety.

Because of the link between child and parent anxiety [54], along with the consequences of parental anxiety disorders on children's adjustment (e.g. modeling of avoidant behaviors), changes in parent anxiety and attitudes could potentially help promote children's gains during SEED and long-term maintenance after its completion. Parents, for example, who learn to allow their children to enter new situations and make mistakes, as well as prevent avoidance when their children exhibit anxiety, may be better positioned to promote their children's independence and ability to cope with stress. Further study is needed, however, to determine whether changes in parent anxiety and attitudes serve as a mechanism by which SEED and similar interventions prevent and reduce anxiety in young children.

Additionally, satisfaction with the SEED program was very high among parents. It is important to note that several parents emphasized the benefit of participating in SEED's separate but concurrent parent and child groups. With other anxiety prevention programs for young children taking a more parent-focused approach [14, 20], SEED was designed to incorporate a child group for several reasons. A child group may increase the acceptability of the program to parents; in our clinical experience, parents often express a desire for their children to receive direct services, with some less supportive of a treatment that places the onus of change on the parents. Inclusion of a child group also has the potential to teach children valuable skills (e.g. emotion understanding) and provide clinicians firsthand observation of clinical issues that can be subsequently addressed in the program, such as separation difficulties when parents and children are asked to join their respective groups. However, given that the program's feasibility may be limited by the additional resources required to implement both groups (e.g. having additional group leaders), further research is needed to evaluate whether a parent–child format significantly enhances the program's utility beyond a format focusing solely on parents.

Limitations

This initial study has several significant limitations. First, as an open trial with no methodological control, the observed gains could have been due to non-specific therapeutic effects (e.g. parent support) or passage of time. Second, the small sample size restricted our ability to conduct more complex analyses examining predictors and mediators of

intervention response. Third, the fairly homogenous nature of the sample (high income, largely Caucasian families) significantly limits the generalizability of the findings. Evaluating SEED in an economically and ethnically diverse sample may shed light on whether modifications (e.g. fewer sessions, cultural adaptations) are needed to increase its acceptability and efficacy across a wider range of families. Fourth, knowledge that families were participating in an intervention may have biased the ratings of interviewers. Other assessment methods may be helpful in evaluating the efficacy of SEED, including observational measures and teacher ratings. The absence of a comprehensive battery at follow-up also constitutes a limitation, as benefits to preventive intervention may emerge over time [14]. Therefore, future research should incorporate longer-term follow-ups and measures of other variables considered integral to the prevention of anxiety symptoms in young children, such as parenting behavior and parent–child interactional processes.

Summary

Given the high prevalence and early onset of anxiety disorders, significant potential may be found in preventive intervention efforts targeting young children with emerging symptoms who may not otherwise receive services until experiencing serious distress and impairment. Findings from this open trial of the SEED intervention lend preliminary support to using a parent–child group model within an indicated prevention framework for "at-risk" preschool-age children with mild to moderate anxiety symptoms. Improvements in parental anxiety and confidence in their children's ability to cope with anxiety-provoking situations may help foster more adaptive parent–child interactions that can continue to be beneficial in the long run, as parents feel more comfortable encouraging their children's exposure to anxiety-provoking situations and children become less reliant on avoidance and reassurance seeking. The next stage in evaluating the efficacy of this indicated prevention program will be to conduct a randomized controlled trial with longer-term and more comprehensive follow-ups. Finally, consideration should be made for how to increase access for families, particularly working and lower-income families. Delivering the intervention within a preschool or pediatric practice, for example, could increase its availability and reduce common barriers to service use by decreasing costs and reducing stigma through normalizing prevention services.

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