

Developing a Brief Parent Training Intervention to Prevent Anxiety in Offspring

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Abstract

Offspring of parents with anxiety disorders have an increased risk of developing anxiety themselves. Very few studies have evaluated interventions aiming to prevent anxiety in offspring of anxious parents. This study was a small ($N=40$) randomized pilot study with three arms evaluating the feasibility of a novel parent support group for anxious parents, the Supporting Anxious Parents Program (SAPP). The primary objective was to evaluate the acceptability of the SAPP. In addition, we also evaluated preliminary effects on child anxiety, parent risk factors, and quality of life, and feasibility of the study design. Excessive parental worry and anxiety and having a child not meeting criteria for an anxiety disorder (6-12 years old), served as inclusion criteria. Thirteen parents were randomly allocated to a group-based intervention, 14 to an individual Internet-based version of the intervention, and 13 to a waitlist control condition. The intervention was developed to target three risk factors involved in the parent-child transmission of anxiety; criticism/low warmth, overprotective behaviors, and modeling of anxiety. The results showed that parents were generally very satisfied with the intervention. We did not find any significant decreases in child anxiety in the intervention conditions. However, for the parents, we found preliminary support for reduced overprotective behaviors, reduced worry, and increased quality of life. The study design was found to be feasible. According to the results, a revision of the intervention is recommended before a full randomized controlled trial could be conducted.

Keywords: parent training; selective prevention; childhood anxiety; transmission of anxiety; feasibility

Introduction

Background

Anxiety disorders are the most common group of disorders in children (1). Childhood anxiety disorders are associated with negative effects in several life areas, and have been found to predict a number of adverse future events such as depression, alcohol and drug abuse, and health and financial problems (2). Strikingly few children and adolescents with anxiety disorders receive help during young ages (3). Consequently, developing more effective identification methods and preventive interventions for anxiety disorders is an urgent task. Previously, prevention of anxiety in childhood has often been carried out as universal prevention (e.g., delivered to a whole class or school) or by indication of elevated symptoms (4). Universal prevention of anxiety has generally showed small effects (5,6), and although indicated prevention has shown larger effects, many of these studies may be better described as treatments rather than prevention (7). Selective

prevention (i.e., delivered to children exposed to a set of known risk factors) has not been as widely evaluated, but could be an efficient strategy to prevent anxiety disorder (4).

Anxiety typically runs in families, with a 2-7 times increased risk for offspring of parents with anxiety disorders (8). A recent twin study found support for a direct environmental transmission of anxiety between parents and children (9). A main mechanism may be the parenting style of anxious parents often characterized by overprotection and modeling anxiety (10). Research on risk factors for anxiety related to parenting could broadly be summarized into three main themes: criticism and low warmth, overprotection, and modeling anxiety and avoidance (11).

Several studies have found an association between child anxiety and parenting characterized by criticism and low warmth (12). A few studies also report that parental anxiety is positively associated to low warmth, hypothesized to be (in part) explained by the

parent's preoccupation with his/her own anxiety (11). Further, a few studies have found a positive correlation between parental anxiety and criticism towards the child, especially in interactional and challenging tasks, which may be explained by the anxious parent's levels of stress and frustration in such situations (11).

Overprotection (or over-control) involves limiting the child's engagement in certain activities, or, excessively assisting the child in situations where the child possess skills to succeed (12). In a meta-analysis, parental overprotection was found to be substantially associated to child anxiety (13). Maternal anxiety has also been found to be positively correlated to overprotective behaviors (14), meaning that mothers with anxiety are less prone to encourage child autonomy based on their fears and worries (15).

Finally, parents with anxiety disorders might communicate non-effective ways to cope with anxiety through modeling (12). Anxious parents may express excessive anxiety in various situations and model avoidance as primary strategy to reduce the anxiety (16). Further, evidence suggests that anxious parents may direct the child's interpretation towards threat in ambiguous situations (17).

Beyond these three main themes, parents with anxiety also report generally lower quality of life in the family and negative beliefs about their parenting (18,19).

Studies on the prevention of mental health problems in offspring of parents with psychiatric disorders have been summarized in several systematic reviews (20–23). However, almost exclusively, all previous studies have concerned parents with depression or substance use disorders (20–23). As far as we are aware, only one previous study has evaluated the prevention of childhood anxiety by targeting anxious parents (24). In a sample of 136 families, Ginsburg and colleagues examined a family intervention aimed to prevent the development of anxiety in the child. Families were taught to identify anxiety at an early stage and to use cognitive restructuring and exposure to counteract a consolidation of anxiety. The results showed that the incidence of childhood anxiety disorders over a 12-month period was 5% in the intervention condition compared to 31% in the wait-list condition (24).

The Ginsburg et al. study, showed very promising results. However, the intervention was rather intensive as it involved families individually meeting a therapist up to 11 hourly sessions. To end up with a more scalable and cost-effective preventive intervention, an alternative would be to develop a parent training intervention delivered to parents only, in groups or administered through Internet. Several studies have found that treatment of child

anxiety might work very well when treatment is delivered only through the parents (25).

The Present Study

The present study aimed at developing a brief parent training intervention, the *Strengthening Anxious Parents Program* (SAPP) targeting anxious parents, to evaluate the acceptability of the intervention and to evaluate the feasibility of conducting a future randomized controlled trial. The study was conducted according to the guidelines of the Consort-extension protocol for pilot and feasibility trials. Four objectives guided the current feasibility trial:

1. Do parents like the intervention, and are there any differences in the satisfaction between those assigned to group-SAPP or Internet-SAPP?
2. Are there any preliminary effects of the SAPP on children's anxiety or parenting risk factors (i.e., overprotection and parental anxiety)?
3. Are there any preliminary effects of the SAPP on quality of life for the parents?
4. Is the study design adequate for a larger randomized controlled trial (i.e., attrition, program use, and recruitment pace)?

Method

The current study was a randomized feasibility trial with three arms (allocation ratio 1:1:1). The current trial was pre-registered at the US National Institutes of Health (ClinicalTrials.gov) #NCT02386410. The regional ethical review board approved the study (Dnr. 2014-1496-31/4) meaning all ethical standards were met. Informed consents were obtained from both parents and children.

Participants

As the current trial was a feasibility trial, we did not calculate power, or attempt to include the number of participants needed to find significant between group differences. Of the 89 who were screened for eligibility, a total of 40 parents were included in the current trial (Figure 1), which we considered was an acceptable number of participants to draw conclusions regarding the acceptability and feasibility and to generate knowledge of any further improvement of the SAPP before conducting a large-scale RCT. The participating parents were 37 mothers (92.5%) and three fathers (7.5%). The mean age of parents was 41.3 ($SD=4.3$). The mean age of the participating children was 9.3 ($SD=2.2$). Children were 22 girls (55%) and 18 boys (45%). Further demographic statistics are presented in Table 1.

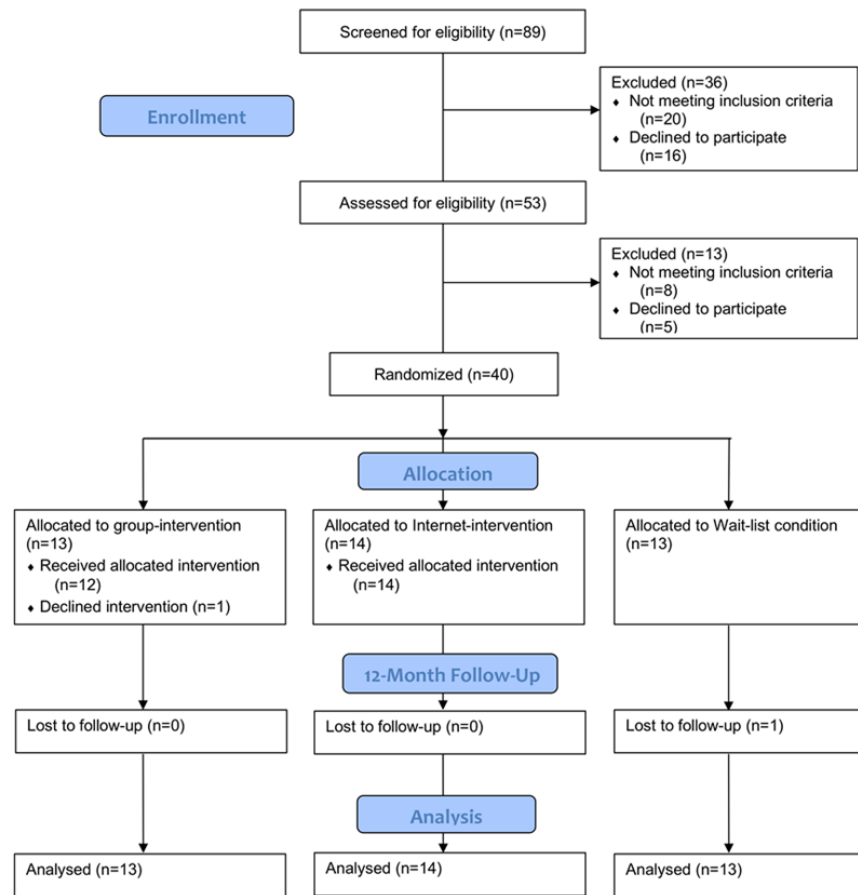


FIGURE 1. Flow of participants through study

TABLE 1. Parent and child characteristics

	Group-SAPP (n=13)	Internet-SAPP (n=14)	Wait-list (n=13)	p-value ^c
<i>Parent characteristics</i>				
Female (n)	100% (13)	93% (13)	85% (11)	.52
Mean age (SD)	41.4 (4.7)	41.1 (4.5)	41.4 (3.9)	.98
> 2-year post-secondary education	69% (9)	93% (13)	92% (12)	.28
<i>Contact psychiatry</i>				
No current or previous (n)	38% (5)	50% (7)	31% (4)	.68
Current (n)	8% (1)	0% (0)	15% (2)	
Previous (n)	54% (7)	50% (7)	54% (7)	
<i>Psychiatric status</i>				
Anxious (STAI-S>42) ^a	46% (6)	43% (6)	77% (10)	.18
Worried (PSWQ>48) ^b	92% (12)	71% (7)	92% (12)	.46
<i>Child characteristics</i>				
Girl (n)	62% (8)	71% (10)	31% (4)	.09
Mean age (SD)	9.0 (2.0)	9.4 (2.4)	9.6 (2.2)	.73
<i>Living situation</i>				
Both guardians (n)	100% (13)	57% (8)	85% (11)	.04
Lone guardian (n)	0% (0)	14% (2)	0% (0)	
Alternating (n)	0% (0)	29% (4)	15% (2)	
<i>Any mental health contact</i>				
No current or previous (n)	92% (12)	93% (13)	85% (11)	.68
Current (n)	8% (1)	0% (0)	0% (0)	
Previous (n)	0% (0)	7% (1)	15% (2)	

Notes: STAI-S = The State Trait Anxiety Inventory – State, PSWQ = The Penn State Worry Questionnaire, ^a (30), ^b (37), ^c Difference-tests between groups. We used Fisher exact tests for count data, and one-way ANOVAs for continuous data.

Developing the Strengthening Anxious Parent Program

The SAPP was developed by the first, second, and last author, based on the theoretical framework of developing social programs as outlined by Fraser and colleagues (26). In summary, preventive research concerns both program outcomes (efficacy) and mechanisms of change (mediators). Consequently, to end up with a theoretical logic model of the change processes and distal outcomes of the intervention, Fraser and colleagues suggested developing both a problem theory and a program theory. The problem theory concerns identifying processes that produce the specific problem, and the program theory involves specifying targets, core activities and intervention agents that may change malleable factors involved in developing the specific problem of interest. The program theory also involves defining expected intermediate and distal outcomes.

Problem Theory

When developing the problem theory, we focused on the three risk factors previously outlined above, (1) criticism and low warmth, (2) overprotection, and (3) modeling anxiety and avoidance. Frequent criticism and lack of warmth is hypothesized to reinforce the child’s belief of the world as hostile and threatening (10). Overprotective parenting is suggested to reduce

the child's self-efficacy, which causes nervousness or anxiety in new and challenging situations (27). Finally, the child may learn anxious behaviors (i.e., emotional responses, cognitive styles, and avoidance strategies) through observational learning from the parent (16).

Program Theory

Our logic model (See Figure 2) of the SAPP intervention starts with the assumption that the three risk factors (criticism and low warmth, overprotection, and modeling anxiety) are the core targets to change. In terms of criticism and low warmth, we hypothesized that helping parents gain more knowledge of childhood anxiety and use more positive parenting skills would generate warm parenting and more acceptance of the child.

In terms of overprotective parenting, we hypothesized that helping parents understand the consequences of overprotective behavior and helping their child engage in challenging/approaching behaviors would increase the autonomy of their child. This assumption was based on learning theory (behaviorism) and concepts from evidence-based cognitive behavioral treatments for anxiety disorders, which suggest that decreasing parental overprotection and increasing exposure to challenging situations will reduce fears and thereby

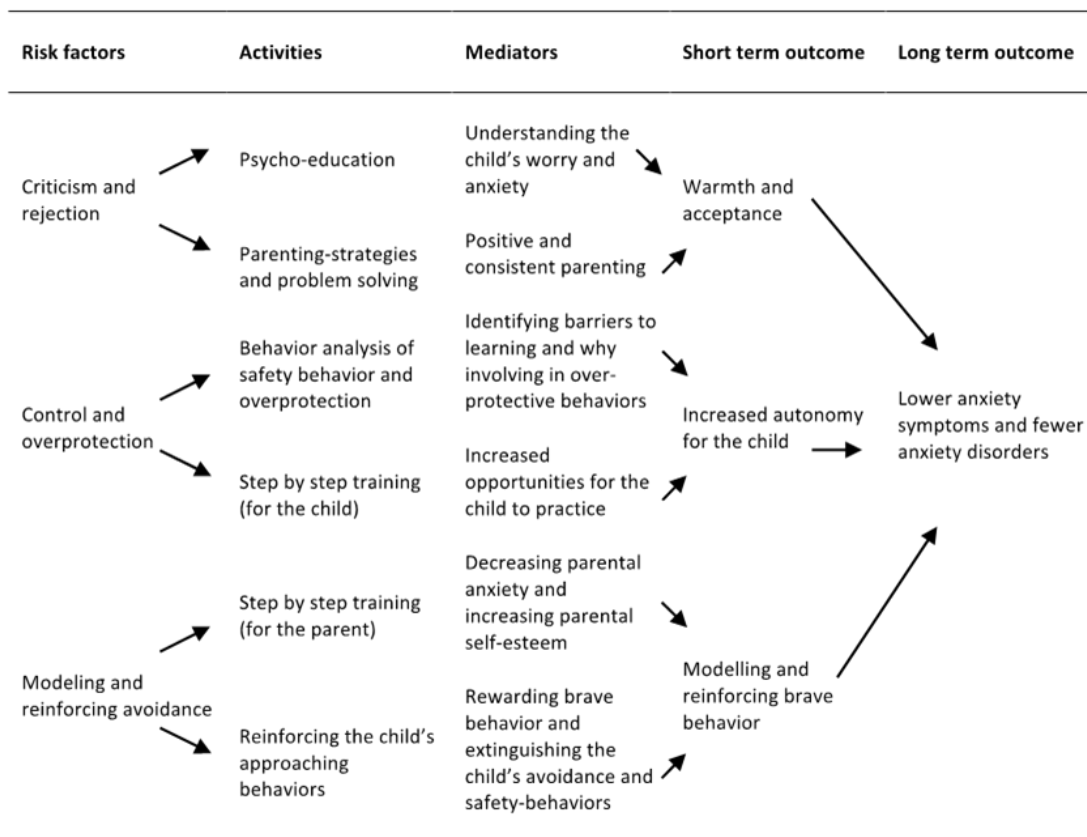


FIGURE 2. Theoretical model of the intergenerational transmission of anxiety

TABLE 2. Brief summary of session content of the SAPP

Session/module	Content
1. Introduction	In groups, participants were presented to each other and the course leader introduced the guidelines of the parent training intervention. In the Internet version, the platform was introduced, including describing how the participant receive feedback on home assignments and how they may communicate with the psychologist using text messages within the platform. The first session/module was then dedicated to parenting and psychoeducation of anxiety, including the physical, emotional and cognitive aspects of anxiety, and the cognitive behavioral formulation on how avoidance may increase anxiety and create problems in the long perspective.
2. Behavior analysis	Focus on behavior analysis. Parents learned how to understand and evaluate behavior within a CBT-perspective by analyzing a situation, the activated behavior, and its consequences. Much time was spent on the parents working with their own examples.
3. Training stairs	The so called "training stairs" are introduced. Parents learned how to divide challenging situations or problems into small steps to increase the probability of overcoming the problem through structured training. Parents were also encouraged to create training stairs relevant to their own situation.
4. Anxious parenting	Devoted to parental behavior specifically relevant to anxious parents. Especially, overprotective behavior (such as limiting child autonomy, and exaggeratedly protecting the child of criticism and negative feelings) and behavior which assist the child's avoidance were examined. Parents were encouraged to work with behavior analyses to identify and understand overprotective behavior in their own life.
5. Training stairs	The training stairs were revisited. This time, parents were encouraged to think about how to use this strategy to help their child in challenging situations, or as a mean for the child to learn something new.
6. Problem solving	A structured problem-solving method were introduced. Parents were then encouraged to think of one area where they could implement the strategy in their family, and together with their child explore structured problem solving.
7. Positive parenting	Two parenting strategies were presented. The first involved the parent spending time alone with their child with the instruction to let the child choose activity and to only follow the child with interest without giving any instruction. The second strategy encouraged the parent to train the ability to prepare, instruct and reward the child in situations of shifting/stopping activities.
8. Plan ahead	The parents planned how to use the strategies learned in the next three months.

generate an increased autonomy for the child. Recent research emphasizes the concept of inhibitory learning, suggesting that previously learned associations between a certain stimulus (e.g., a dog) and response (i.e., fear reaction) is not erased, but rather, gradual exposure to the stimulus without a fear response develops a new inhibitory learning. In summary, the formation of a new inhibitory learning (i.e., a dog does not predict a fear response) will successively compete and (hopefully) in most situations knock out the original fear association (28). Finally, in terms of modelling anxiety, we assumed that helping parents challenge their own fears, and rewarding their children for approaching behaviors would increase modelling and reinforcement of approaching behaviors. Based on ideas from social learning theory (29) modeling of brave behaviors may increase the child's engagement in approaching behaviors. The social learning theory proposes that learning takes place in a social context. One way to learn involves observational learning, meaning that, in our case, the child learns by observing his/her parent's behaviors, and the consequences of those behaviors. Beyond actual performance and modeling appropriate behavior by the parent, the social

learning theory also suggests that behaviors can be initiated by verbal instructions, meaning that the parent describes a desired behavior and instructs the child on how to perform such behavior.

Subsequently, we hypothesized that changing these three risk factors into parental warmth and acceptance, increased autonomy of the child, and modeling of approaching behavior would, in the long term, decrease the risk of the offspring developing an anxiety disorder.

Intervention

The content of the SAPP is presented in Table 2. The group-SAPP comprised eight sessions á 75 minutes and was conducted at the Karolinska Institutet. Participants were formed in small groups of four, and the first author of the current study administered all the sessions. Each session comprised a walkthrough of the topic and then parents were supposed to work on their own (and together with each other) by applying the strategies to their own life, and planning for homework in the upcoming week. At each session, parents received information sheets, worksheets, and power-point handouts which they collected in a personal folder. The Internet-SAPP

was structured in eight modules, mirroring the content of the group condition. In each module, parents were presented with online information sheets and worksheets which they could work through and fill in (and revise) at any time. Parents reviewed the material themselves, one module every week, and were encouraged to apply the strategies to their own life. They also received individual feedback (in text messages within the platform) on all exercises from the first author. Parents in the Internet-SAPP also had the possibility to write emails whenever they had questions or comments.

Measures

The Client Satisfaction Questionnaire (CSQ-8) is a brief questionnaire aimed to assess the participant's level of satisfaction with the program after treatment. The CSQ-8 contains eight questions rated between 1 to 4 and covers, for example, quality of services, met needs, and overall satisfaction. The CSQ-8 have been widely administered in treatment evaluations and has shown excellent psychometric properties, including high internal consistency, a strong positive association with engagement and completion of treatment, and a positive association with improvements after treatment (30).

The Anxiety Disorders Interview Schedule - Child and Parent Version (ADIS) is a semi-structured diagnostic interview aimed to evaluate anxiety disorder status in children. The parent and the child are interviewed separately according to the diagnostic manual. After the interviews, the information from both interviews is combined into a composite summary diagnostic status for each anxiety disorder. In the current study, all evaluators received training in the ADIS prior to performing the interviews. The ADIS has been found to show good to excellent inter-rater reliability (31).

The Parental Overprotective Scale (OP) is a self-report measure of parental overprotective behaviors. The OP aims to assess the parent's tendency to protect his/her child from situations that could be perceived as threatening or anxiety provoking. The OP contains 19 items rated between 0 (not at all) to 4 (very much) and covers for example, keep the child within a close distance, keep a close watch, and protect the child from criticism. The OP has shown good consistency of scale scores and correspondence to experimental observations of parental overprotective behaviors (27).

The State Trait Anxiety Inventory (STAI) is a widely used self-report measure aimed to assess trait and state anxiety in adults. Parents rated the state anxiety form (STAI-S) in the current trial. The STAI-S contains 20 items rated between 1 (not at all) to 4 (very much) which covers feelings of tension, nervousness and worry. The STAI-S has showed

high internal consistency of total scale scores, and evidence of convergent validity based on higher values when presented to stressful situations compared to neutral situations (32).

The Penn State Worry Questionnaire is a self-report measure of worry in adults and was completed by the parent. The PSWQ was developed to specifically assess worry, more or less independent from other aspects of anxiety. The PSWQ contains 16 items rated between 1 (not at all typical) to 5 (very typical of me). The questions cover different aspects of worry such as whether the respondent worry in many situations, spend a lot of time worrying, and find it hard to control their worry. The PSWQ has shown high internal consistency, and evidence of criterion validity based on higher values in individuals meeting all criteria for generalized anxiety disorder compared to individuals meeting some or no criteria (33).

The Brunnsviken Brief Quality of Life Inventory (BBQ) is a self-report measure of life quality covering six different life domains: leisure time, view on life, creativity, learning, friends and friendship, and view of self. Parents completed the BBQ. The BBQ has showed adequate internal consistency and a satisfactory ability to differentiate between clinical patients and controls (34).

All measures except the CSQ-8 were completed at baseline, post intervention, and 12 months after the post-intervention assessment by the parents. The CSQ-8 was only administered once, post intervention. All participants in the wait-list were offered the intervention after the 12-month follow-up.

Procedure

We recruited participants through advertisements in a local newspaper, targeting parents who experienced that they suffered from worry or anxiety and had a child between the ages of six to twelve. Parents who reported interest were contacted and assessed for eligibility by the first author, a clinical psychologist, according to the following inclusion criteria; excessive worry or anxiety, and exclusion criteria; current alcohol or substance abuse, severe depression including suicidal ideations, or other social conditions that significantly would obstruct from participation (e.g., ongoing investigation of custody or other issues within social services). We invited eligible parents to an interview together with their child at the Department of Clinical Neuroscience at Karolinska Institutet (CNS-KI), Stockholm, Sweden, to ensure that their child did not meet criteria for a current anxiety or mood disorder. If the child met the criteria for a current anxiety or mood disorder, families were excluded from our

study, and they received help to initiate contact to obtain adequate treatment.

An independent researcher not involved in the current study performed the randomization. After inclusion in the study (i.e., after the baseline ADIS interview) participants were assigned a random identification number. The independent researcher allocated each participant to one of the three conditions according to a random sequence generated at www.random.org. The result was then sent back to our research group and participants were informed of the decision.

The first author together with selected master-level psychology students performed the baseline assessment, whereas only the master-level psychology students (blind to the allocation) performed the subsequent post- and follow-up ADIS-interviews.

Data Analysis

To evaluate the first objective (i.e., satisfaction of the intervention), we outlined descriptive data on mean scores of the CSQ-8 and used a thematic analysis to analyze the qualitative data from the open questions in the CSQ-8 (parents' comments about the program). To evaluate the second and third objective (i.e., preliminary effects on child anxiety, parent risk factors, and quality of life), we calculated within group effect sizes separately for all three conditions. To evaluate the fourth objective (i.e., feasibility of the study design), we summarized data on recruitment pace, attendance at group-SAPP, usage of the Internet modules in the Internet-SAPP, and attrition at post and 12-month follow-up.

Results

Objective 1 - Satisfaction of the SAPP

Both active conditions were very satisfied with the intervention. The mean item response on the CSQ-8 was 3.6 ($SD=0.4$) for the group-SAPP and 3.2 ($SD=0.5$) for the Internet-SAPP (on a Likert-scale

between one and four). However, we found higher ratings for the group condition on total satisfaction compared to the Internet condition, $t(22.17)=2.09$, $p=.048$, $d=0.84$.

The thematic analysis of the open questions revealed two positive and two negative themes related to the participants experience of the SAPP. Each theme comprised one to four keywords which appeared at least three times in the text from the open questions in CSQ-8. The two positive themes covered (1) the content and (2) the outcome of the intervention. Regarding the content, the SAPP was concrete and clear. Regarding the outcome, participants described that they acquired tools to deal with worry and that they received suitable feedback on their parenting. The two negative themes covered (1) too little time during the sessions and (2) too little material to work with between the sessions/modules. Regarding too little time at sessions, participants requested longer sessions and more time for discussion. Regarding too little material, participants requested more literature.

Objective 2 – Preliminary Effects on Child Anxiety and Parent Risk Factors

Regarding anxiety disorders (ADIS) at the 12-month follow-up ($n=36$), a total of eight children (22%), met criteria for an anxiety disorder. Six of them were girls and two were boys. Two of them came from the waitlist condition, two from the group-SAPP, and four from the Internet-SAPP.

Table 3 presents summary data (means and standard deviations) together with within group effect sizes for all assessment points divided by condition. Regarding parental overprotective behavior (OP), all three conditions showed decreased overprotective behaviors between baseline and the 12-month follow up assessment. Using conventional rules of thumbs (i.e., 0.20 = small effect, 0.50 = moderate effect, 0.80 = large effect) the effect sizes could be interpreted as moderate in the

TABLE 3. Continuous outcomes of children's and parents' health and behaviors (means, standard deviations, and within group effect sizes)

Measure	Group-SAPP				Internet-SAPP				Waitlist			
	Pre	Post	12-month	Effect size Pre-FU	Pre	Post	12-month	Effect size Pre-FU	Pre	Post	12-month	Effect size Pre-FU
OP	38.5 (10.2)	35.3 (10.1)	29.4 (11.6)	0.98	32.0 (8.1)	25.9 (7.1)	24.6 (8.4)	0.79	32.4 (9.7)	27.8 (9.6)	26.8 (9.6)	0.60
STAI-S	45.3 (10.4)	37.6 (9.5)	39.6 (9.3)	0.54	41.1 (10.4)	35.7 (7.6)	36.9 (11.8)	0.39	49.5 (11.1)	43.8 (10.2)	41.2 (9.3)	0.78
PSWQ	61.3 (8.9)	56.3 (9.7)	57.2 (10.4)	0.46	53.4 (11.6)	49.5 (10.5)	45.1 (10.5)	0.85	58.7 (8.9)	57.3 (10.0)	57.2 (9.0)	0.15
BBQ	40.7 (21.8)	45.5 (26.2)	52.8 (18.7)	0.65	45.7 (13.9)	48.2 (13.3)	55.9 (13.9)	0.55	45.8 (20.1)	50.1 (17.0)	45.0 (18.7)	-0.04

Notes: BBQ: The Brunnsviken Brief Quality of Life Inventory; OP: The Parental Overprotective Scale; PSWQ: The Penn State Worry Questionnaire; STAI-S: The State Trait Anxiety Inventory – State.

waitlist and Internet-SAPP conditions, and large in the group-SAPP condition.

Regarding parental state anxiety (STAI-S), all three conditions showed decreased anxiety between baseline and the 12-month follow up assessment, with moderate effects.

Regarding worry measured by the PSWQ, all conditions showed decreased worry between baseline and the 12-month follow up assessment. Effect sizes could be interpreted to be trivial for the waitlist, moderate for the group-SAPP, and large for the Internet-SAPP.

Objective 3 – Preliminary Effects on Quality of Life

Regarding quality of life, both the SAPP conditions showed increased quality of life across time between the baseline assessment and the 12-month follow up. Effect sizes could be interpreted as moderate. No change in quality of life was found in the waitlist condition.

Objective 4 – Feasibility of the Study Design

Regarding attrition, a large part (98%) of participants completed questionnaires at the post assessment and 95% at the 12-month follow-up. Further, regarding ADIS interviews, we retained 88% of the sample at the post assessment and 90% at the 12-month follow-up.

Regarding program use, the level of attendance in the group-SAPP was high for the 12 parents (out of 13) who started the group-SAPP. The median number of sessions attended was 7.5 out of 8, ranging from four to eight. Each parent received an average of 150 minutes of therapist time, ranging from 88 to 181 minutes (based on total therapy time divided by number of participants in each group). In the Internet-SAPP, the median number of logins by the participants during the intervention was 18.5 (range 6-35 logins). Mean therapist time for each parent in the Internet condition was 69 minutes, ranging from 33 to 150 minutes.

Recruitment of participants were based on a single advertisement published at one occasion in a local newspaper distributed in Stockholm County (a total of 2.2 million inhabitants). Within a 2-month period, a total of 114 parents reported interest in the study, 89 of them agreed on participating in a screening interview over the phone. Finally, 53 parents and their child were invited to the baseline assessment, five declined and after excluding eight children meeting criteria for an anxiety disorder, 40 parents were included in the trial.

Although all participants included in the trial provided consent for participation and the randomization procedure, one parent allocated to the

group-SAPP defected due to no being allocated to the Internet-SAPP.

Discussion

The current trial aimed to evaluate the feasibility of a novel parent training intervention for anxious parents. We found that parents generally were very satisfied with the intervention. Furthermore, parents reported that the intervention provided concrete tools to manage worry and to improve their parenting. Although some parents initially showed specific interest for the Internet-SAPP during telephone screening, overall, parents allocated to the group-SAPP were more satisfied with the intervention. The somewhat lower level of satisfaction in the Internet-SAPP might be due to less engagement for some participants. However, the Internet-SAPP mean of 25.9 (out of 32) on the CSQ-8 would still be considered high.

Regarding child anxiety, we observed no trends of a reduced number of anxiety disorders in the SAPP conditions compared to the control condition. On the contrary the Internet-SAPP had the highest number of anxiety disorder at follow-up. However, it was difficult to compare the three conditions as they were not equally constituted regarding the distribution of gender, (despite randomization). The skewed distribution of gender was not surprising given the low total number of the participants but could have been avoided by stratified randomization. The risk of developing an anxiety disorder have been found to be higher in girls (35). Accordingly, as the Internet condition mainly included girls (10 girls out of 14), whereas the waitlist only included four girls (out of 13), such a comparison was not very informative. Nevertheless, the absence of a clear tendency of intervention effects on child anxiety highlights a further development of the intervention to more thoroughly address this aspect.

In terms of parental risk factors and quality of life, our results showed promising tendencies. Quality of life increased and worry decreased across time in both SAPP condition. A possible trend was also a larger decrease in overprotective behaviors in the group-SAPP. Possibly, the SAPP only affected the mediators over the 12-month period, and a longer follow-up would have been needed to catch any differences regarding child anxiety.

In terms of feasibility of the study design, we believe the study design would be feasible to scale up in an RCT. There was a minimal amount of attrition inferring that the assessment procedures were not too burdensome for the participants. The high degree of participation in the intervention, together with the request for longer sessions suggests that the burden of participating in the SAPP was low and that the intervention could even be prolonged and

enhanced. The recruitment of 40 participants within a 2-month period using a single advertisement confirms that the SAPP is of interest for anxious parents, and that recruiting participants to a larger RCT would be possible.

Very few fathers participated in the current study (only 7.5% were fathers). This is in contrast to the trial by Ginsburg and colleagues (24), also targeting anxious parents, where a larger proportion of fathers participated (about 20%). Recent research suggests sex-specific transmission of anxiety between parent and child (36), with increased risk for children only when the same sex parent had an anxiety disorder. Given that the current study almost exclusively included mothers, this means increased risks mainly for the girls. Generally, mothers are typically overrepresented in studies of parent support (37), however, the great overrepresentation in the current study suggests that a broader approach in recruitment of participants may be needed in future trials.

Further Improvements

Our impression during the SAPP was that parents perceived their own worry and anxiety as the most pressing issue to deal with, which resulted in less engagement in the latter sections of the intervention that focused more on parenting and working together with the child. There is a logic to the fact that parents were less motivated to work on parts focusing on their parenting compared to parts focusing on reducing their own anxiety, as they entered the study having excessive worry and anxiety while their child did not (at least at the time the study started). Consequently, according to the model presented (Figure 2), we believe that the intervention did not significantly affect some of the proposed mediators. First, although included in the program, we believe that the mediator “increasing opportunities for the child to practice” was one area not markedly affected. Second, when looking back at the program content, it may be that the aspect of rewarding the child’s approaching behaviors was not adequately addressed. Thus, how to motivate parents to work with these aspects before the child has developed debilitating anxiety is a challenge for future revision of the intervention. One suggestion is that parents could get more guidance and concrete training in how to work with the “training stairs”, essentially by educating parent in graded exposure. Furthermore, the intervention could also benefit from including more strategies specifically targeting modeling and reinforcement of brave behaviors. Specifically, parents could be encouraged to let the child approach for example a spider either together with the parent participating the intervention (as long as the parent is not phobic to this stimulus, which

could likely result in modeling avoidant behaviors) or together with another parent, relative or adult. Although the child is not phobic to spiders, the child gets an experience of approaching a stimulus that by many people is considered fearful.

Strengths and Limitations

A strength of the current study was the investigation of an intervention targeting the intergenerational transmission of anxiety, which so far has received very limited attention in research. Another strength was the use of several validated measurements, including the ADIS interview, a comprehensive diagnostic and severity assessment of the children’s psychopathology.

A limitation of the study was the minimal information on parents’ psychopathology which was limited to self-rated worry and anxiety. Further, as the current trial was a feasibility trial, we did not have a large enough sample for adequate investigation of the efficacy of the intervention. Finally, using waitlist as control condition have been shown to be a weak comparator which may inflate the effects of the active conditions (38).

Clinical Significance

The current trial found that the SAPP was feasible. However, given the results, a revision of the SAPP, enhancing child-directed strategies, should be conducted before trying out a full randomized controlled trial. Nonetheless, the possibility to help anxious parents with their parenting by implementing a highly appreciated and accessible intervention may be an important future method to reduce childhood anxiety and to increase life quality for many families.

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Disclosures

We have no conflicts of interest to disclose.

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