

# Quarterly

SUMMER 2016 VOL. 10, NO. 3

## Helping children with anxiety

### OVERVIEW

When worries  
overwhelm

### REVIEW

Fighting fears





## Children's Health Policy Centre

### About the Children's Health Policy Centre

We are an interdisciplinary research group in the Faculty of Health Sciences at Simon Fraser University. We focus on improving social and emotional well-being for all children, and on the public policies needed to reach these goals.

To learn more about our work, please see [childhealthpolicy.ca](http://childhealthpolicy.ca).

### About the *Quarterly*

We summarize the best available research evidence on a variety of children's mental health topics, using systematic review and synthesis methods adapted from the *Cochrane Collaboration* and *Evidence-Based Mental Health*. We aim to connect research and policy to improve children's mental health. The BC Ministry of Children and Family Development funds the *Quarterly*.

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#### Preventing childhood ADHD symptoms

Is there a way to help children avoid developing the core symptoms of attention-deficit/hyperactivity disorder? To answer this question, we review four studies assessing the effectiveness of interventions on ADHD symptoms.



### How to Cite the *Quarterly*

We encourage you to share the *Quarterly* with others and we welcome its use as a reference (for example, in preparing educational materials for parents or community groups). Please cite this issue as follows:

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# When worries overwhelm

*He used to hide behind you before, so I had to do all the talking. But now he makes contact himself and it's no problem at all. He's got a confidence that I've never seen before.*

– Mother of a teen who participated in cognitive-behaviour therapy<sup>1</sup>

It is typical for children to have occasional fears and worries. These experiences do not interfere with most children's development and functioning. But for a small proportion, persistent fears and worries impede their enjoyment and success at home, at school and in the community. For approximately 3% of Canadian children aged four years and older, these

concerns are severe enough to warrant an anxiety disorder diagnosis.<sup>2</sup> (Please note that the cited report includes two disorders that are now classified in other diagnostic categories.)

There are seven commonly recognized anxiety disorders that affect children.<sup>3</sup> All involve experiencing excessive anxiety and engaging in behaviours aimed at avoiding a feared situation.<sup>3</sup> As well, all involve having persistent fears and worries, lasting at least one to six months. Table 1 describes the main childhood anxiety disorders.

Anxiety disorders are the most common mental disorders that children face.

## Are childhood anxiety disorders increasing?

Some *Quarterly* readers have told us of their impression that childhood anxiety disorders are on the rise. This perception, however, is not consistent with epidemiological data. Surveys that employ careful assessments to identify children who have both symptoms and impairment in the population at large indicate that the prevalence of childhood anxiety disorders has been relatively stable for the past 30 years.<sup>2, 10</sup>

So the question remains: if childhood anxiety disorder rates are stable, why might some practitioners and others who work with children perceive an increase? It is possible that better public awareness plays a role. Media campaigns to increase awareness and reduce the stigma associated with mental illness, such as those sponsored by the Canadian Mental Health Association and the Mental Health Commission of Canada, may be encouraging more families to seek help.<sup>11-12</sup> This, in turn, could contribute to perceived increases in prevalence. In the end, perceptions that anxiety disorders are on the rise may actually be a positive sign – if it means that more children and families are seeking help for these highly preventable and highly treatable disorders.

**Table 1: Main Childhood Anxiety Disorders\***

Diagnosis	What the child experiences
<b>Agoraphobia</b>	Marked fear of using public transportation, being in open spaces, being in enclosed places, being in crowds or being outside the home alone.
<b>Generalized anxiety disorder</b>	Excessive worry about many activities, coupled with symptoms such as restlessness, fatigue, poor concentration and irritability.
<b>Panic disorder</b>	Panic attacks, characterized by abrupt and intense fear that includes symptoms such as sweating, shaking, nausea, difficulty breathing, dizziness or rapid heartbeat.
<b>Selective mutism</b>	Consistent refusal to speak in specific social situations, such as school, despite having adequate spoken language abilities.
<b>Separation anxiety disorder</b>	Excessive fears about being separated from a particularly important or influential individual, such as a parent.
<b>Social anxiety disorder</b>	Marked anxiety about social situations with peers, fearing the possibility of being humiliated or embarrassed.
<b>Specific phobia</b>	Extreme fear of given objects, such as animals, or situations, such as receiving injections.

\* Prior to making a diagnosis, a comprehensive assessment is needed to ensure that the child's basic developmental needs are being met, that symptoms are repetitive and persistent, and that symptoms are excessive given the child's developmental level.

## What puts kids at risk?

To learn how to better help children with anxiety disorders, the first step involves identifying risk factors. For something to be deemed a *risk factor*, it must occur before the outcome of interest (for example, the development of an anxiety disorder) and also be correlated with it.<sup>4</sup> Then for something to be deemed a *causal risk factor*, empirical evidence is needed showing that modifying the factor actually changes child outcomes.<sup>4</sup>

Although causal risk factors for anxiety disorders are still being determined, research on gene-environment interactions is suggesting some leads. For example, researchers have now established that avoidable adverse events such as child maltreatment can influence gene expression, in turn leading to the development of certain mental disorders.<sup>5-6</sup> Chronic stress is the likely underlying mechanism through which maltreatment contributes to the development of anxiety and other mental disorders.<sup>5-6</sup>

Studies on potentially modifiable risk factors for childhood anxiety disorders can also inform intervention efforts. Three recent studies stand out. Two separate studies in New Zealand each followed approximately 1,000 children — from early childhood until young people were in their 30s.<sup>7-8</sup> The third study assessed nearly 800 Norwegian preschoolers — over a two-year period.<sup>9</sup> The following risk factors were each identified in at least two of these three studies:

- having a parent with problematic anxiety<sup>8-9</sup>
- experiencing adverse childhood experiences such as bullying by peers, changes in caregivers, and physical or sexual abuse<sup>7-9</sup>
- being shy or withdrawn in early childhood<sup>7,9</sup>

Notably, these three risk factors are also modifiable, suggesting ways to intervene to reduce the risks of childhood anxiety disorders.

## Addressing modifiable risk factors

One way to tackle problematic parental anxiety is to introduce prevention and treatment in childhood, so that by the time people become parents, anxiety may no longer be an issue. As well, parents with anxiety difficulties should be strongly encouraged to seek treatment and support, as this will help both them and their children. Meanwhile, adverse childhood experiences such as bullying and maltreatment can also be prevented. And children who show early markers of anxiety such as extreme shyness may benefit from anxiety prevention programs, such as those identified in our previous issue.

## From prevention to treatment

Anxiety disorders are the most common mental disorders that children face.<sup>2</sup> Children deserve society's best efforts at prevention. Yet even with effective prevention programs in place, some children will still develop anxiety disorders. For these young people, effective treatment is paramount. In the Review article that follows, we identify treatment approaches with solid evidence of success. 🖐️

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*Although causal risk factors for anxiety disorders are still being determined, research on gene-environment interactions is suggesting some leads.*

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## Fighting fears

All children with anxiety disorders need to receive timely and effective treatments. But what are the most effective treatments? We conducted a systematic review of the recent research literature to answer this question.

We searched for randomized controlled trials (RCTs) evaluating anxiety treatments published within the past 10 years. To ensure we focused on treatment, we included only those studies where the majority of children met diagnostic criteria for an anxiety disorder at the outset. To determine the benefits for children, we included only studies that also assessed child anxiety outcomes at final follow-up. As well, we required that child outcomes — diagnoses or symptoms or both — be assessed using more than one informant (children, parents and/or practitioners). All RCTs also had to compare outcomes for children assigned to the intervention with a control group. (Please also see our sidebar on page 11 on the issue of head-to-head comparison trials that do not use control groups.) For more information, please see our [Methods](#).

Based on these criteria, we identified nine RCTs. Seven evaluated cognitive-behavioural therapy (CBT) programs: *Parent Education Program*, *Timid to Tiger*, *Strongest Families*, *FRIENDS*, *Cool Kids*, *Skills for Academic and Social Success*, and *One-Session Treatment*.<sup>13–21</sup> One RCT evaluated the medication venlafaxine,<sup>22</sup> and the ninth RCT evaluated the medication sertraline and *Coping Cat*, a CBT program — when offered to children either separately or together.<sup>23–25</sup>

### What's involved in cognitive-behavioural therapy?

The studies used a variety of CBT techniques. Still, practitioners typically used the following techniques: providing education about anxiety; training on identifying and challenging worries (i.e., cognitive restructuring); and planning and support for children to face feared situations (i.e., constructing fear hierarchies and using them to guide exposure exercises). These techniques were used to treat all the childhood anxiety disorders.

The studies also varied in who they provided the interventions to. For *Parent Education Program* and *Timid to Tiger*, practitioners taught parents CBT techniques to then use with their young children.<sup>13, 15</sup> In contrast, *One-*



All eight CBT programs assessed in this review made a substantial difference for children, including reducing anxiety disorder diagnoses or their severity.

### How typical are the children in clinical trials?

Prevention and treatment studies are sometimes criticized for excluding children with more complex mental health and developmental concerns, such as children with concurrent disorders who are seen in typical clinical practice. But how fair is this criticism? Of the nine studies we reviewed here, only one (the venlafaxine medication trial) excluded children with concurrent mental disorders.<sup>22</sup>

Most of the cognitive-behavioural therapy (CBT) studies we reviewed did exclude children with significant cognitive delays and/or psychosis.<sup>15–17, 19–21, 23</sup> However, these exclusions may actually reflect typical clinical practice. For example, many practitioners would not offer CBT to young people with intellectual disabilities severe enough to preclude them from learning the material. And practitioners would usually address psychotic symptoms before treating an anxiety disorder.

Notably, among the eight studies that reported on concurrent disorders, for five, most children had more than one disorder.<sup>14–15, 19, 21, 23</sup> In the other three studies, between 26% and 41% of children had multiple disorders,<sup>16, 20</sup> or an average of 1.9 diagnoses.<sup>17</sup> So the children who participated in these trials were quite similar to those seen in typical clinical practice — as is becoming the norm in many studies.

*Session Treatment* was delivered exclusively to young people, with no parental involvement.<sup>21</sup> All the other programs included both children and parents.<sup>16–17, 19–20</sup>

*Strongest Families* took a unique approach by not including any in-person contact with a practitioner.<sup>16</sup> Rather, children and parents worked through the CBT program using a handbook and videos, supported by telephone coaching from a practitioner.<sup>16</sup> Table 2 provides more information on these seven CBT studies. (Information on the eighth CBT program, *Coping Cat*, appears later in this review, under “Combined treatments.”)

<b>Table 2: Evaluations of Cognitive-Behavioural Therapy Programs*</b>			
<b>Program</b>	<b>Delivery format</b>	<b>Country (Sample size)</b>	<b>Children’s ages</b>
<b>Parent-only interventions</b>			
<b>Parent Education Program</b> <sup>13</sup>	10 group parent sessions	Australia (146)	3–5 years
<b>Timid to Tiger</b> <sup>15</sup>	10 group parent sessions	UK (74)	3–9 years
<b>Child-and-parent interventions</b>			
<b>Strongest Families</b> <sup>16</sup>	11 self-delivered sessions (using handbook + videos) supported by 13 telephone coaching sessions	Canada (91)	6–12 years
<b>FRIENDS</b> <sup>17</sup>	11 group child sessions OR 11 group child sessions + 9 group parent sessions	US (61)	7–11 years
<b>Cool Kids</b> <sup>19</sup>	10 group child-and-parent sessions (including activities both separately + together)	Australia (112)	7–16 years
<b>Skills for Academic + Social Success</b> <sup>20</sup>	14 group child sessions, 2 individual child sessions, 4 group child social events + 2 group parent + teacher sessions	US (36)	14–16 years
<b>Child-only interventions</b>			
<b>One-Session Treatment</b> <sup>21</sup>	1 individual child session	Sweden + US (196)	7–16 years
* Most studies included children with different anxiety disorders. The exceptions were <i>Skills for Academic + Social Success</i> (social anxiety disorder only) and <i>One-Session Treatment</i> (specific phobia only).			

## Medication

The study evaluating venlafaxine, a serotonin-norepinephrine reuptake inhibitor, examined its impact on generalized anxiety disorder.<sup>22</sup> Children randomized to receive venlafaxine started with a low daily dose that was titrated up, according to body weight.<sup>22</sup> Table 3 provides more information on this study.

<b>Table 3: Evaluations of Medication</b>			
<b>Medication</b>	<b>Format</b>	<b>Country (Sample size)</b>	<b>Children’s ages</b>
<b>Venlafaxine</b> <sup>22</sup>	8 weeks of venlafaxine	US (323)	6–17 years

## Combined treatments

The ninth RCT evaluated sertraline, a selective serotonin-reuptake inhibitor, and *Coping Cat*, a CBT program, when these treatments were offered either separately and together. Children in this study were diagnosed with generalized, separation or social anxiety disorders.<sup>23</sup>

Children randomized to receive sertraline were started on a low daily dose, which could be titrated up, depending on symptoms and side effects.<sup>23</sup> Children randomized to *Coping Cat* received anxiety-management training and support to face feared situations.<sup>23</sup> Table 4 provides more information on this study.

<b>Treatment</b>	<b>Format</b>	<b>Country (Sample size)</b>	<b>Children's ages</b>
<b>Sertraline + Coping Cat</b> <sup>23, 25</sup>	12 weeks of sertraline OR 12 individual child CBT sessions + 2 individual parent sessions OR both treatments combined	US (488)	7–17 years

## Determining what works

Many of the RCTs measured child anxiety outcomes across multiple time periods. Some also assessed additional outcomes, such as symptoms of depression. However, given the purpose of our review, we limit our reporting to child anxiety outcomes at the final assessment point for each study. We then classify outcomes as being “positive” when researchers found statistically significant differences favouring the treatment over the control condition — with reductions in child anxiety *diagnoses* taken as the most robust indicator of success, followed by reductions in *severity* of diagnoses and by reductions in *symptoms*. Where possible, we also report effect sizes, which indicate the degree of the improvement for the given treatment.

## Success with cognitive-behavioural therapy

All seven CBT studies showed success. This was true whether CBT was offered to parents only, to both children and parents, or to children only.

### Adapting CBT for First Nations children

In partnership with a First Nations children’s mental health agency, researchers evaluated how cognitive-behavioural therapy (CBT) training could augment existing services in a remote Indigenous community.<sup>26</sup> The first step involved a CBT instructor visiting the northern Ontario community to learn about the local context. Practitioners, many of whom were Indigenous, then treated anxious children using a CBT manual adapted to reflect local culture. While providing the treatment, practitioners received support from the instructor through 20 group supervision sessions via teleconferencing.

Next, researchers evaluated practitioners’ experiences. Four themes emerged from qualitative interviews.<sup>26</sup> First, practitioners emphasized the hurdles that many families faced, including limited resources. Second, practitioners identified frequent practice challenges, including having a large number of competing professional demands. Third, practitioners noted the particular challenges of working in remote communities, including frequent travel that limited the number of sessions they could provide. Finally, practitioners spoke of skilled supervision as a learning tool that helped them to understand and apply CBT concepts. Quantitative analyses also confirmed that practitioners made significant gains in their knowledge and confidence in using CBT.<sup>26</sup>

These findings suggest that practitioners in Indigenous communities can be supported to adapt and successfully use CBT, while respecting local culture and experience. They also suggest that CBT should be made available to First Nations children, who are typically greatly underserved — and they speak to the need for all practitioners working with these children to be culturally competent.

## Parent-only interventions

The two parent-only CBT programs both significantly reduced child anxiety disorder diagnoses at final follow-up. *Parent Education Program* resulted in fewer children having an anxiety disorder diagnosis over the 34-month follow-up compared to controls (39.5% versus 68.8%). Average disorder severity was significantly lower for intervention children, as were parent-reported anxiety symptoms.<sup>14</sup>

Similarly, *Timid to Tiger* led to children being significantly less likely to continue meeting criteria for their primary anxiety diagnosis at one-year follow-up compared to controls (46.0% versus 75.8%).<sup>15</sup> These children were also less likely to meet criteria for any anxiety diagnosis compared with controls (54.1% versus 90.9%).<sup>15</sup> Effect sizes for both these diagnostic outcomes were large.<sup>15</sup>

## Child-and-parent interventions

CBT programs that included both children and parents were also effective, significantly reducing child anxiety diagnoses or diagnosis severity. *Strongest Families* children were significantly less likely than controls to have an anxiety disorder diagnosis (primary and concurrent) at six-month follow-up, with a large effect size.<sup>16</sup>

For *FRIENDS*, the child-only version reduced parent-rated anxiety symptoms on one of three measures (with a medium effect size) at three-month follow-up.<sup>18</sup> However, the child-and-parent version significantly reduced child anxiety diagnosis severity (with a large effect size), and also reduced parent-rated anxiety symptoms on all three measures (with effect sizes ranging from small to large).<sup>18</sup>

*Cool Kids* also had positive results. Compared with controls, intervention children were significantly less likely to meet diagnostic criteria for their primary anxiety disorder (31.4% versus 54.5%) and for any anxiety disorder (51.0% versus 70.4%) at three-month follow-up.<sup>19</sup> As well, anxiety disorder severity was significantly lower for *Cool Kids* children (with large effect sizes).<sup>19</sup>

*Skills for Social and Academic Success* effectively treated adolescents with social anxiety disorder. Four months after completing the program, intervention youth were significantly less likely to have this diagnosis compared to controls (36.8% versus 94.4%).<sup>20</sup> They also had significantly lower disorder severity ratings.<sup>20</sup>

## Child-only interventions

The one program delivered to children only, *One-Session Treatment*, was effective in treating specific phobia. Compared with controls, intervention children were significantly less likely to be diagnosed with specific phobia six months after the program ended (51% versus 65%).<sup>21</sup> These children also had significantly lower symptom severity than controls.<sup>21</sup> Table 5 summarizes outcomes for these seven CBT programs.

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*CBT can be offered no matter which anxiety disorder a child has.*

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<b>Table 5: Child Anxiety Outcomes for Cognitive-Behavioural Therapy</b>			
<b>Program</b>	<b>Follow-up</b>	<b>Positive child outcomes*</b>	<b>No significant difference</b>
<b>Parent-only interventions</b>			
<b>Parent Education Program</b> <sup>14</sup>	34 months	↓ Anxiety diagnoses ↓ Anxiety disorder severity ↓ Anxiety symptoms (1 of 2 measures)	Anxiety symptoms (1 of 2)
<b>Timid to Tiger</b> <sup>15</sup>	12 months	↓ Anxiety diagnoses (primary) ↓ Anxiety diagnoses (any)	Anxiety symptoms (3 of 3)
<b>Child-and-parent interventions</b>			
<b>Strongest Families</b> <sup>16</sup>	6 months	↓ Anxiety diagnoses (primary + concurrent)	None
<b>FRIENDS</b> <sup>18</sup>	3 months	Child-only version ↓ Anxiety symptoms (1 of 3 measures)	Anxiety disorder severity Anxiety symptoms (2 of 3)
		Child + parent version ↓ Anxiety disorder severity ↓ Anxiety symptoms (3 of 3 measures)	None
<b>Cool Kids</b> <sup>19</sup>	3 months	↓ Anxiety diagnoses (primary) ↓ Anxiety diagnoses (any) ↓ Anxiety disorder severity (primary) ↓ Anxiety disorder severity (any) ↓ Anxiety symptoms (1 of 2 measures)	Anxiety symptoms (1 of 2)
<b>Skills for Academic + Social Success</b> <sup>20</sup>	4 months	↓ Social anxiety diagnoses ↓ Social anxiety severity ↓ Social anxiety symptoms (1 of 3 measures)	↓ Social anxiety symptoms (2 of 3)
<b>Child-only interventions</b>			
<b>One-Session Treatment</b> <sup>21</sup>	6 months	↓ Specific phobia diagnoses ↓ Specific phobia severity	Anxiety symptoms (4 of 4 measures)
* All listed outcomes were statistically significant for intervention children compared with controls. For more information on effect sizes for the studies that assessed them, please see text on page 8.			

## Medication success – with side effects

Venlafaxine was effective for children with generalized anxiety disorder. As shown in Table 6, children receiving this medication were significantly less likely to meet diagnostic criteria for generalized anxiety disorder and also had lower diagnostic severity scores and fewer symptoms compared to controls.<sup>22</sup>

<b>Table 6: Child Anxiety Outcomes for Medication</b>			
<b>Medication</b>	<b>Follow-up</b>	<b>Positive child outcomes*</b>	<b>No significant difference</b>
<b>Venlafaxine</b> <sup>22</sup>	Post-test	↓ Generalized anxiety disorder diagnoses ↓ Generalized anxiety disorder severity ↓ Generalized anxiety disorder symptoms	None
* All listed outcomes were statistically significant for intervention children receiving the medication compared with controls. Effect sizes were not provided.			

But venlafaxine resulted in serious side effects after just eight weeks of use. Compared to those taking a placebo, children taking the medication were twice as likely to experience weakness, pain, loss of appetite, weight loss, drowsiness, increased blood pressure and dizziness.<sup>22</sup> Beyond this, compared with controls,

children taking venlafaxine had significantly higher total serum cholesterol levels and grew significantly less (gaining only 0.3 cm versus 1 cm in height).<sup>22</sup> Three of the 157 intervention children discontinued venlafaxine due to serious adverse events, including suicidal ideation and behaviour problems.<sup>22</sup> As well, one child developed a withdrawal syndrome, characterized by agitation and confusion, after receiving the last dose of medication.<sup>22</sup> Finally, clinically important changes were noted on electrocardiograms (a measure of heart health) for four of the 157 children.

### Success for combined treatments

The study on the effects of sertraline and CBT also produced gains on all assessed anxiety outcomes. Compared with controls, intervention children had significantly fewer anxiety disorder diagnoses and lower diagnostic severity scores — whether they received sertraline alone, *Coping Cat* alone, or a combination of these two treatments.<sup>23–24</sup>

Although effect sizes for these positive outcomes were similar for both sertraline and *Coping Cat*, effect sizes were much larger when the two treatments were combined. For example, children receiving either sertraline or *Coping Cat* had nearly three times lower odds of being diagnosed with an anxiety disorder compared to controls.<sup>23–24</sup> However, children receiving both treatments had over seven times lower odds of being diagnosed with an anxiety disorder compared to controls. Table 7 highlights the main findings from this study.

*While the two medications venlafaxine and sertraline also reduced diagnoses, both had significant side effects.*

**Table 7: Child Anxiety Outcomes for Combined Treatments**

Treatments	Follow-up	Positive child outcomes*	No significant difference
<b>Sertraline + Coping Cat (both separately + combined)</b> <sup>23–24</sup>	Post-test	↓ Anxiety diagnoses ↓ Anxiety disorder severity ↓ Anxiety symptoms (2 of 2 measures)	None
* All listed outcomes were statistically significant for intervention children compared to controls, whether they received only <i>Coping Cat</i> , only <i>Sertraline</i> , or a combination of both. Information on effect sizes is provided in the text that precedes this table.			

But sertraline also resulted in serious side effects after just 12 weeks of use, when findings were compared for children receiving only *Coping Cat* versus those receiving only medication. While significance was not reported, those on medication experienced more gastric distress, body aches, insomnia, fatigue, sedation, dizziness, disinhibition, irritability, motor activity, concentration difficulties and restlessness/fidgetiness.<sup>23</sup> As well, eight of the 273 children taking sertraline discontinued it because of serious adverse events, including thoughts of self-harm, homicidal ideation, agitation, tremors, stomach pain, headache, hyperactivity and worsening anxiety symptoms.<sup>23</sup>

## Implications for practice and policy

All eight CBT programs assessed in this review made a substantial difference for children, including reducing anxiety disorder diagnoses or their severity. While the two medications venlafaxine and sertraline also reduced diagnoses, both had significant side effects. Our review revealed five key findings in relation to helping children with anxiety:

- **CBT is the first choice for treating childhood anxiety.** Not only did every CBT program either reduce diagnoses or disorder severity, effects were often sustained over long time periods. For example, benefits for *Parent Education Program* were sustained almost three years after the program ended, while benefits for *Timid to Tiger* were sustained for a year. In contrast, medications showed only short-term evidence of effectiveness. Consequently, children with anxiety disorders should be offered CBT first, before medication is ever considered.
- **CBT can be offered to children for all types of anxiety disorders.** Across the studies we examined for this review, every main childhood anxiety disorder was represented: agoraphobia,<sup>15</sup> generalized anxiety disorder,<sup>14–16, 18–19, 23</sup> panic disorder,<sup>15, 19</sup> selective mutism,<sup>14–15, 19</sup> separation anxiety disorder,<sup>14–16, 18–19, 23</sup> social anxiety disorder<sup>14–16, 18–19, 20, 23</sup> and specific phobia.<sup>14–16, 19, 21</sup> So CBT can be offered no matter which anxiety disorder a child has.
- **CBT can be offered to children of all ages.** According to our review, CBT is effective for treating anxiety disorders in young people from ages three to 17 years. So even very young children can learn and apply CBT techniques. For young children, though, it may be particularly helpful to teach their parents the CBT skills to use with them, as was done in *Parent Education Program* and *Timid to Tiger*.
- **CBT's efficient formats could potentially increase access to care.** All eight CBT programs that we reviewed used highly efficient formats, including groups for children and/or parents, self-delivery with telephone coaching, or single child sessions with a practitioner. And these formats were all successful. Compared with more costly approaches, such as practitioners offering multiple individual sessions, the efficient use of CBT could allow more children to be seen more quickly. This is particularly important for anxiety disorders, the leading mental disorders in children.

### More info on CBT

For parents and young people wanting to access more information about cognitive-behavioural therapy, [AnxietyBC](#) provides a host of practical tools for addressing anxiety, including a downloadable app.

### Working alone or working in groups?

The first step in evaluating a treatment typically involves comparing it to a control condition. This allows researchers to be certain that any improvements are actually due to the treatment rather than to other factors, such as children simply maturing. Once a treatment has been established as being effective in this way, researchers often move on to compare different forms of the same treatment (e.g., individual versus group delivery).

Because cognitive-behavioural therapy (CBT) has been established as an extremely effective treatment for childhood anxiety, researchers have begun the process of comparing different delivery formats to see which one works best. We identified three randomized controlled trials (RCTs) directly comparing the effectiveness of *individual* versus *group* CBT with children – which met all our inclusion criteria except for maintaining a control group during follow-up.

Notably, two of these RCTs showed that group CBT worked just as well as individual CBT on all assessed anxiety outcomes, including reducing any diagnoses,<sup>27–28</sup> primary diagnoses,<sup>27</sup> secondary diagnoses,<sup>27</sup> severity of diagnoses,<sup>28</sup> and symptoms<sup>28</sup> at six-month<sup>28</sup> or one-year<sup>27</sup> follow-up. The third RCT similarly found no difference between group and individual CBT for social anxiety disorder diagnoses at one-year follow-up, but individual CBT had better results than group CBT on two of three symptom measures.<sup>29</sup> These results strongly suggest that group and individual CBT are equally effective in addressing childhood anxiety, allowing more children to be reached through more efficient and affordable delivery in groups.

- *Medications should be used sparingly and cautiously.* The medications venlafaxine and sertraline both significantly reduced anxiety disorder diagnoses, during brief evaluations. But both were also associated with significant side effects after only eight and 12 weeks, respectively. (Our 2004 [research report](#) similarly found that the medication fluoxetine improved anxiety symptoms but was associated with abdominal discomfort.)<sup>30</sup> Consequently, these medications should only be considered when children have not been able to benefit from CBT. Thorough baseline evaluation and ongoing monitoring are also needed while children are taking these medications.

While anxiety disorders may be the most common childhood mental disorders,<sup>2</sup> they are also highly treatable — particularly using CBT, which is effective in a variety of formats and with children of all ages. CBT should therefore be made available to all children who present with anxiety disorders. Notably, CBT can also *prevent* childhood anxiety, as described in the previous issue of the *Quarterly* — making CBT a singularly worthwhile public investment for improving children’s mental health. 🖐️

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*According to our review,  
CBT is effective for  
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in young people from ages  
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**For more information on our  
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We conducted a comprehensive search to identify high-quality research evidence on the effectiveness of programs aimed at treating anxiety disorders in children. We used methods adapted from the *Cochrane Collaboration* and *Evidence-Based Mental Health* and applied the search strategy outlined in Table 8.

<b>Table 8: Search Strategy</b>	
<b>Sources</b>	<ul style="list-style-type: none"> <li>• CINAHL, ERIC, Medline and PsycINFO</li> </ul>
<b>Search Terms</b>	<ul style="list-style-type: none"> <li>• Anxiety, anxiety disorder, agoraphobia, generalized anxiety disorder, panic disorder, phobic disorder, social phobia, specific phobia, separation anxiety disorder or social anxiety disorder <i>and</i> treatment or intervention</li> </ul>
<b>Limits</b>	<ul style="list-style-type: none"> <li>• Peer-reviewed articles published in English between 2005 and 2015 that were either original randomized controlled trials (RCTs) or follow-up RCTs</li> <li>• Children aged 18 years or younger</li> </ul>

We also hand-searched reference lists of a recently published *Cochrane Collaboration* systematic review<sup>32</sup> and previous Children's Health Policy Centre publications to identify additional RCTs. Using this approach, we identified 95 RCTs. Two team members then independently assessed each RCT, applying the inclusion criteria listed in Table 9.

<b>Table 9: Inclusion Criteria for RCTs</b>	
	<ul style="list-style-type: none"> <li>• Clear descriptions were provided of participant characteristics, settings and interventions</li> <li>• Interventions were evaluated in high-income countries (according to <a href="#">World Bank</a> standards), for comparability with Canadian policy and practice settings</li> <li>• Interventions aimed to treat childhood anxiety disorders</li> <li>• At study outset, most study participants had an anxiety disorder diagnosis</li> <li>• Child outcome indicators included diagnoses and/or symptoms of anxiety disorders</li> <li>• Reliability and validity of all primary outcome measures or instruments was documented</li> <li>• Levels of statistical significance were reported for primary outcome measures</li> </ul>
<b>Psychosocial treatment studies</b>	
	<ul style="list-style-type: none"> <li>• Participants were randomly assigned to intervention and control groups (including no treatment control, waitlist control, or attention control) at study outset</li> <li>• Follow-up was three months or more (from the end of the intervention)</li> <li>• Attrition rates were below 20% at follow-up and/or intention-to-treat analysis was used</li> <li>• Child anxiety disorder diagnoses were assessed at follow-up using two or more informant sources</li> <li>• At least one outcome rater was blinded to participants' group assignment</li> </ul>
<b>Medication studies</b>	
	<ul style="list-style-type: none"> <li>• Participants were randomly assigned to intervention and placebo groups at study outset</li> <li>• Attrition rates were below 20% at post-test and/or intention-to-treat analysis was used</li> <li>• Child anxiety disorder diagnoses were assessed at post-test using two or more informant sources</li> <li>• Double-blinding procedures were used</li> <li>• Side effects and adverse reactions were reported</li> </ul>

Nine RCTs met all the inclusion criteria. Data from these RCTs were then extracted, summarized and verified by two or more team members. Throughout, any differences among team members were resolved by consensus. 🖐️

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