CHILDREN'S MENTAL HEALTH RESEARCH

Quarterly

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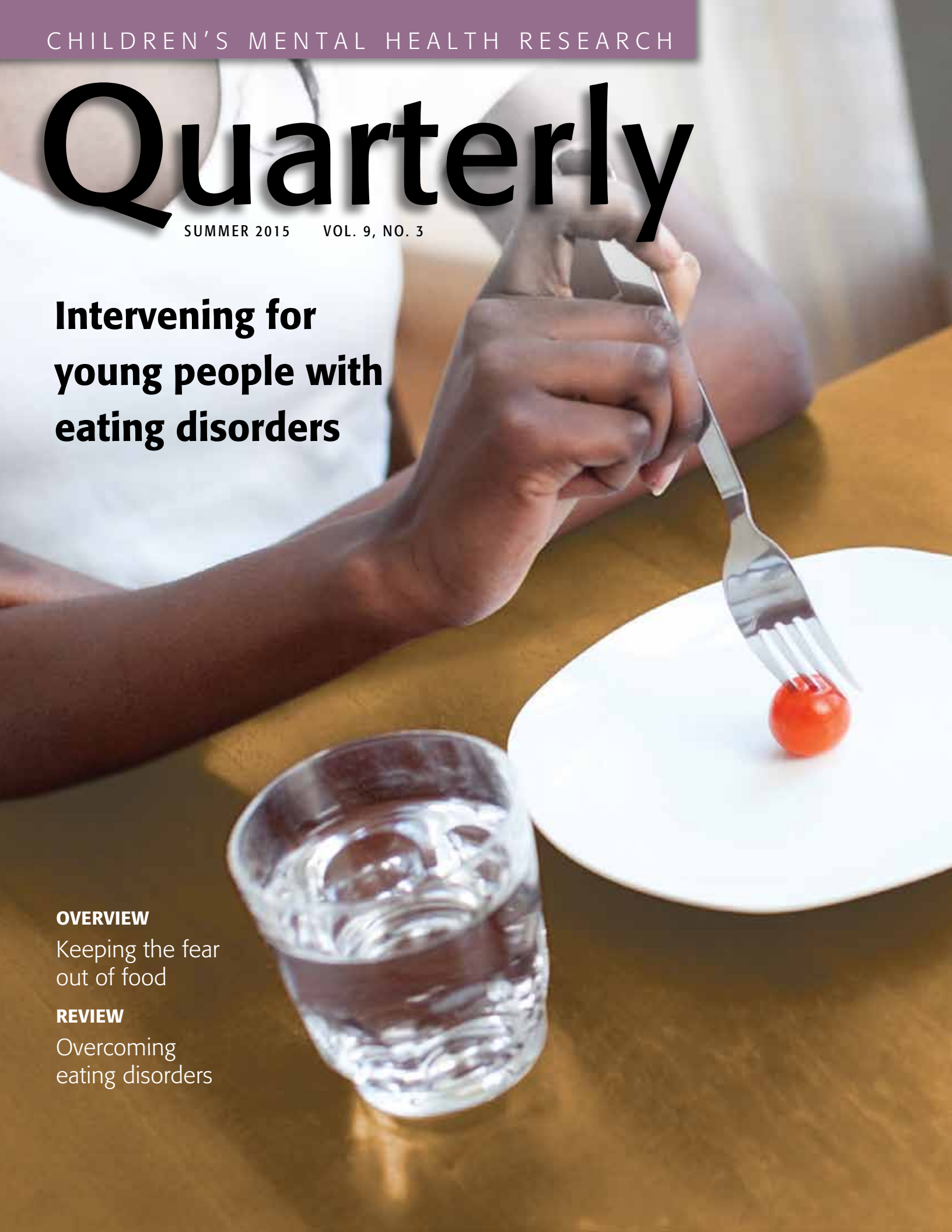
Intervening for young people with eating disorders



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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. Our research focuses on reducing health inequities and 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.

About the *Quarterly*

The *Quarterly* provides summaries of the best available research evidence on a variety of children's mental health topics, prepared using systematic review and synthesis methods adapted from the *Cochrane Collaboration* and *Evidence-Based Mental Health*. Our goal is to improve outcomes for children by informing policy and practice. The BC Ministry of Children and Family Development funds the *Quarterly.*

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This Issue

Preventing eating disorders

The most effective way to reduce the distress caused by eating disorders is to prevent them from occurring in the first place. Our previous issue of the *Quarterly* identifies several programs that can effectively prevent eating disorder symptoms.

NEXT ISSUE

Promoting positive behaviour in children

Learning how to manage one's behaviour is an important part of every child's development. In our upcoming issue, we explore what can be done to help children succeed in this especially critical developmental task.

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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Keeping the fear out of food

All I can remember is me and Mum. She was just there, she was going through it with me. We were kind of on a roller coaster together.

— Adolescent girl in recovery from anorexia nervosa[1]

Everybody feels it: siblings, partners, grandparents. It's a very isolating experience for families. There's stigma and shame, and most people simply don't understand.... Parents are able to do this, but they need rings of support around them. They cannot do it alone and they should not have to.

— Parent of a child with an eating disorder[2]

Given that the typical age of onset for all three eating disorders is the beginning of adolescence, intervening during childhood will help reduce distress, impairment and early mortality across the lifespan.

Several different eating disorders can affect children and youth. Here, we focus on anorexia nervosa, bulimia nervosa and binge-eating disorder.[3] (We refer to the first two disorders as anorexia and bulimia from here on.) While eating disorders have unique characteristics, as outlined in Table 1, they also share one important feature. Young people with eating disorders cannot enjoy food and eating as pleasurable and healthy facets of life. Instead, food and eating are fraught with stress and distress — often to the point of compromising health.

Table 1: Eating Disorders Affecting Children[3]

Disorder	Description
Anorexia	• Child's body weight is markedly below norms, due to severe dieting • Child has intense fear of gaining weight, often coupled with problematic behaviours that prevent healthy weight gain (e.g., over-exercising) • Child's self-image is excessively influenced by body weight or shape
Bulimia	• Child repeatedly consumes excessive amounts of food in a short time (i.e., bingeing), accompanied by a sense of being out of control • Child repeatedly engages in problematic behaviours to prevent weight gain (e.g., purging) • Child's self-image is excessively influenced by body weight or shape
Binge-Eating Disorder	• Child has repeated episodes of binge eating that include eating extremely rapidly; eating until uncomfortably full; eating large amounts when not hungry; eating alone due to embarrassment; and feeling disgusted, depressed or guilty after a binge

How common are eating disorders?

Eating disorders are quite rare. Studies employing rigorous measurement standards have estimated that at any given time, only 0.2% of young people aged 11 to 17 meet diagnostic criteria for an eating disorder.[4] However, given the high levels of distress and impairment and early mortality associated with these conditions, investments in effective prevention and treatment are still imperative.[5] And given that the typical age of onset for all three eating disorders is the beginning of adolescence, intervening during childhood will help reduce distress, impairment and early mortality across the lifespan.[6]

Knowing the risks to try to reduce them

It is important to understand the risk and protective factors that can influence the development of eating disorders, as this knowledge can help inform interventions. To identify such factors, studies have collected information from thousands of young people. Among these studies, we found two population-based surveys that traced children's experiences for more than a decade.

The first survey followed more than 11,000 British children from birth through to age 30, examining factors that influenced the development of anorexia. Researchers identified the following four risk factors: being female; having feeding problems in infancy; having a mother with depressive symptoms during early childhood; and having a history of under-eating at age 10.[8] The survey also identified two factors that protected children from developing anorexia: having higher self-esteem at age 10; and having a mother with a higher body mass index (BMI).[8]

The second survey looked at risk and protective factors for all three eating disorders, tracking more than 1,500 Australian children from before birth through to age 14.[9] These researchers found that the two most significant predictors for developing an eating disorder were being female and being perceived as overweight by one's parents.[9]

Because these two population-based surveys did not exclusively focus on the development of eating disorders, they excluded a number of factors with potential relevance. So we also examined three other longitudinal surveys that focused on eating disorders and included large numbers of American youth, but without being representative of the population.

One survey followed more than 2,000 adolescents for five years, finding dieting was a risk factor for girls developing an eating disorder, but not for boys.[10] Another followed more than 1,000 adolescents girls for three years, finding that "thin body preoccupation and social pressure" was a significant predictor for developing an eating disorder.[11] The authors defined this construct as including having concerns about weight and shape; dieting; being teased about their weight by peers; and having peers preoccupied with thinness.

The third survey tracked data from nearly 500 adolescent girls over a seven-year period, finding body dissatisfaction to be the most consistent and robust predictor for developing an eating disorder.[12] In fact, body dissatisfaction increased the likelihood of developing an eating disorder by 68%.[12] Perceived pressure to be thin, valuing thinness as the ideal standard, tendency to become emotionally distressed, and dieting were also found to be significant predictors.[12]

Eating disorders and BC youth

Nearly 30,000 BC public school students from Grades 7 through 12 responded to a 2013 survey that included questions about eating disorder symptoms, including binge eating. Because the survey asked about symptoms rather than diagnoses, the percentage of young people reporting these experiences was understandably higher than in surveys measuring diagnostic prevalence. Specifically, 6% of youth reported bingeing weekly.[7] The survey also asked students whether they had purposefully purged, or vomited, after eating in the past year. Ten percent of girls and 5% of boys said they had done so.[7] While most youth were not experiencing eating disorder symptoms according to this survey, the data still suggest cause for concern, given how many young people reported having difficulties.

A novel way to measure risk

Research examining risk and protective factors for mental disorders typically relies on longitudinal surveys. This is because many factors suspected in playing a role, such as gender, cannot be studied experimentally. Still, a group of researchers was able to design and conduct an experiment to study one risk factor with potential importance: exposure to idealized images of women.

These researchers examined the effect of exposing adolescent girls to fashion magazines by randomly assigning half of the girls in the study to receive a 15-month subscription.[13] After the subscription ended, there was no significant difference on any outcome measures between girls who got the magazines and those who did not. However, there were significant findings for girls who reported low levels of social support at the study's outset and who then received the magazine. These girls showed significant increases in bulimic symptoms, body dissatisfaction and dieting.[13] These findings suggest that exposing vulnerable adolescent girls to idealized images of thin women can have significant negative effects, including contributing to eating disorder symptoms.

Do genes matter?

Researchers have also examined the role that genes play in eating disorders. While some studies have implicated some genes, few genes have been unequivocally confirmed or substantiated when the results of multiple studies have been combined.[14] This is likely because many genes, each with a relatively small effect, are involved in the development of eating disorders.[14] Perhaps more importantly, mounting evidence indicates that social experiences and other "environmental" factors profoundly influence the way that genes are expressed.

In fact, the available evidence suggests that many modifiable environmental risk and protective factors play a role in eating disorders. Consequently, there are also many steps that adults can take to help safeguard young people. For example, parents can encourage their children to engage in healthy eating as well as support them to develop positive views about food and about their bodies. As well, all adults can challenge cultural mores that emphasize a thin ideal for girls and women, and instead encourage both girls and boys to look beyond the mirror in building a healthy foundation for their self-esteem. In the Review article that follows, we provide information about effective approaches for helping young people who have anorexia, bulimia and binge-eating disorder.

All adults can challenge cultural mores that emphasize a thin ideal for girls and women, and instead encourage both girls and boys to look beyond the mirror in building a healthy foundation for their self-esteem.

How parents can help

Parents play a vital role in helping their children develop healthy attitudes toward food. Since they are the ones who typically purchase food and decide how to prepare it, they strongly influence their children's food choices in the home.[15] Parents can also support their children by encouraging family meals, which are associated with children eating more healthy foods and fewer unhealthy ones.[15] Frequent family meals have even been found to protect girls from developing eating disorder symptoms.[16] As well, parents can be crucial positive role models for their children by demonstrating healthy behaviours and attitudes toward their bodies.[15] For example, parents can talk about how they exercise to keep their bodies fit rather than to fit into the latest fashions.

Overcoming eating disorders

For young people with anorexia, a number of different forms of family therapy have been shown to produce successful outcomes.

Young people who have eating disorders experience particularly high levels of distress and impairment. It is therefore crucial that they receive effective interventions — as early as possible in the course of the disorder. For practitioners and policy-makers, research evidence on effective interventions can point to the best ways to achieve this. We therefore conducted a systematic review of treatments for anorexia nervosa, bulimia nervosa and binge-eating disorder in young people.

We accepted eight randomized controlled trials (RCTs) described in 17 publications.[5, 17–32] Six RCTs focused on anorexia, one on bulimia and one on binge-eating disorder. (For information on our search strategy and inclusion criteria, please see our Methods section.)

Interventions for anorexia

Of the six RCTs focused on anorexia, four assessed psychosocial treatments and two assessed medications. None of the four psychosocial RCTs included a no-treatment comparison group. Instead, they compared two or more different treatments or compared the same treatment delivered in different settings. However, the two medication trials included placebo controls.

Two psychosocial RCTs involved direct comparisons of different therapies. The first compared *Ego-Oriented Therapy,* delivered to individual youth, with *Family-Based Treatment,* delivered to youth together with their parents. The second compared two forms of family therapy: *Conjoint Family Therapy*, where youth and parents participated in therapy together, and *Separated Family Therapy*, where youth and parents took part in therapy independently.

The other two psychosocial RCTs emphasized comparisons of the treatment settings for anorexia. One RCT evaluated the same multi-faceted treatment program delivered in *Day Treatment* compared with *Inpatient* settings. The other RCT compared three different treatment programs offered in three distinct settings, including *General Outpatient*, *Specialized Outpatient* and *Inpatient*.

Meanwhile, the two medication studies assessed olanzapine and risperidone. Both these medications are antipsychotics that have well-known side effects in young people, including increases in blood lipids, blood glucose and blood pressure.[34] (Notably, Health Canada has also not approved either medication for treating anorexia.)[35] Please see Table 2 for more information on these six RCTs evaluating anorexia interventions.

Keeping research real

To improve the mental health of young people with eating disorders — or any other mental health concern — practitioners and policy-makers need evidence about which interventions are effective. Still, some argue that many randomized controlled trials (RCTs) do not reflect conditions in typical clinical practice.[33] Yet as the research grows, so does the number of RCTs evaluating treatments in "real world" settings. In fact, two RCTs included in our review purposefully focused on interventions that were already being delivered to young people. In the RCT evaluating *General Outpatient, Specialized Outpatient* and *Inpatient* interventions, both *General Outpatient* and *Inpatient* were pre-existing services accessible to youth throughout the United Kingdom.[24] Similarly, in the RCT evaluating *Day Treatment* and *Inpatient* interventions, German youth had been regularly accessing these services prior to the evaluation.[23] Clearly, it is preferable to evaluate programs *before* implementing them. However, evaluating interventions after the fact still provides crucial information to practitioners and policy-makers — on whether interventions should be continued or modified.

Table 2: Anorexia Study Characteristics

Program Country	Intervention Components	Ages Gender
Ego-Oriented Therapy vs. ***Family-Based Treatment*** [5] United States	• *Ego-Oriented Therapy:* Youth encouraged to stop dieting + gain weight by setting weight goals, supported to exert autonomy in eating + in relationships, + taught to identify emotions + tolerate moods for 32 sessions over 1 year; parents encouraged to support youth + provided with progress updates for up to 8 sessions • *Family-Based Treatment:* Family supported to determine how to best restore youth's weight + helped to develop healthy relationships using a behavioural focus; parents assisted to support youth's control over eating + weight for 24 sessions over 1 year	12–18 years 110 girls + 11 boys
Conjoint Family Therapy vs. ***Separated Family Therapy*** [22] United Kingdom	• *Conjoint Family Therapy:* Family encouraged to view parents as resource for helping youth, supported to recognize family strengths + traditions, + provided information on effects of starvation; parents supported to take control of feeding while youth encouraged to assert control in life for 16 sessions (on average) over 1 year • *Separated Family Therapy:* Parents supported in taking firm stance on eating without blaming youth; youth discussed anorexia becoming focus of family relationships + feelings about self, friendships + ambitions for 16 sessions (on average) over 1 year	11–18 years 39 girls + 1 boy
Day Treatment vs. ***Inpatient*** [23] Germany	• *Day Treatment:* Youth received behavioural program focused on weight restoration, including nutritional counselling, cognitive-behavioural therapy (CBT), group therapy + family therapy for 14 weeks (on average) • *Inpatient:* As above but youth stayed overnight in hospital for 15 weeks (on average)	11–18 years 172 girls only
General Outpatient vs. ***Specialized Outpatient*** vs. ***Inpatient*** [24] United Kingdom	• *General Outpatient:* Youth received family-based approach with variable dietetic services, individual supportive therapy + medical consultations for 6 months • *Specialized Outpatient:* Youth received motivational interview, CBT + dietary therapy; family received counselling with youth for 6 months • *Inpatient:* Youth received psychiatric consultations + individual support or cognitive therapy + family therapy for 3½ months (on average)	12–18 years 153 girls + 14 boys
Olanzapine vs. placebo [28] United States	• *Olanzapine:* Youth received olanzapine (maximum dose: 10 mg/day) for 10 weeks + usual care consisting of medical care, nutritional support, individual, group, family + multifamily group therapy as either inpatient, day patient or outpatient • Placebo: + usual care (as described above)	12–21 years 20 girls only
Risperidone vs. placebo [29] United States	• *Risperidone:* Youth received risperidone (maximum dose: 4 mg/day) for 9 weeks (on average) + usual care consisting of medical care, nutritional support, individual, family + group therapy as inpatient or day patient • Placebo: + usual care (as described above)	12–21 years 40 girls only

Interventions for bulimia and binge-eating disorder

We also accepted one RCT focused on bulimia and one focused on binge-eating disorder. For bulimia, *Cognitive-Behavioural Therapy (CBT)* was compared to *Family Therapy*. For binge-eating disorder, *CBT* was compared with usual services provided by a health maintenance organization (HMO) in the United States. (Privately insured HMOs are quite common in the US system and provide health care services based on specified guidelines and restrictions.) Young people assigned to the usual services condition and *CBT* were able to access any services offered by the HMO.[32] While nearly all participants accessed some health care services, only 8% used services specific to eating disorders.[32]

The *CBT* interventions for bulimia and binge-eating disorder used similar techniques. These included teaching self-monitoring and problem-solving skills

to address binge eating. The *CBT* interventions also included unique components geared to each specific disorder. For example, for those with bulimia, *CBT* provided education about how bulimic symptoms are maintained. For those with binge-eating disorder, *CBT* taught healthy weight management skills.

In contrast, the *Family Therapy* used in treating bulimia emphasized the role of the family in promoting restoration of normal eating. Please see Table 3 for more information on these RCTs evaluating bulimia and binge-eating disorder interventions.

Table 3: Bulimia and Binge-Eating Disorder Study Characteristics

Program Country	Bulimia Intervention Components	Ages Gender
Cognitive-Behavioural Therapy (CBT) vs. ***Family Therapy*** [30] United Kingdom	• *CBT:* Youth provided with information about bulimia, taught to monitor thoughts, feelings + behaviours, + encouraged to problem-solve using behavioural experiments for 13 sessions (+ 2 optional sessions with a "close other"*) over 6 months • *Family Therapy:* Families* provided with information about bulimia + encouraged to discuss issues of autonomy + independence using problem-oriented approach; parents supported to promote normal eating; youth encouraged to take control over eating for 13 family sessions + 2 individual sessions over 6 months	13–20 years 83 girls + 2 boys
Binge-Eating Disorder Intervention Components		
CBT vs. **Usual care** [32] United States	• *CBT:* Youth encouraged to eat moderately + avoid rigid dieting, taught self-monitoring, behavioural experiments + emotional regulation skills for 8 sessions + 4 optional sessions over 3 months + "usual care" (see below); parents provided with information about treatment, meal planning + supporting youth for up to 4 sessions • Usual care: Youth could access any treatment services offered through their health maintenance organization, including some limited eating + weight-related services	12–18 years 26 girls only

* Youth identified who would participate with them. Choices included parent or parents, other relative(s) or boyfriend/girlfriend.

Defining treatment success

For all studies, we report outcomes where young people receiving the interventions made gains that were statistically significant relative to the comparison group. Because the comparison group was another intervention for all psychosocial treatments, this meant that one form of treatment had to show superiority to the other. In contrast, the medications only had to show superiority to a placebo. We also focused on reporting outcomes from the final assessment for each study, which ranged from post-test (for olanzapine and risperidone) to five years (for *Conjoint Family Therapy* and *Separated Family Therapy*).

Which psychosocial interventions are best for anorexia?

Among the four RCTs that focused on psychosocial interventions for anorexia, there was one particularly notable outcome. Adolescents participating in *Family-Based Treatment* achieved full remission from anorexia significantly more often

than those participating in *Ego-Oriented Therapy* — at both six-month and one-year follow-up.[5] Besides this primary outcome for *Family-Based Treatment* being statistically significant, the effect size was moderate. (Effect size measures the degree to which a treatment made a clinically meaningful difference, with moderate effect sizes indicating considerable gains.)[5] As well, significantly fewer adolescents receiving *Family-Based Treatment* were hospitalized during the year of treatment compared with *Ego-Oriented Therapy* (15% versus 37%, respectively).[5]

In the RCT comparing *Separated Family Therapy* and *Conjoint Family Therapy* for anorexia, only one secondary outcome differed between treatments. Female adolescents who participated in *Separated Family Therapy* (where they received treatment apart from their parents) had improved menstrual functioning compared with those who received *Conjoint Family Therapy* at five-year follow-up.[21]

In the RCT comparing the same treatment program delivered in different settings, *Day Treatment* showed two benefits over *Inpatient*. *Day Treatment* led to girls having a better mental state as well as better sexual well-being at eight-month follow-up.[23]

In the RCT comparing *General Outpatient*, *Specialized Outpatient* and *Inpatient* services, the authors did not report whether there were any significant differences in outcomes between the three approaches at final follow-up. (They did, however, acknowledge that there were no significant differences between the three treatments at the six-month and 1½-year follow-up.)[24, 27] Rather, for the final follow-up assessment at 4½ years, the authors reported one significant finding when outcomes for youth receiving *Specialized Outpatient* and *Inpatient* were combined into a single group of "specialized services" recipients. Youth who received "specialized services" had a significantly higher body mass index than youth receiving *General Outpatient* at final follow-up.[27]

Can medications help with anorexia?

Both RCTs found that antipsychotic medications had no impact on adolescent girls' anorexia symptoms. Not only did olanzapine fail to produce any benefits, it also led to serious side effects, including elevated blood glucose and insulin levels.[28]

Risperidone similarly failed to reduce anorexia symptoms, but it did lead to girls reporting less distrust of others compared to those receiving placebo controls.[29] (The authors included a measure of interpersonal distrust based on older research suggesting that this was an important construct in the development and maintenance of anorexia.)[36] The effect size for this particular outcome was moderate. But risperidone also produced side effects, including elevated prolactin levels, fatigue and dizziness.[29] (Prolactin plays a role in breast development and if

Family therapies delivered in community settings should be considered the first line intervention for youth with anorexia.

Is there any evidence for using fluoxetine?

The antidepressant fluoxetine is commonly prescribed to young people with eating disorders. In fact, one recent study in the United Kingdom found that over a single year, physicians prescribed fluoxetine to 17% of children and youth receiving specialized eating disorder services.[37] Given this frequent use, we conducted a specific search for randomized controlled trials (RCTs) focused on fluoxetine for treating children and youth with eating disorders. However, we were not able to identify any RCTs. In addition, Health Canada has not approved fluoxetine for treating eating disorders in young people.[35] Based on this review, practitioners should focus instead on interventions that *are* effective: *Family Therapy* for anorexia and bulimia, and *Cognitive-Behavioural Therapy* for bulimia and binge-eating disorder.

elevated, may cause symptoms such as disruptions in the menstrual cycle.) Table 4 provides further details on outcomes for all the anorexia RCTs.

Table 4: Program Outcomes at Final Follow-up

Psychosocial treatment	Significant improvements over other interventions	No significant difference between interventions	Assessed at
Ego-Oriented Therapy[5]	None	Anorexia symptoms Body mass index (BMI)	1 year
Family-Based Treatment[5]	Greater % of youth achieving full remission		
Conjoint Family Therapy[21]	None	"Good outcome" [i] Anorexia symptoms Average body weight or BMI Mental state Social relationships Sexual well-being	5 years
Separated Family Therapy[21]	Improved menstrual functioning		
Day Treatment[23]	Improved mental state Improved sexual well-being	"Good outcome" [i] Anorexia symptoms BMI Menstrual functioning # of hospital readmissions Social relationships	8 months
Inpatient[23]	None		
Outpatient services [ii 24, 27]	None (compared with *Inpatient* only)	"Good outcome" [i] Severity of anorexia Anorexia symptoms Menstrual functioning Mental state Depression symptoms Social relationships Sexual well-being Family functioning	4 1/2 years
Specialized services [iii 24, 27]	Increased BMI (compared with *General Outpatient* only)		
Medication	**Significant improvements over placebo**	**No significant difference over placebo**	**Assessed at**
Olanzapine[28]	None	% of mean body weight or BMI Anorexia symptoms Mental disorder symptoms	Post-test
Risperidone[29]	Increased trust of others	% of ideal body weight or BMI Anorexia symptoms Anxiety symptoms	Post-test

i Please see Table 5 (Criteria for success) for a definition of "good outcome."
ii Outpatient services included either *General Outpatient* or *Specialized Outpatient* treatment groups.
iii Specialized services included either *Specialized Outpatient* or *Inpatient* treatment groups.

Comparing remission rates for anorexia

All the RCTs on psychosocial interventions for anorexia directly compared different approaches without using a control group. This means that determining success or failure cannot be based solely on whether one intervention outperformed the other — because two highly effective treatments could both produce improvements. For this reason, we also report on the percentage of youth who achieved a successful outcome from anorexia for every study at every assessment point. Although researchers used varying criteria for defining this key

outcome, they all included body weight and at least one other measure (such as resuming menstruation), as shown in Table 5.

Table 5: Percentage of Youth with Anorexia Achieving Successful Outcomes

Psychosocial treatment	Criteria for success	Post-test (%)	6 mos (%)	1 yr (%)	1½ yrs (%)	4½ yrs (%)	5 yrs (%)
Ego-Oriented Therapy [5]	≥ 95% of ideal body weight + within normal range on eating disorder measure	23	18	23	—	—	—
Family-Based Treatment [5]		42	40[i]	49[i]	—	—	—
Conjoint Family Therapy [21–22]	Within 15% of expected body weight, menstruating + no bulimia symptoms	26	—	—	—	—	72
Separated Family Therapy [21–22]		48	—	—	—	—	80
Day Treatment [23]	Body mass index ≥ 10th percentile + menstruating	—	31[ii]	—	—	—	—
Inpatient [23]		—	25[ii]	—	—	—	—
General Outpatient [24, 27]	≥ 85% of expected body weight, menstruating + bingeing/purging < monthly	—	18	—	36	61	—
Specialized Outpatient [24, 27]		—	15	—	24	57	—
Inpatient [24, 27]		—	21	—	33	67	—

— Study did not assess at that specific time point.
i Significantly more youth receiving *Family-Based Treatment* achieved a successful outcome than youth receiving *Ego-Oriented Therapy*.
ii Assessed at 8 months.

Notably, in most studies the percentage of youth attaining successful outcomes increased over time. For example, the one RCT with a five-year follow-up found that 72% of adolescents in *Conjoint Family Therapy* and 80% in *Separated Family Therapy* had successful outcomes at this final evaluation point.[21] While gains were also noted at post-test, the long-term gains were much stronger — with 72% to 80% essentially achieving remission. These figures suggest that some intervention benefits may show up later on, and that studies may need to follow young people over long time periods to truly understand the full extent of program effects.

The goal should always be to intervene as early as possible to prevent problems from escalating to the point of a young person needing hospitalization.

Which psychosocial interventions work best for bulimia?

For bulimia, the only RCT that met our criteria compared *CBT* and *Family Therapy* without using a control group. This study found that significantly more youth receiving *CBT* abstained from bingeing at the end of treatment compared with those receiving *Family Therapy*.[30] However, there were no significant differences between the two interventions by final (six-month) follow-up.[30] Table 6 gives more details.

Which psychosocial interventions work best for binge-eating disorder?

For binge-eating disorder, the only RCT that met our criteria also focused on *CBT* — showing that it had lasting benefits over the usual care offered by a health maintenance organization, which included some eating and weight-related

Table 6: Bulimia and Binge-Eating Disorder Intervention Outcomes at Final Follow-up

Psychosocial treatment	Significant improvements over other interventions	No significant difference between interventions	Assessed at
Bulimia			
Cognitive-Behavioural Therapy (CBT) [30]	None	Bingeing or vomiting Strict dieting or fasting Inappropriate weight or shape concerns Food-related fear, disgust or preoccupation Body mass index (BMI)	6 months
Family Therapy [30]	None		
Binge-Eating Disorder			
CBT [32]	Greater % of youth abstaining from binge-eating episodes Reduced eating concerns Reduced body shape concerns Reduced weight concerns	Number of binge-eating episodes % purging Dietary restraint BMI Depression or anxiety symptoms Substance abuse Social adjustment	3 months
Usual care [32]	None		

services.[32] Significantly more girls who received *CBT* stopped binge eating at three-month follow-up, with a very large effect size.[32] They also had significantly fewer eating, body shape and weight concerns at three-month follow-up. The effects of treatment on these latter three outcomes ranged from moderate (weight concerns) to large (eating concerns and body shape concerns).[32] Table 6 gives more details.

Comparing remission rates for bulimia and binge-eating disorder

Both RCTs also provided information about the percentage of adolescents who reached a successful outcome in each treatment group (as shown in Table 7). In both RCTs, researchers included abstaining from bingeing — which is a core symptom of both disorders — in their definition of success. For those with bulimia, abstaining from purging was also required.

In the RCT comparing *CBT* and *Family Therapy* for youth with bulimia, success rates for were 36% and 41%, respectively, at six-month follow-up.[30] In the RCT comparing *CBT* and usual care for youth with binge-eating disorder, success rates were even more impressive. In fact, by three-month follow-up, every girl who received *CBT* had stopped binge eating, compared to only 50% of those who received usual care. Again, this difference was statistically and clinically significant, as evidenced by the very large effect size on this outcome.[32]

By six-month follow-up, 36% of those receiving CBT *and 41% of those receiving* Family Therapy *achieved remission from bulimia.*

Table 7: Percentage of Youth with Bulimia and Binge-Eating Disorder Achieving Successful Outcomes

Psychosocial treatment	Criteria for success	Post-test (%)	3 mos (%)	6 mos (%)
Bulimia				
Cognitive-Behavioural Therapy (CBT) [30]	Abstaining from bingeing + purging	19	—	36
Family Therapy [30]		13	—	41
Binge-Eating Disorder				
CBT [32]	Abstaining from binge-eating episodes	92[i]	100[i]	—
Usual care [32]		30	50	—

— Study did not assess at that specific time point.
i Significantly more youth receiving *CBT* achieved a successful outcome than youth receiving usual care.

At what cost?

Cost-effectiveness was also assessed in three RCTs — two on anorexia and one on bulimia. In the study comparing *General Outpatient*, *Specialized Outpatient* and *Inpatient* services for youth with anorexia, the authors concluded that *Specialized Outpatient* was the most cost-effective approach.[27] They also noted that the cost differences between the three treatments were largely due to differences in hospital use.[26] While hospitalization was not a regular part of treatment for youth assigned to receive outpatient treatments, some required it for medical stabilization. Still, youth receiving *Specialized Outpatient* spent the least amount of time in the hospital (55 days) compared to the other two groups (73 days for *Inpatient* and 89 days for *General Outpatient)* by the l½-year follow-up period.[26]

In the study comparing *Day Treatment* to *Inpatient* care for girls with anorexia, *Day Treatment* was found to be more cost-effective. In fact, *Day Treatment* costs were about 34% lower than *Inpatient* costs.[23]

In the study assessing interventions for bulimia, *CBT* was found to cost less initially than *Family Therapy*. However, by six-month follow-up, while total costs for *CBT* were still lower, the differences were no longer statistically significant.[30] These results show that effective treatments can potentially be quite cost-effective.

CBT proved to be a highly effective intervention for adolescent girls with binge-eating disorder.

Implications for practice and policy

This systematic review brings together findings from eight RCTs: six on interventions for anorexia and one each on interventions for bulimia and binge-eating disorder. These RCTs point to a number of interventions that can improve outcomes for young people.

For young people with anorexia, a number of different forms of family therapy have been shown to produce successful outcomes. *Conjoint* and *Separated Family Therapy* both produced particularly compelling results.[21] At five-year follow-up, 72% of those receiving *Conjoint Family Therapy* and 80% of those receiving *Separated Family Therapy* had achieved and sustained full remission — which the study authors defined as being within 15% of average body weight for their height, menstruating (for girls), and having no other eating disorder symptoms.[21] In contrast, no evidence supported using antipsychotics to treat the core symptoms of anorexia. Consequently, family therapies delivered in community settings should be considered the first line intervention for youth with anorexia.

When to consider hospitalization for anorexia

Some young people with anorexia may still require periods of hospitalization to manage physical complications.[24] While such care can save lives, alone, it rarely results in long-term remission.[23–24] Hospitalization can also disrupt adolescents' school, family and peer connections, and is also very costly.[23, 27] Consequently, hospitalization should be reserved for medical stabilization, particularly given the effectiveness of family therapy in the community.[24] And the goal should always be to intervene as early as possible to prevent problems from escalating to the point of a young person needing hospitalization.

CBT and *Family Therapy* for bulimia

By six-month follow-up, 36% of those receiving *CBT* and 41% of those receiving *Family Therapy* achieved remission from bulimia. Although the outcomes between these two interventions were not statistically significant at final follow-up, study authors still concluded that *CBT* had a slight advantage over *Family Therapy* because *CBT* resulted in fewer youth engaging in binge-eating episodes, and because it was more cost-effective by end of treatment.

The study authors suggested that *CBT* may also be a better fit for some youth. Strikingly, 28% of eligible adolescents declined to participate in the study because they did not want their families involved in treatment, and 25% of the "close others" that youth did involve were not their parents.[30] Consequently, while both *CBT* and *Family Therapy* showed good results, *CBT* may have more clinical utility for certain youth. In the case of bulimia at least, youth who do not wish to involve their families can have a choice.

Hospital use among Canadian girls

A recent Canadian report uncovered important information about hospitalization rates for adolescent girls with eating disorders. First, the authors reviewed hospital use for treating eating disorders among all Canadians between 2006 and 2013 (excluding those from Quebec).[38] Analyzing the data by age and gender, they found a notable pattern. While the overall rate of hospitalization for females with eating disorders remained stable, the rate for the youngest females (ages 10 to 19) increased by 42% over the past two years.[39] As well, in the final year of the study, 10- to-19-year-old girls accounted for 55% of the 1,585 hospitalizations for an eating disorder.[38] These findings suggest that more could be done in communities to help girls with eating disorders earlier, so fewer need to be hospitalized.

CBT for binge-eating disorder

CBT proved to be a highly effective intervention for adolescent girls with binge-eating disorder. At three-month follow-up, 100% of participants had stopped binge eating entirely. Consequently, *CBT* should be considered the first line treatment for youth with binge-eating disorder.

What is needed for children and youth in BC?

Our findings can inform meaningful next steps for BC practitioners and policy-makers. First, practitioners in BC — even those working outside of specialized eating disorder clinics — need to be prepared to work with young people with eating disorders and their families. This is because most young people who meet diagnostic criteria for an eating disorder will also meet criteria for another mental disorder.[6] Consequently, a young person who is referred for a different concern — such as anxiety, behaviour or depression problems — may also be experiencing an eating disorder. Conducting a thorough diagnostic interview and asking about experiences with eating and body image can help ensure that all potential concerns are identified and adequately addressed.

Second, while relatively few practitioners have specialized training in working with youth with eating disorders, many are nevertheless experienced in using the interventions that are effective for eating disorders — because they have used them to treat other mental health concerns. For example, many practitioners regularly use CBT and various forms of family therapy to treat children with anxiety, behaviour and depression problems. This suggests that many practitioners could readily learn to skillfully apply similar approaches in helping young people with eating disorders.

Finally, policy-makers can support practitioners in delivering effective treatments to children with eating disorders regardless of the setting they work in. This could include providing enriched training opportunities and ensuring specialized supervision. Policy-makers could also assist communities in raising awareness and launching effective prevention programs (see previous issue). By providing both effective prevention and treatment, we could meet the goal of reaching *all* children and youth at risk of having problems with body image and eating.

Conducting a thorough diagnostic interview and asking about experiences with eating and body image can help ensure that all potential concerns are identified and adequately addressed.

We conducted a comprehensive search to identify high-quality research evidence on the effectiveness of programs aimed at treating eating disorders in children. We used methods adapted from the *Cochrane Collaboration* and *Evidence-Based Mental Health* and applied the following search strategy:

Table 8: Search Strategy	
Sources	• CINAHL, ERIC, Medline and PsycINFO
Search Terms	• Anorexia, binge eating, bulimia or eating disorder *and* therapy or treatment
Limits	• Peer-reviewed articles published in English between 2004 and 2014 • Children aged 18 years or younger • Randomized controlled trial (RCT) methods used

Using this approach, we found 32 RCTs. Two team members then assessed each study, finding eight that met all our inclusion criteria, detailed in Table 9.

Table 9: Inclusion Criteria for RCTs
• Interventions aimed at treating eating disorders • Clear descriptions of participant characteristics, settings and interventions • Outcome indicators included symptoms of eating disorders • Outcomes were assessed using two or more sources (e.g., child, researcher) • Reliability and validity of all primary outcome measures documented • Levels of statistical significance reported for primary outcome measures
Psychosocial intervention studies
• Random assignment to intervention and comparison groups at study outset • Follow-up of three months or more (from the end of intervention) • Attrition rates below 20% at follow-up or use of intention-to-treat analysis • Study assessors were blinded to participants' group assignment
Medication studies
• Random assignment to intervention and placebo at study outset • Attrition rates below 20% at post-test or use of intention-to-treat analysis • Use of double-blinding procedures

For more information on our research methods, please contact

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BC government staff can access original articles from BC's Health and Human Services Library.

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